

# **CILUNGU PHONOLOGY**

Lee Bickmore

University at Albany, SUNY

[L.bickmore@albany.edu](mailto:L.bickmore@albany.edu)

## **TABLE OF CONTENTS**

### **CHAPTER 1: INTRODUCTION**

- 1.1 Speaker demographics and genetic affiliation of the language
- 1.2 Data sources
- 1.3 Motivation, goals and coverage of this study
- 1.4 Outline of chapters
- 1.5 Vowel and consonant inventories

### **CHAPTER 2: MORPHOLOGY**

- 2.1 Nominal Morphology
  - 2.1.1 Overview of noun class prefixes
  - 2.1.2 Locatives
  - 2.1.3 Diminutives
  - 2.1.4 Augmentatives
  - 2.1.5 Deverbal nouns
  - 2.1.6 Class agreement in nominal modifiers
- 2.2 Verbal Morphology
  - 2.2.1 Subject and Object Markers
  - 2.2.2 Extensions
    - 2.2.2.1 Applicative
    - 2.2.2.2 Reciprocal
    - 2.2.2.3 Stative
    - 2.2.2.4 Passive
    - 2.2.2.5 Short Causative
    - 2.2.2.6 Long Causative
    - 2.2.2.7 Intensive
    - 2.2.2.8 Transitive Reversive
    - 2.2.2.9 Other extensions
    - 2.2.2.10 Combining extensions

### **CHAPTER 3: PHONOLOGY OF SEGMENTS AND SYLLABLES**

- 3.1 Rules affecting V-length
  - 3.1.1 Vowel Deletion
  - 3.1.2 Gliding
  - 3.1.3 Nasal Demorification
  - 3.1.4 Word-final Shortening
  - 3.1.5 Trimoraic Pruning
  - 3.1.6 Pre-stem shortening

- 3.2 Phonemic status of glides
- 3.3 Segmental Rules
- 3.4 Mid Vowel Harmony
- 3.5 Consonant Mutation & the short causative
- 3.6 Long and Short Passives
- 3.7 Realization of 1 sg and 3 sg subject markers

## **CHAPTER 4: IMBRICATION**

- 4.1 Imbrication illustrated and defined
- 4.2 Requirements for Imbrication to be triggered
- 4.3 Secondary Imbrication
- 4.4 Imbrication and consonant mutation
- 4.5 Passive Perfectives
- 4.6 Extension Reduplication
- 4.7 Remaining Issues

## **CHAPTER 5: TENSE/ASPECT/MOOD SYSTEM AND ITS TONOLOGY**

- 5.1 TAMs with no melodic H
  - 5.1.1 Present Progressive
    - 5.1.1.1 Underlying tones and H tone spreading
    - 5.1.1.2 Stems with V-initial roots
    - 5.1.1.3 Influence on spreading from glides in a word-final syllable
    - 5.1.1.4 CV Roots
    - 5.1.1.5 The 1sg Subject Marker
    - 5.1.1.6 The 3 sg. Subject Marker
    - 5.1.1.7 Subject Markers in classes 3-18
    - 5.1.1.8 Negative Present Progressive
    - 5.1.1.9 Present Progressive Relatives
  - 5.1.2 Past Inceptive
  - 5.1.3 Contrastive Habitual
  - 5.1.4 Future Continuative
  - 5.1.5 Future Progressive
  - 5.1.6 Hortative
  - 5.1.7 Persistent Potential
  - 5.1.8 Immediate Future
  - 5.1.9 Habitual
  - 5.1.10 Persistent
- 5.2 TAMs with Melodic H: Realization on the FV
  - 5.2.1 Potential
  - 5.2.2 Yesterday Past
  - 5.2.3 Yesterday Past Progressive
  - 5.2.4 Recent Past
  - 5.2.5 Recent Past Progressive
  - 5.2.6 Recent Perfect

- 5.2.7 Recent Perfect 2
- 5.3 TAMs with Melodic H: Realization on V2- FV
  - 5.3.1 Far Past
  - 5.3.2 Far Past ci-
  - 5.3.3 Far Past Progressive
  - 5.3.4 Remote Future
  - 5.3.5 Remote Perfect
  - 5.3.6 Negative of Persistent and Contrastive Habitual
  - 5.3.7 Perfect
  - 5.3.8 Narrative Past
  - 5.3.9 Subjunctive
  - 5.3.10 Imperative
- 5.4 Summary and Analysis of MH Docking and Spreading
- 5.5 Tonology and reduplication

## **CHAPTER 6: TONOLOGY OF VERBAL INFINITIVES**

- 6.1 Affirmative Infinitive
  - 6.1.1 General Description and comparison with 2 sg. Present Progressive forms
  - 6.1.2 Motivating a nominal Melodic High tone
  - 6.1.3 Reduplicated & andative infinitival forms
- 6.2 Negative Infinitive

## **CHAPTER 7: TONOLOGY OF NOUNS**

- 7.1 Nominal & Adjectival morphology
- 7.2 The tonology of phrase-initial nouns
  - 7.2.1 Nouns with toneless stems
  - 7.2.2 Nouns with a stem-final H
  - 7.2.3 Nouns with a stem-initial H
  - 7.2.4 Nouns with a stem-medial H
  - 7.2.5 Nouns with two stem H's
  - 7.2.6 Totally toneless nouns
  - 7.2.7 Proper nouns and summary of underived nominal stems
- 7.3 Deverbal nouns
- 7.4 Locatives
- 7.5 Diminutives
- 7.6 Augmentatives
- 7.7 Copulatives
- 7.8 Tonal Properties of the Preprefix
  - 7.8.1 Optionality of the preprefix in isolation forms
  - 7.8.2 The preprefix of nouns in non-phrase-initial position

## **CHAPTER 8: COMPOUND TAMs**

- 8.1 Compounds where the second element is the verbal infinitive



- 8.1.1 Continuative
- 8.1.2 Obligative 1
- 8.1.3 Obligative 2
- 8.1.4 Past Obligative 1 (Yesterday Past)
- 8.1.5 Past Obligative 1 (Far Past)
- 8.1.6 Past Obligative 2
- 8.2 Compounds where the final element is the subjunctive
  - 8.2.1 'must just' TAM
  - 8.2.2 Obligative 3
  - 8.2.3 Near Future
- 8.3 Compounds where the final element is the Recent Perfect
  - 8.3.1 Past of earlier today
  - 8.3.2 Post Recent Completive
  - 8.3.3 Post Remote Completive
  - 8.3.4 Post Recent Progressive Completive
  - 8.3.5 Compound Completive
  - 8.3.6 Conditional Persistent
  - 8.3.7 Post Remote Progressive Completive
- 8.4 Compounds where the final element is the Remote Perfect
  - 8.4.1 Future Anterior 1
  - 8.4.2 Compound Remote Perfect
- 8.5 Compounds where the final element is the Present Progressive
  - 8.5.1 Future Persistent
  - 8.5.2 Immediate Past Progressive
  - 8.5.3 Persistent 2
  - 8.5.4 Past Persistent 1
  - 8.5.5 Past Persistent 2
  - 8.5.6 Conditional Persistent
- 8.6 Compounds where the final element is the Narrative Past
  - 8.6.1 Immediate Perfect
  - 8.6.2 Remote Completive
  - 8.6.3 Compound Perfect
  - 8.6.4 Compound Remote Perfect
  - 8.6.5 Future Anterior 2
- 8.7 Compounds where the final element is the Past Inceptive
  - 8.7.1 Imminent Future
  - 8.7.2 Conditional
- 8.8 Compounds where the final element is the Hortative
  - 8.8.1 Near Future Progressive
- 8.9 Compounds where the final element is the Remote Perfective
  - 8.9.1 Past Anterior

## **CHAPTER 9: PHRASAL TONOLOGY**

- 9.1 The Prosodic Hierarchy
- 9.2 Evidence for Phonological Phrases: Bounded vs. Unbounded Spreading

- 9.3 Evidence for Intonational Phrases: Unbounded Spread to the penult
- 9.4 Inter-word H tone spreading
- 9.5 Fusion across words
- 9.6 Evidence for the Clitic Group
- 9.7 Word-final Shortening: interaction with fusion and spread
- 9.8 Associative Phrases
- 9.9 Non-tonal rules across words

## CHAPTER 10: SUMMARY OF PROSODIC & TONAL PROCESSES

- 10.1 Tone bearing units
  - 10.1.1 Syllable vs. mora
  - 10.1.2 Status of pre-C nasal as tone bearing unit
  - 10.1.3 Glides, including short causative & passive
- 10.2 Summary of relevant morphological domains
  - 10.2.1 Stem
  - 10.2.2 Macrostem
  - 10.2.3 Word
- 10.3 Summary of most productive tonal processes
  - 10.3.1 Unbounded spreading
  - 10.3.2 Bounded spreading
  - 10.3.3 Fusion
- 10.4 Review of tonal contrasts; paradigmatically & syntagmatically
  - 10.4.1 Basic contrasts & neutralizations
  - 10.4.2 Ć́́Ć́!Ć vs. Ć́́C̀̀Ć
  - 10.4.3 Ć́̀Ć vs. Ć́!́́Ć
  - 10.4.4 Distribution of rising tones
  - 10.4.5 Interaction of binary spread and trimoraic pruning
  - 10.4.6 Realization of onsetless V after a like V
- 10.5 Downstep Shift and High Delinking
  - 10.5.1 Downstep shift in CVVNCV sequences
  - 10.5.2 Downstep shift in verbs with V-initial roots
  - 10.5.3 Resolution of word-final Ć́́!Ć
  - 10.5.4 Apparent surface exceptions to Ć́́!Ć
  - 10.5.5 Word-final H Deletion (short penult)
- 10.6 Additional tonological points on bimoraic syllables
  - 10.6.1 V-initial H Deletion
  - 10.6.2 Tautomorphemic CVV Spread
  - 10.6.3 Tonal evidence that /ai/ sequences are heterosyllabic (and not diphthongs)
- 10.7 Tonology of SMs
  - 10.7.1 General tonology of SMs according to TAM
  - 10.7.2 Tonal properties of the Class 1 3 sg, the Class 4 and Class 9 SMs
  - 10.7.3 H insertion/docking when 3 sg SM immediately precedes V-initial root
- 10.8 Summary of rule ordering

## List of Abbreviations

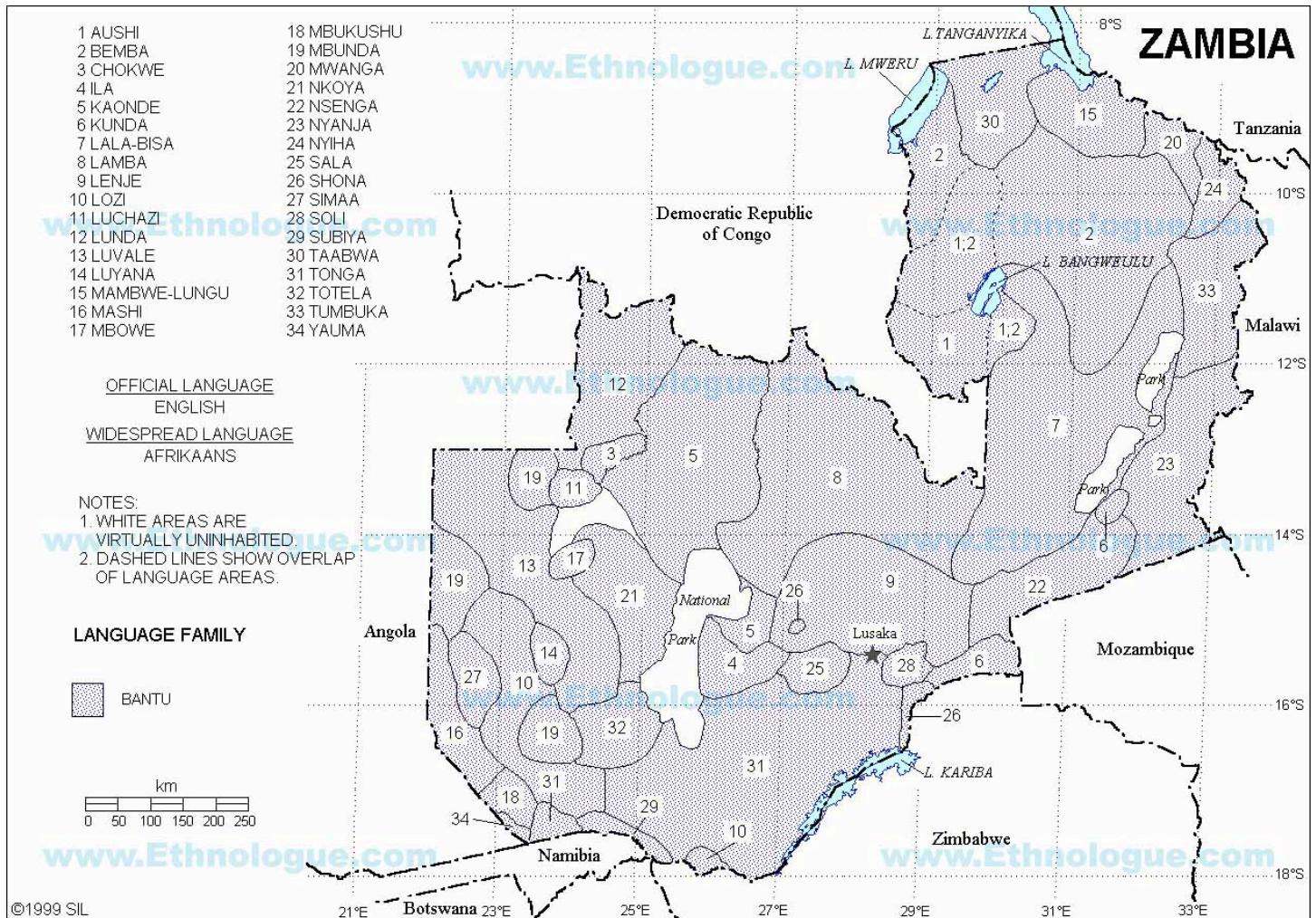
[CL	clitic boundary
[I	intonational phrase boundary
[P	phonological phrase boundary
[w	word boundary
Ap	Applicative
Bor	Borrowing
C#	class-number
CL	compensatory lengthening
CM	Consonant Mutation
del	deletion
demor	demorification
ds	downstep
e.o.	each other
F	Future
FP	Far Past
FV	Final Vowel
H	High tone
Hab	Habitual
intr	intransitive
L	Low tone
MH	Melodic High
ms	macrostem
NEG	Negative prefix
NP	Noun Phrase
OM	Object Marker
Palat	Palatalization
phr	phrase
pl	plural
Pot	Potential
PP	preprefix
Pr	Progressive
PR	Phonetic Representation
Prf	Perfective suffix
Pst	Past
Pv	Passive
Rec	Reciprocal
rep	repeatedly
s	stem
sg	singular
SM	Subject Marker
spr	spreading
TAM	Tense/Aspect/Mood
tr	transitive
unb	unbounded

UR	Underlying Representation
YP	Yesterday Past

## CHAPTER 1: INTRODUCTION

### 1.1 Speaker demographics and genetic affiliation of the language

Cilungu is a Bantu language of the Niger-Kordofanian family spoken in the northeastern portion of the Northern province, south of Lake Tanganyika, in Zambia, and on the southeast shore of Lake Rukwa in Tanzania. The approximate linguistic area where the language is spoken is shown in Figure 1 in area “15” in the Zambian linguistic map from [www.Ethnologue.com](http://www.Ethnologue.com). (This area also includes Mambwe on which more will be said below.)



According to Ethnologue there are 262,800 speakers of “Lungu/Mambwe” in Zambia and another 34,000 Cilungu speakers in Tanzania. In terms of its sub-grouping within the larger Bantu family, we note several proposals. The first is from Guthrie (1967-71) who grouped the Bantu languages into a number of zones. Cilungu is a member of the first subgroup of Zone “M”. All of Zone M is given below.

(1) Guthrie's (1967-71) Zone M (parenthesized items are suggested additions by Maho (2003))

M.10 Fipa-Mambwe Group: Pimbwe (11), Rungwa (12), Fipa (13), **Lungu** (14), Mambwe (15)

M.20 Nyika-Safwa Group: Wanda (21), Namwanga (22), Nyiha (23), Malela (24), Safwa (25), Iwa (26), Tambo (27), Lambya (201), Sukwa (202)

M.30 Konde Group: Nyakyusa (31), Ndali (301)

M.40 Bemba Group: Taabwa (41), Bemba (42), Bwile (401), Aushi/Usi (402)

M.50 Bisa-Lamba Group: Biisa (51), Lala (52), Swaka (53), Lamba (54), Seba (55), Ambo (521), Luano (522), Lima (541), Temba (542)

M.60 Lenje-Tonga Group: Lenje (61), Soli (62), Ila (63), Tonga (64), Lundwe (632), Twa (633)

In the Summer Institute of Linguistic's Ethnologue, the languages of Guthrie's Zone M are divided between two distinct sub-groups of Bantu. The languages in M.20-M.60 form one group. Subgroup M.10, of which Cilungu is a member, is combined with the languages of Guthrie's F.10-F.30. This is summarized below.

(2) SIL's Ethnologue

- **M.10**, F.10, F.20, F.30
- M.20-60

In the classification found in Nurse & Philippson (2001), Guthrie's Zone M languages get divided among two "Intermediate" groups, which contain non-Zone M languages as well. As seen below, Cilungu is found in the first of these two Intermediate Groups, which N&P refer to as "Corridor".

(3) Nurse & Philippson's (2001) groupings involving Zone M

- 1<sup>st</sup> Intermediate Group "Corridor"
  - Rungwa (M.12), Fipa (M.13), **Lungu** (M.14), Mambwe (M.15), Wanda (M.21), Namwanga (M.22), Iwa (M.26)
  - Nyiha (M.23), Malela (M.24), Safwa (M.25), Lambya (N.20)
  - M.30 (maybe)
- 2<sup>nd</sup> Intermediate Group
  - M.40 & M.50 & Senga (N.21d)
  - M.60 (maybe)
  - K.40 Subiya Group (maybe): Totela (K.41), Subiya (K.42)

## 1.2 Data Sources

While it is beyond the scope of this study to provide a detailed comparison between Cilungu and related languages, it is clear that Cilungu's closest relative is Mambwe. Kashoki and Mann (1978) state that the two languages have a shared cognate rate of 92%. All of my consultants indicate that the two languages are mutually intelligible and thus linguists might well classify them as dialects of a common language, rather than as two separate languages. Be that as it may, speakers of each language can clearly distinguish between the two as there are a number of phonological, morphological and lexical differences between them. In terms of existing literature on Mambwe, the two most accessible sources are a very extensive dictionary of Mambwe written by Andrzej Halemba (1994) and a small grammar published by the London Missionary Society (1962). Neither one, however is tone-marked.

With regard to Cilungu, the author of this work co-authored a paper (Bickmore & Doyle 1995) on an overview of the nominal tonology, and wrote papers on the phonetics of High tone lowering (Bickmore 2003a) as well as the use of feet in accounting for binary spreading (Bickmore 2003b). In addition, Ryohei Kagaya has published a dictionary (1987a) and four papers on Cilungu (1987b,c,d,e)—all thoroughly tone-marked. Let me first say that I am indebted to him as I have used his dictionary extensively in my own efforts to elicit Cilungu words of different types and shapes. It should be noted, however, that the Cilungu speaker he worked with is both younger and from a different area than my consultants. Whatever may be the reason, a number of aspects of his description of the verbal tonology (more so than the nominal tonology) differ from that of my speakers in systematic ways. According to my consultants there is in fact some variation within what is considered the Cilungu speaking area and therefore it is possible that we have simply described slightly different dialects. In any case, it should be noted that each and every form found in the present study was verified and pronounced by one of my consultants—even when my initial discovery of the word came from Kagaya's dictionary.

Let me say a few more words about the data elicited for this work. My work on Cilungu began in the spring of 1991 when we invited Mr. Alfred Sikazwe to be the consultant for our "Field Methods in Linguistic Anthropology" course at the University at Albany. I very quickly became enamored with the language—given its complex and interesting tonal alternations. I had the good fortune of being invited by Alfred to come and stay with him in Zambia to continue my study of Cilungu and undertake studies of related (Zone M) languages. I took him up on this offer on three separate occasions during the summers of 1991, 1996 and 2003 when, on each visit, I spent approximately 5 weeks at his home and had the opportunity to elicit data and make recordings. While I worked nearly exclusively with Alfred on these visits, I also elicited a more limited amount of data from his wife Mereby who grew up in Senga Hill (a mere few miles from the village of Moses where Alfred is from). I found no differences whatsoever in the tonological patterns of the data I elicited from them. During the summer of 2000 both Alfred and Mereby came to Albany where I worked with them on the language for several weeks.

Early in 2002 I learned that Alfred's brother, General Godwill Sikazwe, was living in Atlanta Georgia with his wife Dorothy Chomba. He graciously offered to act as a consultant and invited me to come to Atlanta. This I did on five separate occasions over the last two years. While in Atlanta I worked nearly exclusively with Godwill Sikazwe, though Dorothy was helpful in cross-checking some of the data. Additionally, I have worked with Godwill Sikazwe on the language through email, where he has sent me thousands of digital recordings which I have analyzed and incorporated into this work. While he and Alfred naturally have their own preferences in terms of word choice and usage, their phonologies (not surprisingly as they are brothers) are the same. For this reason, I have not felt it necessary to indicate in this work the source of each individual form. (In the one or two cases where there is any minor difference of opinion with respect to which pronunciations are preferred, such is noted.) In the few cases of forms elicited from Mereby Sikazwe, these were subsequently confirmed by either Alfred or Godwill. Therefore every form in the study was either originally elicited from or

confirmed by Alfred and Godwill. (With regard to their ages, Godwill Sizakwe was born in 1946, and Alfred in 1951.)

Let me finish this section with a kind of disclaimer on their behalf. While most of the Cilungu words and phrases elicited are semantically fairly natural, a few are not. As every phonologist knows, there are times when you need a very particular intersection of prosodic shape, morphology and tone in order to test a certain hypothesis. Thus, when a phrase occurs such as ‘to grind the blacksmith’ or ‘they caused each other to inspect’ the reader should understand that these are probably no more likely to regularly occur in the daily speech of Cilungu speakers than they are to occur in the speech of English speakers. Still, they are fully grammatical (just as was Chomsky’s famous *Colorless green ideas sleep furiously*) and as such are properly included in this work. To summarize, I was extremely careful at every point to recognize the difference between something not likely to be said because it is semantically odd and those things which are not said because they are not grammatical. I felt free to include the former, and did not include the latter (except in a few cases where they are clearly marked with an asterisk to note their ungrammaticality and are included as a contrast to the grammatical form).

### 1.3 Motivation, goals and coverage of this study

Why do a book on Cilungu phonology—with a focus on the tonology? Simply put, the tone is extremely complex and interesting. So much so that it truly warrants a book. After compiling data for over a decade and a half on this language I had to decide a few years back how I would present this to the wider linguistic community. While the publication of journal-length articles is the norm for doing this in our profession, it became increasingly clear to me that were I to do this, the price it would exact—in terms of not being able to connect a set of tonal facts in one area of the language to those found in another—was simply too high. It is for that reason that I have chosen to publish in the present work an overview of the entire phonological and tonology system of Cilungu. Of course, such a lofty goal is actually never possible to fully achieve. While I am confident, for instance, that I have not missed some ubiquitous and productive segmental process, it is always possible that there are small pieces of morph-syntactically restricted tonology tucked away in various corners of the language that have simply eluded me.

The original goal of this work was to provide a detailed account of Cilungu’s verbal tonology. I had in mind that I would go through one tense/aspect/mood at a time and account for any new tonological process not encountered to that point. While one large portion of this book does in fact review each and every tense/aspect/mood that I have uncovered (chapters 5 and 8), several things quickly became evident. First, as any Bantuist quickly discovers the morphology seems to drive everything else. Thus, a serious attempt has to be made to understand and describe the basic nominal and verbal morphology of the language, as this is a prerequisite to do anything else (chapter 2). While I have attempted to do this, I cannot claim this work to be an exhaustive adequate account of Cilungu morphology. Having said that, certain aspects of the morphology, especially those relating to finite verb forms, receive a very detailed treatment here. Neither can I claim that the semantics and pragmatics of the various tense/aspect/moods (TAMs) are thoroughly and comprehensively described. For each TAM I do endeavor to give the reader a brief description of how and when the TAM is typically used, but a detailed account of this was simply not undertaken in this work, where the focus is the phonology. In this regard, however, I owe a great debt to Derek Nurse who added Cilungu to a list of languages for which he is providing an account of the tense/aspect/mood system. His analysis and inquiries prompted me to delve deeper into this area than I otherwise would have and for this I am grateful.

Next on the list of things that I found I could simply not ignore as I attempted to detail the workings of the verbal tonology was the segmental phonology. While I hesitate to say that the description found herein is the final word on this subject, a serious effort was made to describe all the phonological alternations and changes that I encountered (chapter 3).



I note that while the focus of this study is certainly the tonology of verbs, I also do provide a general description and analysis of the tonology of nouns which, as will be seen, generally conform to the tonal processes first illustrated by verbs (chapter 7). I realize that there are other parts of speech (e.g. prepositions, demonstratives, possessives, conjunctions, adjectives, numerals, quantifiers, etc.) which are subject to the various tonal processes as well, but for reasons of space and time, I was not able to include a detailed examination of all of them in this study.

The final thing to be noted about the scope of this study is that it is primarily focused on the tonology at the level of the word. Having said that, it quickly becomes obvious to anyone undertaking a tonological study of a Bantu language, that to ignore domains larger than the word is to invite confusion and misanalysis. I have therefore included a presentation and analysis of larger phrasal contexts for all of the TAMs as well as the nouns which I discuss. And the reader will quickly see that in certain cases the presence of a preceding or following word can have a substantial impact on the segmental and tonal properties of the verb or noun in question. But, it would be disingenuous of me to claim that this work contains the definitive study of the phrasal tonology of Cilungu (chapter 9), as it surely does not. In order to make that claim one would need to look at phrases of every kind (i.e. not just verb phrases and noun phrases, but adjectival phrases, quantifier phrases, prepositional phrases, etc.) and such was simply beyond the scope of this study, though this is high on the list of my future projects.

To conclude this point, it goes without saying that there is still much to describe and analyze in the morphology and phonology of Cilungu and it is the author's hope that the present work will inspire both him and others to undertake future studies of this fascinating language.

It has amused many a tonologist to read grammars (some written long ago and some more recently) where it is claimed, sometimes in a footnote, perhaps with a single supporting example, that it seemed that while intonation and differences in vowel length might play a role in distinguishing a small number of forms, such would not be reflected in the transcription. What has happened, of course, is that the researcher was focusing on basic segmental aspects of the speech, but from time to time ran into some minimal tonal (or vowel-length) pair that couldn't be ignored. Not transcribing the tone might initially be due to not expecting any prosodic differences or hearing second-hand that they were not important. During the research for these works the author might have had trouble perceiving these distinctions or might lack confidence in reliably indicating them, or might hear them and be able to indicate them but doesn't do it because he or she feels that the functional load of tone is so small. I think in many instances, it's a case of not finding what you're not looking for.

Of course, no one would dare publish a grammar of Mandarin and not include the tones. When a lay person asks about why Mandarin is considered a tone language, the answer is that tones are crucial in determining the meaning of words. To give the reader some idea as to how important prosodic features (specifically—tone and vowel length) are in Cilungu, I ask the reader to consider the range of possible pronunciations of a word spelled by Cilungu speakers (i.e. without indications of vowel length or tone) as “wamufukile.” It turns out that this single spelled form, depending on the tones and length of the second /u/ vowel can mean one of the following. The phonetic transcription of each is given to the right.

(4) Possible meanings of *wamufukile*

'he/she harvested for him/her' (Yesterday Past)	wààmúfúkíilè
'he/she harvested for him/her' (Far Past)	wààmùfúkíílé
'he/she harvested for you (pl.)' (YP)	wààmúfúkíilè
'he/she harvested for you (pl.)' (FP)	wààmúfú'kíílé
'he/she turned up hem for him/her' (YP)	wààmúfúkíilè

'he/she turned up hem for him/her' (FP)	wààmùfúkíílé
'he/she turned up hem for you (pl.)' (YP)	wààmúfúkíìlè
'he/she turned up hem for you (pl.)' (FP)	wààmúfúkíílé
'he/she smoked for him/her' (YP)	wààmúfùùkíìlè
'he/she smoked for him/her' (FP)	wààmùfùùkíílé
'he/she smoked for you (pl.)' (YP)	wààmúfùùkíìlè
'he/she smoked for you (pl.)' (FP)	wààmúfùùkíílé
'he/she was humble for him/her' (YP)	wààmúfùùkíìlè
'he/she was humble for him/her' (FP)	wààmùfùùkíílé
'he/she was humble for you (pl.)' (YP)	wààmúfùùkíìlè
'he/she was humble for you (pl.)' (FP)	wààmúfùùkíílé
'you (sg.) harvested for him/her' (YP)	wáámúfúkíìlè
'you (sg.) harvested for him/her' (FP)	wáámúfúkíílé
'you (sg.) harvested for you (pl.)' (YP)	wáámúfúkíìlè
'you (sg.) harvested for you (pl.)' (FP)	wáàmúfú <sup>1</sup> kíílé
'you (sg.) turned up hem for him/her' (YP)	wáámú <sup>1</sup> fúkíìlè
'you (sg.) turned up hem for him/her' (FP)	wáàmùfúkíílé
'you (sg.) turned up hem for you (pl.)' (YP)	wáámúfúkíìlè
'you (sg.) turned up hem for you (pl.)' (FP)	wáàmúfúkíílé
'you (sg.) smoked for him/her' (YP)	wáámúfùùkíìlè
'you (sg.) smoked for him/her' (FP)	wáámúfùùkíílé
'you (sg.) smoked for you (pl.)' (YP)	wáámúfùùkíìlè
'you (sg.) smoked for you (pl.)' (FP)	wáàmúfùùkíílé
'you (sg.) were humble for him/her' (YP)	wáámú <sup>1</sup> fùùkíìlè
'you (sg.) were humble for him/her' (FP)	wáàmùfùùkíílé
'you (sg.) were humble for you (pl.)' (YP)	wáámúfùùkíìlè
'you (sg.) were humble for you (pl.)' (FP)	wáàmúfùùkíílé

As the reader can see this one spelled form has 32 possible meanings! And close inspection of the phonetic transcriptions indicates that it is neither the case that each is pronounced the same; neither is it the case that each is pronounced differently. (It turns out that there are 28 distinct patterns!) While each form, I would argue, has a distinct underlying representation, the tonal rules of the language manipulate those tones (i.e. add, delete or spread them) which can sometimes neutralize distinct underlying patterns into a single phonetic one. The job of this study, put quite simply, is to elucidate the tonal representations and processes responsible for the paradigms such as the one in (4).

The decision as to what formal framework should be used to account for the complex phonological patterns found in the language was not an easy one. While the traditional rule-based approach as well as an Optimality Theoretic account each have certain advantages and disadvantages relative to the other, ultimately I decided to employ the former rather than the latter in this work. This decision had less to do with my making a decision as to which is the “better” theory—either in general, or as it applies to Cilungu—and more to do with accessibility in terms of readership. I am certainly no stranger to undertaking and publishing tonal analyses in either the derivational or OT framework.<sup>1</sup> In fact, since I continue to do work using both theories I’m often asked which theory works “better” for the tonal facts that I’m trying to account for. The short answer is that this question has

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<sup>1</sup> In fact for the tonology of one language, Ekegusii, I have published both a derivational analysis (Bickmore 1997) as well as an OT analysis (Bickmore 1999).

no short answer. For certain tonal phenomena I've found OT to be more elucidating and for others not. Certainly, tonal phenomena have not received the same abundance of attention within the OT literature as other phenomena such as reduplication, infixation, or epenthesis. I've found, for instance, that there is actually no general agreement among OT tonologists as to which constraint is responsible for a garden-variety bounded or unbounded tone spreading rule. Of course, one could use this fact to encourage the publication of more OT analyses in this area so that the same type of progress could be made concerning the analysis of tone as has been made in other areas of phonology. Ultimately, while I am sympathetic to that position, I feel that given the current state of OT, especially as it regards tone, providing a detailed reference phonology such as this one within OT would be too unwieldy a project for me at this time. I plan to publish OT accounts of various Cilungu facts in journal articles and appropriate edited volumes. Finally, as mentioned above, I have to consider the audience most likely to be interested in this type of phonological grammar. As this audience is some combination of Africanists (many of which are not yet well versed in OT) as well as general phonologists, I've concluded that using the derivational framework still casts the widest net in terms of attracting a readership to a work such as this one.

## **1.4 Outline of Chapters**

Here, I very briefly outline the general contents of chapters 2-10. Chapter 2 provides an outline of Cilungu morphology which, as mentioned above, is the essential first-step in understanding the structure of any Bantu language. The nominal morphology is presented first and then the verbal morphology. With regard to the latter, one portion of the morphology, the tense/aspect/mood (TAM) prefixes, is not presented in chapter 2, but in a later chapter (5) devoted to the tonology of verbs.

Chapter 3 presents the non-tonal phonology. This includes all the segmental changes and alternations as well as prosodic issues such as vowel length and syllable structure. One especially complex phenomenon called "imbrication" which has both phonological and morphological conditioning warrants its own chapter (4).

Chapter 5 is in many ways the "centerpiece" of this work. In it, I present and analyze all the various one-word TAMs in the language. It is broken up into three subsections which have to do with whether an additional Melodic High tone is added to the stem, and if so, how it docks onto the tone bearing units.

Chapter 6 presents the structure and tonology of verbal infinitives. As will be seen the verbal infinitives (both affirmative and negative) exhibit certain tonological traits not seen in the finite forms. This chapter is a good segue to the next one (7) which presents the tonology of nouns, including diminutives, augmentatives, copulatives, and locatives.

Chapter 8 presents the morphology and tonology of compound verbs, i.e. verbs which are composed of more than a single phonological word.

Chapter 9 examines the prosodic domains of several of the most productive tonal processes and shows that their domains are often larger than a single word, i.e. some kind of prosodic phrase. Three such domains are motivated and defended: the clitic group, phonological phrase and intonational phrase.

Chapter 10 is the place where I attempt to summarize all the tonal and prosodic processes described in previous chapters, as well as introduce a few new phonological processes which didn't find a natural home anywhere else. It is here where I attempt to show how the various rules outlined in previous chapters relate to each other and conspire to avoid certain tonal configurations. At the end of this chapter a summary is given of the rule ordering.

## 1.5 Vowel and Consonant Inventories

Let us now turn to a description of the orthography which will be used throughout this book. We begin with the vowels. Cilungu has the five vowel system shown below in Table 1.

	Front	Back
High	i	u
Mid	e	o
Low		a

Table 1: Vowels

As will be illustrated in more detail below, vowel length is contrastive in Cilungu. This will be represented orthographically as a sequence of two vowels. Let us now turn to how tone will be marked. We will see that the tone bearing unit (TBU) in Cilungu is the mora rather than the syllable. Since only vowels can bear a tone phonetically, orthographically vowel characters and morae are essentially co-extensive. On short vowels, there is a two-way contrast, between High and Low. This will be marked by using the standard acute and grave accents respectively. Cilungu also has syllables which exhibit downstep. A downstepped vowel is a High-toned vowel which is pronounced somewhat lower than an immediately preceding H-toned vowel. The phonological structure and analysis of such morae will be presented below. Such vowels will be consistently marked with a raised exclamation point before them. (When a consonant or consonant sequence precedes the vowel, the exclamation point will be placed before the consonant(s).)

### (5) Tones on short vowels

- |                     |     |
|---------------------|-----|
| a. Low              | Cà  |
| b. High             | Cá  |
| c. Downstepped High | !Cá |

On long vowels, Cilungu makes a number of additional contrasts. While there are level Low tones, level High tones as well as downstepped level High tones, there is also a rising tone (from Low to High) as well as two types of falling tones—one which falls from High to Low and one which falls from High to downstepped High.

### (6) Tones on long vowels

- |  |       |
|--|-------|
| a. Level Low                             | Càà   |
| b. Level High                            | Cáá   |
| c. Rising                                | Càá   |
| d. Fall (H to L)                         | Cáà   |
| e. Fall (H to downstepped H)             | Cá!á  |
| f. Downstepped level High                | !Cáá  |
| g. Downstepped Fall (H to downstepped H) | !Cá!á |

Let us now turn to the consonants. Below is a table of the consonants used in this work to transcribe Cilungu.

	Bilabial	Labio-dental	Alveolar	Alveo-palatal	Velar
Stops	b p		d t		g k
Affricates				j c	
Fricatives		v f	z s	sh	
Nasals	m		n	ny	ng'
Liquids			l		
Glides				y	w

Table 2: Consonants

Most of these symbols have their standard phonetic values. The exceptions to this are as follows: <sh> = [š], <c> (and sometimes <ch>) = [č], <j> = [j], [ny] = [ñ], and <ng'> = [ŋ]. Several other quick notes should be made. While most of the sounds below have phonemic status in the sense of being underlyingly contrastive, it will be suggested below that all instances of the alveopalatal fricative <sh> and most (though not quite all) instances of the glides <w> and <y> are derived (from /s/, /u/, and /i/ respectively).

I wish to note here that my transcription of Cilungu words parallels the spelling conventions used by Cilungu speakers as far as the quality of the consonants and vowels is concerned. I even adopt the Cilungu spelling convention whereby [č] is written as <ch> in proper nouns (e.g. *Chòòlà*) and <c> elsewhere (e.g. *cùùlá* 'frog', *í-cíí-ntù* 'thing'). Of course, where my transcription differs markedly from the popular Cilungu orthography is in the area of prosody. With few exceptions, the Cilungu orthography does not indicate vowel length; and tone, of course, is never marked. In spite of this I hope that Cilungu speakers will find the present work a useful documentation of many grammatical aspects of their language even if the words as they appear here are not exactly as they would write them.

## CHAPTER 2: MORPHOLOGY

Let us begin by outlining the basic morphology of Cilungu. We will see throughout this work that many processes—both segmental as well as prosodic—are conditioned, at least in part, by the morphology. Thus, for Cilungu, as well as many other Bantu languages, a basic understanding of the morphology is an essential prerequisite for understanding the finer points of the phonology in general, and the tonology in particular.

### 2.1 Nominal morphology

#### 2.1.1 Overview of noun class prefixes

As is the case in other Bantu languages, nouns are divided up into classes, which generally consist of a singular/plural pair. The most common pairings, where the first number indicates the singular and the latter the plural, are: 1/2, 1a/2a, 3/4, 5/6, 5a/6, 7/8, 9/10, 11/10, and 12/13. Nouns in class 14 are often abstract nouns with no plural, but when they can take a plural it is generally class 6.<sup>1</sup> Class 12/13 is used for diminutives (cf. §7.5), and class 7/8 is used for augmentatives (cf. §7.6). As both of these types of nouns exhibit interesting tonal properties, they are presented and analyzed in Chapter 7 (in §7.5 and §7.6 respectively) where the nominal tonology is treated. Class 15 is used for verbal infinitives which can be used morpho-syntactically as nouns. Classes 16-18 are locatives. The morphological structure of a noun is given in (1). The segmental structure of the nominal preprefixes and class prefixes are given in Table I. Adjectival prefixes are also given and will be briefly addressed below.

#### (1) Morphological Structure of Nouns

Preprefix – Class Prefix – Stem

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<sup>1</sup> While such is not the focus of this paper, it should be mentioned that, as is the case with most Bantu languages, there are a number of nouns whose singular/plural pairing is not one of the common ones listed here. Examples include: 3/2, 7/6, 7/10, 11/6, 14/6, 14/10, 15/10. Also, while it is nearly always the case that a class prefix attaches directly to a root, there are a few cases where the plural class prefix attaches to the singular noun (i.e. a root plus a singular class prefix). E.g. *ú-lú-pwá* ‘family’, *i-n-dú-pwá* ‘families’, where the singular has a class 14 prefix and the plural as both the class 10 and class 14 prefixes.

Class	Preprefix	Class Prefix	Adjective Agreement
1	u-	mu-	mu-
1a	∅	∅	mu-
2	a-	ba-	ya-
2a	∅	yaa-	ya-
3	u-	mu-	u-
4	i-	mi-	i-
5	∅	i-	li-
5a	i-	li-	li-
6	a-	ma-	ya-
7	i-	ci-	ci-
8	i-	vi-	vi-
9	i-	n-	i-
10	i-	n-	zi-
11	u-	lu-	lu-
12	a-	ka-	ka-
13	u-	tu-	tu-
14	u-	bu-	u-
15	u-	ku-	ku-
16	a-	pa-	pa-
17	u-	ku-	ku-
18	u-	mu-	mu-

Table 1: Nominal Class Prefixes

Here are examples of Cilungu words from each of the noun classes.

Singular Class	Cilungu example	Plural Class	Cilungu example	English gloss
1	ú-mú-límì	2	á-á-límì	farmer
1a	cìpùzì	2a	yáá-cìpùzì	pumpkin
3	ú-mú-tì	4	í-mí-tì	tree
5	í-lí-ínò	6	á-mí-ínò	tooth
5a	í-támà	6	á-má-támà	cheek
7	í-cí-fúlà	8	í-ví-fúlà	well
9	í-n-kóóndè	10	í-n-kóóndè	banana
11	ú-lú-fínè	11	í-m-fínè	pimple
12	á-ká-nyá	13	ú-tú-nyá	newborn
14	ú-ú-súmá			goodness
15	ú-kú-fúl-à			to wash, washing
16	á-pá-mw-íílì			at/on the body
17	ú-kú-mw-íílì			at the body
18	ú-mú-mw-íílì			in the body

Table 2: Examples of Cilungu nouns

It will be noted that two of the 18 classes are divided into two types. In many Bantu languages there are two types of class 1/2 nouns, one of which usually has a singular class prefix reflex from Proto Bantu \*mu and the other of which has a null prefix. In Cilungu, nouns which take the class prefix /mu-/ in the singular and /ba-/ in the plural are labeled Class 1/2.<sup>2</sup> These nouns invariably denote humans. Those which have a null class prefix in the singular and take /yaa-/ in the plural (most of which are not human) are labeled Class 1a/2a. All proper nouns are in class 1a/2a.

The other class to be divided into two groups is class 5. What is labeled as Class 5 has /i-/ as the preprefix and /li-/ as the class prefix. What is labeled Class 5a has a null preprefix and /i-/ as the Class prefix. (Both take the same Class 6 prefix for the plural.) Stems in this class select their singular pattern based on their prosodic shape. Specifically, noun roots which begin with a vowel belong to the group that I have labeled as Class 5. All other roots select for the prefixes I have listed under Class 5a.

- |     |    |                           |         |   |
|-----|----|---------------------------|---------|---|
| (2) | a. | í-lí- <sup>1</sup> ínò    | ‘tooth’ | (Cf. á-mí- <sup>1</sup> ínò ‘teeth’)    |
|     | b. | í-ly-áám̀bà               | ‘scale’ | (Cf. á-má-áám̀bà ‘scales’)              |
|     | c. | í-lí- <sup>1</sup> inì    | ‘egg’   | (Cf. á-mí- <sup>1</sup> inì ‘eggs’)     |
|     | d. | í-lí- <sup>1</sup> ínsózi | ‘tear’  | (Cf. á-mí- <sup>1</sup> ínsózi ‘tears’) |
|     |    |                           |         |   |
| (3) | a. | í-fwá                     | ‘leaf’  |   |
|     | b. | í-wé                      | ‘stone’ |   |
|     | c. | í-sótè                    | ‘grass’ |   |
|     | d. | í-sú <sup>1</sup> mó      | ‘spear’ |   |
|     | e. | í-pápíkò                  | ‘wing’  |   |

It should be noted that nouns can also appear without any preprefix. The presence or absence of a preprefix in many contexts, including isolation forms, correlates to some degree with definiteness. The emphasis of definiteness correlates with the presence of the preprefix while that of indefiniteness correlates with the lack of the preprefix. This is illustrated below for nouns of classes 1-14.

- |     |    |                        |                |                      |                   |          |
|-----|----|------------------------|----------------|----------------------|-------------------|----------|
| (4) | a. | ú-mú-límì              | ‘the farmer’   | mú-límì              | ‘a farmer’        | Class 1  |
|     | b. | á-á-límì               | ‘the farmers’  | á-límì               | ‘(some) farmers’  | Class 2  |
|     | c. | ú-mú-tì                | ‘the tree’     | mú-tì                | ‘a tree’          | Class 3  |
|     | d. | í-mí-tì                | ‘the trees’    | mí-tì                | ‘(some) trees’    | Class 4  |
|     | e. | í-lí- <sup>1</sup> ínò | ‘the tooth’    | lí- <sup>1</sup> ínò | ‘a tooth’         | Class 5  |
|     | f. | í-támà                 | ‘the cheek’    | í-támà               | ‘a cheek’         | Class 5a |
|     | g. | á-má-támà              | ‘the cheeks’   | má-támà              | ‘(some) cheeks’   | Class 6  |
|     | h. | í-cí-fúlà              | ‘the well’     | cí-fúlà              | ‘a well’          | Class 7  |
|     | i. | í-ví-fúlà              | ‘the wells’    | ví-fúlà              | ‘(some) wells’    | Class 8  |
|     | j. | í-n-kóóndè             | ‘the banana’   | n-kóóndè             | ‘a banana’        | Class 9  |
|     | k. | í-n-kóóndè             | ‘the bananas’  | n-kóóndè             | ‘(some) bananas’  | Class 10 |
|     | l. | ú-lú-finà              | ‘the pimple’   | lú-finà              | ‘a pimple’        | Class 11 |
|     | m. | á-ká-nyá               | ‘the newborn’  | ká-nyá               | ‘a newborn’       | Class 12 |
|     | n. | ú-tú-nyá               | ‘the newborns’ | tú-nyá               | ‘(some) newborns’ | Class 13 |
|     | o. | ú-ú-lálò               | ‘the bridge’   | ú-lálò               | ‘a bridge’        | Class 14 |

<sup>2</sup> We will see that this /b/ deletes intervocalically (cf. §3.3).



The only noun class in the table above which is always invariable is Class 5a, the pre-root material always being [i-] regardless of the definiteness of the noun. The way I have chosen to analyze this is to posit the /i-/ as the Class 5a prefix and a zero morph as the preprefix.<sup>3</sup> Then one can generalize that all roots always appear with the class prefix, and will take the preprefix as well when definite. With regard to class 9/10, if the stem is monosyllabic, then the preprefix must be present regardless of the definiteness of the noun (e.g. *í-n-<sup>1</sup>dá*, \**n-dá*; *í-n-<sup>1</sup>swá*, \**n-swá*).

While definiteness can help to determine whether the preprefix is present or absent in nouns in a variety of contexts, as seen in the isolation forms above, the presence of the preprefix is required in certain morpho-syntactic contexts (e.g. after a verbal infinitive (§7.8)) and forbidden in others (e.g. after the negative copula (§7.7) or after the associative/possessive clitic (§9.8)). This is illustrated below.

(5) Obligatory Preprefix when noun is the object of a preceding verb

- |    |                      |                       |                         |
|----|----------------------|-----------------------|-------------------------|
| a. | ú-kú-lòl ù-mú-límì   | ‘to see the/a farmer’ | (*ú-kú-lòl-à mú-lím-i)  |
| b. | ú-kú-lòl ì-cí-fúlà   | ‘to see the/a well’   | (*ú-kú-lòl-à cí-fúlà)   |
| c. | ú-kú-lònd ù-kú-fúl-à | ‘to want to wash’     | (*ú-kú-lònd-à kú-fúl-à) |

(6) Absence of Preprefix after negative copula

- |    |              |                           |                   |
|----|--------------|---------------------------|-------------------|
| a. | à-sí mú-límì | ‘it is not the/a farmer’  | (*à-sí ú-mú-límì) |
| b. | à-sí á-límì  | ‘it is not (the) farmers’ | (*à-sí á-á-límì)  |
| c. | ù-sí ú-lálò  | ‘it is not the/a bridge’  | (*ù-sí ú-ú-lálò)  |
| d. | ì-sí mú-tì   | ‘it is not the/a tree’    | (*ì-sí ú-mú-tì)   |

(7) Absence of Preprefix in object of associative

- |    |   |                              |   |
|----|---|------------------------------|---|
| a. | cìpùzì w-áá mú-límì                                   | ‘pumpkin of the/a farmer’    | (*cìpùzì w-á ú-mú-límì)                                 |
| b. | í-m-fwéèlè zy-áá cí- <sup>1</sup> lém- <sup>1</sup> á | ‘sheep of the/a lame person’ | (*í-m-fwéèlè zí í-cí- <sup>1</sup> lém- <sup>1</sup> á) |

## 2.1.2 Locatives

As can be seen in Table 2, and repeated below, the class 16-18 prefixes are added to the (inherent) class prefix and stem of the noun. (The tonology of locatives is discussed in §7.4.)

- |     |    |             |                  |            |
|-----|----|-------------|------------------|------------|
| (8) | a. | ú-mw-íli    | ‘body’           | (Class 3)  |
|     | b. | á-pá-mw-íli | ‘at/on the body’ | (Class 16) |
|     | c. | ú-kú-mw-íli | ‘at the body’    | (Class 17) |
|     | d. | ú-mú-mw-íli | ‘in the body’    | (Class 18) |

Additional examples using the class 18 locative /ú-mu/ are given below.

- |     |    |            |                  |            |
|-----|----|------------|------------------|------------|
| (9) | a. | í-n-dá     | ‘stomach’        | (Class 9)  |
|     | b. | ú-múú-n-dá | ‘in the stomach’ | (Class 18) |

<sup>3</sup> We will see that while the segmental content of the class 5a preprefix is null, it does sponsor a High tone which is always realized on the class prefix.

- |      |                    |                          |            |
|------|--------------------|--------------------------|------------|
| (10) | a. í-vú            | ‘wasp’                   | (Class 5)  |
|      | b. ú-mw-íí-vú      | ‘in the wasp’            | (Class 18) |
| (11) | a. ú-lú-pwá        | ‘family’                 | (Class 11) |
|      | b. ú-mú-lú-pwá     | ‘in the family/relative’ | (Class 18) |
| (12) | a. í-pápíkò        | ‘wing’                   | (Class 5)  |
|      | b. ú-mw-íí-pápíkò  | ‘in the wing’            | (Class 18) |
| (13) | a. í-m-péléébè     | ‘antelope’               | (Class 9)  |
|      | b. ú-múú-m-péléébè | ‘in the antelope’        | (Class 18) |
| (14) | a. í-m-bázò        | ‘ribs’                   | (Class 10) |
|      | b. ú-múú-m-bázò    | ‘in the rib’s, sideways’ | (Class 18) |

The class prefixes used in the locatives are generally the same as those used in plain nouns. The one exception is that the class 2 prefix (underlyingly /ba-/) is realized as /ya-/ instead of /a-/.

- |      |                 |                  |                |
|------|-----------------|------------------|----------------|
| (15) | a. á-á-límì     | ‘farmers’        | /á-ba-limi/    |
|      | b. ú-mú-yá-límì | ‘in the farmers’ | /ú-mu-ba-limi/ |
|      | c. á-pá-yá-límì | ‘on the farmers’ | /á-pa-ba-limi/ |

Finally, we note that for class 1a/2a nouns, the morpheme /lí/ (which appears to be a copula in many compound verbs (cf. chapter 8)) appears between the class 18 prefix and the noun.

- |      |                                |                   |                   |
|------|--------------------------------|-------------------|-------------------|
| (16) | a. mú-lí yéembá                | ‘in the lake’     | /mú-lí yemba/     |
|      | b. mú-lí yáá-yéembá            | ‘in the lakes’    | /mú-lí yaa-yemba/ |
|      | c. mú-lí móótó <sup>1</sup> ká | ‘in the car’      | /mú-lí móotoká/   |
|      | d. mú-lí Múlééngà              | ‘in Mulenga’      | /mú-lí Mulenga/   |
|      | e. mú-lí cipuzí                | ‘in the pumpkin’  | /mú-lí cipuzi/    |
|      | f. mú-lí cúulá                 | ‘in the frog’     | /mú-lí cuulá/     |
|      | g. mú-lí mú <sup>1</sup> sátò  | ‘in the python’   | /mú-lí musáto/    |
|      | h. mú-lí múfí                  | ‘in the puffader’ | /mú-lí mufi/      |

### 2.1.3 Diminutives

Diminutives are formed in class 12/13. Representative examples are given below. (The tonology of diminutives is discussed in §7.5.)

- |      |               |               |            |
|------|---------------|---------------|------------|
| (17) | a. ú-mú-zá    | ‘wind’        | (Class 3)  |
|      | b. í-mí-zá    | ‘winds’       | (Class 4)  |
|      | c. á-ká-mú-zá | ‘small wind’  | (Class 12) |
|      | d. ú-tú-mí-zá | ‘small winds’ | (Class 13) |

- (18) a. ú-mú-nwé 'finger' (Class 3)  
 b. í-mí-nwé 'fingers' (Class 4)  
 c. á-ká-mú-nwé 'small finger' (Class 12)  
 d. ú-tú-mí-nwé 'small fingers' (Class 13)
- (19) a. í-cí-<sup>1</sup>yé 'shoulder' (Class 7)  
 b. í-ví-<sup>1</sup>yé 'shoulders' (Class 8)  
 c. á-ká-cì-yé 'small shoulder' (Class 12)  
 d. ú-tú-vì-yé 'small shoulders' (Class 13)
- (20) a. ú-lú-finé 'pimple' (Class 11)  
 b. á-ká-lù-finé 'small pimple' (Class 12)
- (21) a. ú-lw-í<sup>1</sup>imb-ò 'song' (Class 11)  
 b. á-ká-lw-ìimb-ò 'small song' (Class 12)  
 c. á-ká-lw-ìimb-ó ká-sù má 'good small song' (Class 12)
- (22) a. ú-ú-lálò 'bridge' (Class 14)  
 b. á-ká-ú-lálò 'small bridge' (Class 12)
- (23) a. á-á-<sup>1</sup>lú<sup>1</sup>mééndò 'boys' (Class 2)  
 b. ú-tú-yà-lúmééndò 'small boys' (Class 13)
- (24) a. ú-mú-lyáángò 'doorway' (Class 3)  
 b. á-ká-mú-lyáángò 'small doorway' (Class 12)

In the cases above we see that the class 12/13 prefixes appear with the inherent class prefixes of the noun. However, in a number of forms the noun's inherent class prefix is omitted.

- (25) a. í-cí-<sup>1</sup>kó<sup>1</sup>zi 'eagle' (Class 7)  
 b. á-ká-<sup>1</sup>kó<sup>1</sup>zi 'small eagle' (Class 12)  
 c. ú-tú-<sup>1</sup>kó<sup>1</sup>zi 'small eagles' (Class 13)
- (26) a. ú-mú-<sup>1</sup>swé<sup>1</sup>éz-ì 'fisherman' (Class 1)  
 b. á-ká-<sup>1</sup>swé<sup>1</sup>éz-ì 'small fisherman' (Class 12)  
 c. ú-tú-<sup>1</sup>swé<sup>1</sup>éz-ì 'small fishermen' (Class 13)
- (27) a. ú-mw-á<sup>1</sup>ánà 'child' (Class 1)  
 b. á-ká-á<sup>1</sup>ánà 'infant' (Class 12)  
 c. u-tw-á<sup>1</sup>ánà 'infants' (Class 13)

And in still other cases, the inclusion of the inherent class prefix is optional.

- (28) a. á-á-límì 'farmers' (Class 2)  
 b. ú-tú-límì ~ ú-tú-yá-límì 'small farmers' (Class 13)

- (29) a. ú-mú-lómò 'mouth' (Class 3)  
 b. á-ká-lómò ~ á-ká-mú-lómò 'small mouth' (Class 12)
- (30) a. ú-mú-<sup>1</sup>sá<sup>1</sup>ná 'waist' (Class 3)  
 b. á-ká-mù-sánà ~ á-ká-<sup>1</sup>sá<sup>1</sup>ná 'small waist' (Class 12)
- (31) a. í-cí-fúlà 'well' (Class 7)  
 b. á-ká-fúlà ~ á-ká-cí-fúlà 'small well' (Class 12)

As can be clearly seen there is a fair bit of variability in whether the inherent class prefix is maintained in the diminutive. I must assume that this is lexically specified.

If the inherent class prefix of the noun is class 5a, then /li-/ is always used in the diminutive (even though just /i-/ appears in the underived noun).

- (32) a. í-wé 'stone' (Class 5)  
 b. á-ká-lí-wé 'small stone' (Class 12)
- (33) a. í-twì 'ashes' (Class 5)  
 b. á-ká-lì-twì 'small bit of ashes' (Class 12)
- (34) a. í-kó<sup>1</sup>kóla 'knee' (Class 5)  
 b. á-ká-lì-kókóla 'small knee' (Class 12)

As was true in the locatives (§2.1.2), the class 2 prefix that surfaces in diminutives is *ya-*, rather than the usual *a-* (< /ba-/).

- (35) a. ú-mú-<sup>1</sup>cí 'wife' (Class 1)  
 b. á-á-<sup>1</sup>cí 'wives' (Class 2)  
 c. á-ká-mù-cí 'small wife' (Class 12)  
 d. ú-tú-yà-cí 'small wives' (Class 13)

In class 9/10 nouns, the class prefix /n-/ is generally omitted in diminutives—even when the root is monosyllabic—as seen below.

- (36) a. í-n-swì 'fish' (Class 9)  
 b. á-ká-swì 'small fish' (Class 12)
- (37) a. í-m-péléembè 'antelope' (Class 9)  
 b. á-ká-péléembè 'small antelope' (Class 12)
- (38) a. í-n-cí<sup>1</sup>lííkò 'stopper' (Class 9)  
 b. á-ká-<sup>1</sup>cí<sup>1</sup>lííkò 'small stopper' (Class 12)
- (39) a. í-n-zó<sup>1</sup>ká 'snake' (Class 9)  
 b. á-ká-<sup>1</sup>zóká 'small snake' (Class 12)

- |      |    |                                       |                 |            |
|------|----|---------------------------------------|-----------------|------------|
| (40) | a. | í-n-kó <sup>1</sup> kó                | ‘chicken’       | (Class 9)  |
|      | b. | á-ká <sup>1</sup> -kó <sup>1</sup> kó | ‘small chicken’ | (Class 12) |

However, if the stem begins with a voiced plosive /b/, /d/, /j/, or /g/, then the nasal class prefix remains.

- |      |    |                        |                        |            |
|------|----|------------------------|------------------------|------------|
| (41) | a. | í-m-báázò              | ‘carving axe’          | (Class 9)  |
|      | b. | á-káá-m-báázò          | ‘small carving axe’    | (Class 12) |
| (42) | a. | í-m-bé <sup>1</sup> zú | ‘seed’                 | (Class 9)  |
|      | b. | á-káá-m-bézù           | ‘small seed’           | (Class 12) |
| (43) | a. | í-n-dí <sup>1</sup> mí | ‘tongues’              | (Class 10) |
|      | b. | ú-túù-n-dímì           | ‘small tongues’        | (Class 12) |
| (44) | a. | í-n-jí <sup>1</sup> lí | ‘seashells’            | (Class 10) |
|      | b. | ú-túù-n-jíli           | ‘small seashells’      | (Class 12) |
| (45) | a. | í-n-jémbè              | ‘native shaving tool’  | (Class 9)  |
|      | b. | ú-túù-n-jémbè          | ‘native shaving tools’ | (Class 12) |
| (46) | a. | í-n-gómà               | ‘drum’                 | (Class 9)  |
|      | b. | á-káá-n-gómà           | ‘small drum’           | (Class 12) |

This seems to be a strategy to avoid intervocalic voiced plosives. As will be described in chapter 3, Cilungu does not permit /d/, /j/ or /g/ intervocalically anywhere in the language, and while /b/ is attested intervocalically (surfacing as [β]), the number of such occurrences are relatively small (as compared to other consonants in the language).

In the case of class 11/10 nouns, there is some variation as the plural can sometimes contain either the class 11 (/lu-/) or class 10 (/n-/) prefix.

- |      |    |                                  |                    |            |
|------|----|----------------------------------|--------------------|------------|
| (47) | a. | ú-lú-òyá                         | ‘bee sting’        | (Class 11) |
|      | b. | í-m-bòyá                         | ‘bee stings’       | (Class 10) |
|      | c. | ú-tú-lù-òyá ~ ú-túù-m-bòyá       | ‘small bee stings’ | (Class 13) |
| (48) | a. | ú-lw-í <sup>1</sup> imb-ò        | ‘song’             | (Class 11) |
|      | b. | í-ny-í <sup>1</sup> imb-ò        | ‘songs’            | (Class 10) |
|      | c. | ú-tú-lw-íimb-ò ~ ú-túù-ny-íimb-ò | ‘small songs’      | (Class 13) |

When the noun in class 1a/2a becomes diminutive, then the class prefixes surface with a long vowel (and the preprefix is never present).

- |      |    |                           |                 |            |
|------|----|---------------------------|-----------------|------------|
| (49) | a. | kàà-móótó <sup>1</sup> ká | ‘small car’     | (Class 12) |
|      | b. | tùù-móótó <sup>1</sup> ká | ‘small cars’    | (Class 13) |
| (50) | a. | kàà-mùsátò                | ‘small python’  | (Class 12) |
|      | b. | tùù-mùsátò                | ‘small pythons’ | (Class 13) |

- |      |    |              |                 |            |
|------|----|--------------|-----------------|------------|
| (51) | a. | kàà-kà-fùl-á | ‘small washer’  | (Class 12) |
|      | b. | tùù-kà-fùl-á | ‘small washers’ | (Class 13) |

#### 2.1.4 Augmentatives

Augmentatives are formed in class 7/8 prefix. Representative examples are given below. (The tonology of augmentatives is discussed in §7.6)

- |      |    |   |                  |           |
|------|----|---|------------------|-----------|
| (52) | a. | ú-mú-límì                                 | ‘farmer’         | (Class 1) |
|      | b. | í-cí-mú-límì                              | ‘big farmer’     | (Class 7) |
|      | c. | í-ví-yá-límì                              | ‘big farmers’    | (Class 8) |
| (53) | a. | í-pápíkò                                  | ‘wing’           | (Class 5) |
|      | b. | í-cí-lí-pápíkò                            | ‘big wing’       | (Class 7) |
|      | c. | í-ví-má-pápíkò                            | ‘big wings’      | (Class 8) |
| (54) | a. | ú-mú-pèní                                 | ‘knife’          | (Class 3) |
|      | b. | í-cí-mù-pèní                              | ‘big knife’      | (Class 7) |
|      | c. | í-ví-mì-pèní                              | ‘big knives’     | (Class 8) |
| (55) | a. | ú-mú- <sup>1</sup> sá <sup>1</sup> ná     | ‘waist’          | (Class 3) |
|      | b. | í-cí-mù-sánà                              | ‘big waist’      | (Class 7) |
|      | c. | í-cí-mù-sáná mú-sùmá                      | ‘good big waist’ | (Class 8) |
| (56) | a. | ú-mú- <sup>1</sup> ká <sup>1</sup> zyáánà | ‘girl’           | (Class 1) |
|      | b. | í-cí-mù-kázyáánà                          | ‘big girl’       | (Class 7) |
|      | c. | í-ví-yà-kázyáánà                          | ‘big girls’      | (Class 8) |
| (57) | a. | ú-mú- <sup>1</sup> swé <sup>1</sup> éz-ì  | ‘fisherman’      | (Class 1) |
|      | b. | í-cí-mù-swééz-ì                           | ‘big fisherman’  | (Class 7) |
|      | c. | í-ví-yà-swééz-ì                           | ‘big fishermen’  | (Class 8) |
| (58) | a. | í-kó <sup>1</sup> kola                    | ‘knee’           | (Class 5) |
|      | b. | í-cí-lì-kókólà                            | ‘big knee’       | (Class 7) |
|      | c. | í-ví-mà-kókólà                            | ‘big knees’      | (Class 8) |
| (59) | a. | ú-mw-á <sup>1</sup> ánà                   | ‘child’          | (Class 1) |
|      | b. | í-cí-mw-àánà                              | ‘big child’      | (Class 7) |
|      | c. | í-ví-yà-ánà                               | ‘big children’   | (Class 8) |

In all the examples above the class 7/8 class prefix is added to the inherent class prefix of the noun. As was the case in the diminutives (§2.1.3), the class 5 prefix is always realized as /li-/ and the class 2 prefix is always realized as /ya-/.

When the augmented noun is from class 9/10 the inclusion of the class 9/10 prefix is often optional as seen below.

- (60) a. í-m-péléémbè ‘antelope’ (Class 9)  
 b. í-cí-péléémbè ~ í-cíí-m-péléémbè ‘big antelope’ (Class 7)
- (61) a. í-n-zó<sup>1</sup>ká ‘snake’ (Class 9)  
 b. í-cí-zó<sup>1</sup>ká ~ í-cíí-n-zókà ‘big snake’ (Class 7)

But, just as was seen with the diminutives (§7.5), if the root begins with a voiced plosive, then the class prefix is obligatorily maintained.

- (62) a. í-m-báázò ‘carving axe’ (Class 9)  
 b. í-cíí-m-báázò ‘big carving axe’ (Class 7)
- (63) a. í-n-gómà ‘drum’ (Class 9)  
 b. í-cíí-n-gómà ‘big drum’ (Class 7)

When the noun to be augmented is in class 1a/2a, then the toneless prefixes /cii-/ and /vii-/ are used. (Cf. diminutives (§2.1.3) where the prefix vowel was also long in exactly the same context.)

- (64) a. móótó<sup>1</sup>ká ‘car’ (Class 1a)  
 b. cii-móótó<sup>1</sup>ká ‘big car’ (Class 7)  
 c. vii-móótó<sup>1</sup>ká ‘big cars’ (Class 8)
- (65) a. mùsátó ‘python’ (Class 1a)  
 b. cii-mùsátó ‘big python’ (Class 7)  
 c. vii-mùsátó ‘big pythons’ (Class 8)

### 2.1.5 Deverbal nouns

The nominal stem, as found in Table 1 above, is most often monomorphemic, but not always. The most obvious case of a bimorphemic stem is seen in the class 15 words, which are used as verbal infinitives. In those cases, the stem comprises both a verbal root as well as the “Final Vowel” /-a/ (cf. chapter 6). The other examples of bi-morphemic nominal stems are deverbal nominatives—nouns transparently derived from verbs. In these cases the stem consists of a verb root plus a nominalizing suffix. Examples of such cases are given below. (The tonology of deverbal nouns is discussed in §7.3)

- (66) a. ú-mú-<sup>1</sup>lú<sup>1</sup>únz-ì ‘hunter’ (cf. ú-kú-<sup>1</sup>lú<sup>1</sup>úng-à ‘to hunt’)  
 b. ú-mú-<sup>1</sup>ó<sup>1</sup>ómv-ì ‘worker’ (cf. ú-kú-<sup>1</sup>ó<sup>1</sup>ómb-à ‘to work’)  
 c. ú-mú-vyááz-ì ‘parent’ (cf. ú-kú-vyáál-à ‘to bear a child’)  
 d. ú-mú-<sup>1</sup>swé<sup>1</sup>éz-ì ‘fisherman’ (cf. ú-kú-<sup>1</sup>swé<sup>1</sup>él-à ‘to fish’)  
 e. í-n-tú<sup>1</sup>úngúlúz-ì ‘leader, ruler’ (cf. ú-kú-<sup>1</sup>tú<sup>1</sup>úngúlúz-à ‘to lead, rule’)  
 f. á-má-<sup>1</sup>tú<sup>1</sup>únz-ì ‘urine’ (cf. ú-kú-<sup>1</sup>tú<sup>1</sup>únd-à ‘to urinate’)  
 g. í-cí-súz-ì ‘flatulence’ (cf. ú-kú-súl-à ‘to flatulate’)  
 h. í-cí-<sup>1</sup>lú<sup>1</sup>m-í ‘bedbug’ (cf. ú-kú-<sup>1</sup>lú<sup>1</sup>m-á ‘to bite’)

- (67) a. ú-lw-í<sup>1</sup>ímb-ò ‘song’ (cf. ú-kw-í<sup>1</sup>ímb-à ‘to sing’)  
b. ú-mú-láp-ò ‘oath’ (cf. ú-kú-láp-à ‘to swear’)  
c. í-cí-láy-ò ‘promise’ (cf. ú-kú-láy-à ‘to promise’)  
d. í-cí-<sup>1</sup>ló<sup>1</sup>ót-ò ‘dream’ (cf. ú-kú-<sup>1</sup>ló<sup>1</sup>ót-à ‘to dream’)  
e. í-cí-pím-ò ‘measure’ (cf. ú-kú-pím-à ‘to measure’)  
f. í-cí-sáákúl-ò ‘comb’ (cf. ú-kú-sáákúl-à ‘to comb’)  
g. ú-w-éélél-ò ‘forgiveness’ (cf. ú-kw-éélél-à ‘to forgive’)
- (68) a. ú-mú-fw-è ‘dead person’ (cf. ú-kú-fw-à ‘to die’)  
b. í-cí-<sup>1</sup>wá<sup>1</sup>y-é ‘something painful’ (cf. ú-kú-<sup>1</sup>wá<sup>1</sup>y-à ‘to be painful’)  
c. ú-ú-<sup>1</sup>tú<sup>1</sup>úmp-è ‘stupidity’ (cf. ú-kú-<sup>1</sup>tú<sup>1</sup>úmp-à ‘to be stupid’)  
d. í-cí-<sup>1</sup>ví<sup>1</sup>ímb-è ‘swelling part’ (cf. ú-kú-<sup>1</sup>ví<sup>1</sup>ímb-à ‘to swell’)  
e. í-n-kó<sup>1</sup>óngól-è ‘debt’ (cf. ú-kú-<sup>1</sup>kó<sup>1</sup>óngól-à ‘to borrow (money)’)
- (69) a. í-cí-<sup>1</sup>lé<sup>1</sup>m-á ‘lame person’ (cf. ú-kú-<sup>1</sup>lé<sup>1</sup>m-à ‘to be lame’)  
b. ú-mú-<sup>1</sup>pí<sup>1</sup>ín-à ‘poor person’ (cf. ú-kú-<sup>1</sup>pí<sup>1</sup>ín-à ‘to be poor’)  
c. í-m-fw-à ‘death’ (cf. ú-kú-fw-à ‘to die’)  
d. ú-mú-zw-à ‘stirring stick for porridge’ (cf. ú-kú-zw-à ‘to make porridge’)  
e. ú-lú-py-à ‘brushfire’ (cf. ú-kú-py-à ‘to be burned’)
- (70) a. ú-ú-<sup>1</sup>kú<sup>1</sup>l-ú ‘bigness’ (cf. ú-kú-<sup>1</sup>kú<sup>1</sup>l-á ‘to grow, become big’)  
b. í-yúúú-ù ‘sky’ (cf. ú-kú-yúúú-à ‘to open’)

As can be seen above, each of the five vowels can be used as a deverbal suffix. The precise semantics that these vowels contribute is not completely transparent. The vowel /-i/ can be used as an agentive suffix, but as can be seen in examples (66f-h) this is not always the case. The vowel /-o/ can be used as an instrumental, but again, this is not always synchronically true. While in most cases these nominal roots are bi-morphemic, it is possible for there to be more than two morphemes as seen in the example below which contains a verb root, an extensions, and a deverbal suffix. (See also the examples in (73) .)

- (71) í-cí-<sup>1</sup>ó<sup>1</sup>ómb-él-ò ‘tool’ (cf. ú-kú-<sup>1</sup>ó<sup>1</sup>ómb-él-à ‘to work for’)

Cilungu has two additional, quite productive, processes of deverbal nominalization. (The tonology of all deverbal nouns is discussed in §7.3) The first process produces nominal agentives. This is accomplished using the prefix /ka-/ which can be added to a verb stem of the shape /Root + a/ to form a class 1a noun. Several examples of singular plural pairs are given below.

- (72) a. kà-kòm-á yàà-kà-kòm-á ‘one who kills/cuts’ (cf. ú-kú-kóm-à ‘to kill, cut’)  
b. kà-lím-á yàà-kà-lím-á ‘one who farms’ (cf. ú-kú-lím-à ‘to farm’)  
c. kà-tòt-á yàà-kà-tòt-á ‘one who stabs’ (cf. ú-kú-tót-à ‘to stab’)  
d. kà-ziik-á yàà-kà-ziik-á ‘one who buries’ (cf. ú-kú-zíik-à ‘to bury’)

The second process forms manner nouns. This is accomplished using the class 4 prefixes /i-mi-/, which are added to a verb stem of the shape /Root + Applicative + e/.<sup>4</sup> Several examples of such nouns are given below.

<sup>4</sup> The applicative suffix is discussed in greater detail in section 2.2.2.1.



- |      |    |                 |                      |                               |
|------|----|-----------------|----------------------|-------------------------------|
| (73) | a. | í-mí-làànd-íl-é | ‘manner of speaking’ | (cf. ú-kú-láánd-à ‘to speak’) |
|      | b. | í-mí-lím-íl-é   | ‘manner of farming’  | (cf. ú-kú-lím-à ‘to farm’)    |
|      | c. | í-mí-swèèl-él-é | ‘manner of brewing’  | (cf. ú-kú-swéél-à ‘to brew’)  |

I note here one final aspect of nominal morphology, though it is not one which derives a noun from a verb. One finds the ‘male’ prefix /si-/ and the female prefix /na-/ on a limited number of nouns.

- |      |    |              |                                |
|------|----|--------------|--------------------------------|
| (74) | a. | sí-wííngá    | ‘bridegroom’                   |
|      | b. | nà-wíìngà    | ‘bridge’                       |
|      | c. | ná-císúúngù  | ‘girl who has reached puberty’ |
|      | d. | ná-ciìmbùùzá | ‘midwife’                      |
|      | e. | nà-màáyò     | ‘lady’                         |

There are certain nouns beginning in [si] or [na] where the semantics of gender are not obvious.

- |      |    |             |              |
|------|----|-------------|--------------|
| (75) | a. | sílyéènjé   | ‘sp. ant’    |
|      | b. | símúnyèmwé  | ‘driver ant’ |
|      | c. | nàmùnyóóngà | ‘snail’      |

## 2.1.6 Copulatives

We now turn to the expression of the copula with an impersonal subject and a nominal predicate. While these are discussed in greater detail in §7.7 where their tonology and general prosody is analyzed, the basic morphology of this construction is presented here. We begin with examples of Class 1a nouns.

- |      |    |            |                   |             |
|------|----|------------|-------------------|-------------|
| (76) | a. | cùulá      | ‘frog’            | /cuulá/     |
|      | b. | à-cùulá    | ‘it is a frog’    | /á-cuulá/   |
|      | c. | mùunjìlì   | ‘warthog’         | /munjili/   |
|      | d. | à-múunjìlì | ‘it is a warthog’ | /á-munjili/ |
|      | e. | mùsátò     | ‘python’          | /musáto/    |
|      | f. | à-mùsátò   | ‘it is a python’  | /á-musáto/  |

The copulative of the noun is formed in each case by the addition of the prefix /a-/. When this prefix is added to nouns of other classes, the quality of the vowel assimilates to the following vowel as seen in the examples below.

(77)	a. í-lá	‘intestine’	/i-la/
	b. ìí-lá	‘it is an intestine’	/a-í-la/
	c. í-sòtè	‘grass’	/i-sote/
	d. ìí-sòtè	‘it is grass’	/a-í-sote/
	e. í-n-zòvù	‘elephant’	/i-n-zovu/
	f. ìí-n-zòvù	‘it is an elephant’	/a-í-n-zovu/

Let us now turn to the negative copulative. The negative copulative employs the negative marker /sí-/ (quite similar to the negative prefix /sí-/ used in the Habitual (§5.1.9)). This marker /sí-/ is preceded by a Low-toned subject agreement prefix, but with a long vowel. It is followed by the noun with no preprefix.

(78)	a. ú-mú-límì	‘farmer’	/ú-mu-limi/
	b. àà-sí mú-límì	‘it is not a farmer’	/a-μ-sí mu-limi/
(79)	a. ú-mú-nwé	‘finger’	/ú-mu-nue/
	b. ùù-sí mú-nwé	‘it is not a finger’	/u-μ-sí mu-nue/
(80)	a. í-cí-fúlà	‘well’	/i-ci-fula/
	b. cìì-sí cí-fúlà	‘it is not a well’	/i-μ-sí-ci-fula/

To account for these forms I propose an underlying structure with an underspecified mora, as given below.<sup>5</sup>

(81) Negative Copulative

SM - μ - sí CP - stem

### 2.1.7 Class agreement in nominal modifiers

As is the case with other Bantu languages, any nominal modifier, e.g. an adjective or demonstrative, must agree in class with the noun it modifies. Several examples of noun-adjective phrases are given below. (Adjectives, and in particular their tonology, are discussed in greater detail in section 7.1.) In each case an adjectival class agreement marker (cf. Table 1)) is prefixed to the adjectival root.

(82)	a. ú-mú-límì mù-táli	‘tall farmer’ (Class 1)
	b. í-víì-ntù vî-pyá	‘new things’ (Class 8)
	c. í-m-pélèèmbè zì-kúlù	‘big antelopes’ (Class 9)
	d. ú-ú-tòòngè ù-sù má	‘good cotton’ (Class 14)

The proximate and distant demonstratives are given in Table 3, and a few example phrases are provided in (83). As is the case with adjectives, in every case the demonstrative agrees in class with the noun which it modifies.

<sup>5</sup> Again, see section 7.7 for additional examples of the affirmative and negative copulative and a detailed analysis of their tonology and prosody.

Class	Proximate	Distant
1/1a	wíì	wíí-wì
2/2a	yáà	yáá-yà
3	úù	ùú-à
4	íì	íí-à
5	líì	líí-lì
6	yáà	yáá-yà
7	cíì	cíí-cì
8	víì	víí-vì
9	íì	íí-à
10	zíì	zíí-zì
11	lúù	lùú-lù
12	káà	káá-kà
13	tùù	tùú-tù
14	úù	ùú-à
15	kúù	kùú-kù
16	páà	páá-pà
17	kúù	kùú-kù
18	múù	mùú-mù

Table 3: Demonstratives

- (83) a. ú-mú-limì wíì 'this farmer'  
b. í-víì-ntù víì 'these things'  
c. í-m-pélèèmbè zíì 'these antelopes'
- (84) a. ú-mú-limì wíí-wì 'that farmer'  
b. í-víì-ntù víí-vì 'those things'  
c. í-m-pélèèmbè zíí-zì 'those antelopes'

## 2.2 Verbal Morphology

I will now briefly outline the essentials of Cilungu verbal morphology; however, I save the presentation and discussion of the individual tense/aspect/moods (TAMs) for chapter 5. The overall structure I will assume for finite verbal forms is given below:

- (85) [SM NEG TAM [<sub>MACROSTEM</sub> OM [<sub>STEM</sub> Root Extension(s) TAM FV]

The verb, as noted, has two relevant morphological domains inside it. First, the verbal *stem* consists of the verb root, any verbal extensions (to be enumerated below), certain TAM suffixes (to be presented with the TAM prefixes in chapter 5) and the Final Vowel (/e/ for subjunctive and /a/ for neutral/indicative). The next larger domain is the macrostem (cf. Hyman & Ngunga 1994, Hyman & Mtenje 1999, Bickmore 2000) which consists of the Object Marker (including the reflexive prefix) and the stem. We will see below that certain tonal generalizations make use of exactly this morphological domain. Finally, there is material which precedes the macrostem. This begins with the Subject Marker followed by a negative prefix, which is followed by one or more TAM prefixes. (In certain cases the tense/aspect slot may in fact be null.)

### 2.2.1 Subject and Object Markers

In the table below I list the Subject and Object marker prefixes, according to the class to which they belong. (I list their segmental representation only, as their tonology, which can be somewhat complex, is presented in chapter 5.)

(86) Subject and object prefixes in Class 1/2

	Subject Prefix	Object Prefix
1 sg.	n-	n-
2 sg.	u-	ku-
3 sg.	a-/u-	mu-
1 pl.	tu-	tu-
2 pl.	mu-	mu-
3 pl.	ya-	ya-

Table 4: Subject and object prefixes in Class 1/2

Class	Subject Prefix	Object Prefix
3	u-	gu-
4	i-	gi-
5	li-	li-
6	ya-	ya-
7	ci-	ci-
8	vi-	vi-
9	i-	gi-
10	zi-	zi-
11	lu-	lu-
12	ka-	ka-
13	tu-	tu-
14	u-	gu-
15	ku-	ku-
16	pa-	pa-
17	ku-	ku-
18	mu-	mu-

Table 5: Subject and object prefixes for class 3 and above

The 3 sg. subject marker is generally /u-/ before a vowel and /a-/ elsewhere (cf. §3.1.6). Also, we will show in §3.3 that /g/ (as well as /b/) delete unless preceded by a nasal.

Examples of verbs from the Present Progressive containing subject markers and in certain cases object makers, are given below.

- (87) a. yá- kú- <sup>1</sup>ví- fúl -à  
3pl-PP-OM8 wash FV  
'they are washing them (C8)'
- b. mú- kú- <sup>1</sup>lú- fúl -à  
2pl PP OM8 wash FV  
'you (pl.) are washing it (C11)'
- c. zí- kú- <sup>1</sup>pón-à  
SM10 PP fall FV  
'they (C10) are falling'

All these Subject and Object markers are bound morphemes. In cases where they must appear alone, a corresponding independent pronoun must be used. Those for classes 1 and 2 are given below as examples.

(88) Class 1/2 Independent Pronouns

- |            |             |
|------------|-------------|
| a. nèéné   | 'I'         |
| b. wèèwé   | 'you (sg.)' |
| c. wí      | 'he/she'    |
| d. swèèswé | 'us'        |
| e. mwèèmwé | 'you (pl.)' |
| f. yá      | 'they'      |

With regard to what can appear in the object marker position, it should be noted that the reflexive prefix /i-/, when present, occurs in this position. A few examples are given below.

(89) Examples of infinitive forms with reflexives

- |   |                   |
|---|-------------------|
| a. ú-kú-fúl-à                               | 'to wash'         |
| b. ú-kú- <sup>1</sup> i- <sup>1</sup> fúl-à | 'to wash oneself' |
| c. ú-kú-lól-à                               | 'to see'          |
| d. ú-kú- <sup>1</sup> i- <sup>1</sup> lól-à | 'to see oneself'  |

Cilungu does allow for some combinations of multiple object makers. While additional research needs to be undertaken to fully explore this topic, preliminary findings in this area will be presented here. The generalization that seems to emerge is that the presence of two object markers is only grammatical if one of them is a first person prefix—either /n-/ 'me' or /tu-/ 'us'.

When the 1 sg. /n-/ is used, it also always represents the indirect object or goal and occurs after the other OM that it appears with.

(90) 1 sg. /n-/ plus a second OM

- a. yá-kú-<sup>1</sup>cíí-n-fúl-íl-à ‘they are washing it (C7) for me’
- b. yá-kú-<sup>1</sup>líí-n-dém-él-à ‘they are grabbing it (C5) for me’
- c. yá-kú-<sup>1</sup>víí-n-zíík-íl-à ‘they are burying them (C8) for me’
- d. yá-kú-<sup>1</sup>múú-n-dém-él-à ‘they are grabbing him/her for me’
- e. yá-kú-<sup>1</sup>yáá-n-dém-él-à ‘they are grabbing them for me’
- f. yá-kú-<sup>1</sup>kúú-n-dém-él-à ‘they are grabbing you (sg.) for me’
- g. yá-kú-<sup>1</sup>múú-n-dém-él-à ‘they are grabbing you (pl.) for me’

When the 1 pl /tu-/ is used, it always occurs first and is the indirect object or goal.)

(91) 1pl /tu-/ plus a second OM

- a. yá-kú-<sup>1</sup>tú-ví-fúl-íl-à ‘they are washing them (C8) for us’
- b. yá-kú-<sup>1</sup>tú-cí-fúl-íl-à ‘they are washing it (C7) for us’
- c. yá-kú-<sup>1</sup>tú-lú-pé-él-à ‘they are giving it (C11) to us’
- d. ú-kú-<sup>1</sup>tú-yá-zíík-íl-à ‘you (sg.) are burying them for us’
- e. yá-kú-<sup>1</sup>tú-mú-léét-él-à ‘they are bringing him/her for us’
- f. yá-kú-<sup>1</sup>tú-mú-léét-él-à ‘they are bringing you (pl.) for us’
- g. yá-kú-<sup>1</sup>tú-kú-<sup>1</sup>léét-él-à ‘they are bringing you (sg.) for us’

All other tested combinations of object markers other than those mentioned above were found to be either very marginal or completely ungrammatical.

## 2.2.2 Extensions

As is the case in all Bantu languages, Cilungu has a range of derivational verbal “extensions” that often (though not always) change the number of arguments of the verb. First, I will present examples of each individual extension after which I will give examples of forms with multiple extensions. Any phonological changes in or caused by the extensions will be discussed in chapter 3 below.

### 2.2.2.1 Applicative

The applicative extension /-il/ (which sometimes surfaces as [-el] due to a phonological process presented in §3.4) usually adds the sense of doing something for or on behalf of someone (though depending on the verb, other semantic modifications are possible, e.g. doing something on or onto something). Some examples are found below.

- (92)
- |    |   |                              |
|----|---|------------------------------|
| a. | ú-kú-fúl-à                                  | ‘to wash’                    |
| b. | ú-kú-fúl-íl-à                               | ‘to wash for’                |
| c. | ú-kú-zíík-à                                 | ‘to bury’                    |
| d. | ú-kú-zíík-íl-à                              | ‘to bury for’                |
| e. | ú-kú- <sup>l</sup> sú <sup>l</sup> -l-á     | ‘to blacksmith’ <sup>6</sup> |
| f. | ú-kú- <sup>l</sup> sú <sup>l</sup> -l-íl-à  | ‘to blacksmith for’          |
| g. | ú-kú- <sup>l</sup> lé <sup>l</sup> -ét-à    | ‘to bring’                   |
| h. | ú-kú- <sup>l</sup> lé <sup>l</sup> -ét-él-à | ‘to bring for’               |
| i. | ú-kú-kóm-à                                  | ‘to cut’                     |
| j. | ú-kú-kóm-él-à                               | ‘to cut for’                 |

When the applicative is used with two full NPs, the first is generally interpreted as the indirect object and the second as the direct object.

- (93)
- |    |  |                           |
|----|--|---------------------------|
| a. | yá-kú-fùl -íl ù- mú-límí <sup>l</sup> ú- mú-sè(*yakufulil umuse umulimi)   |                           |
|    | 3p Pr wash Ap PP-C1-farmer PP-C3-basket                                    |                           |
|    | ‘they are washing the basket for the farmer’                               |                           |
| b. | yá-lá- <sup>l</sup> pé -él ú- mw-á <sup>l</sup> án í- <sup>l</sup> víí-ntù | (*yakupeel ivintu umwana) |
|    | 3p F give Ap PP C1 child PP C8 thing                                       |                           |
|    | ‘they will give the things to the child’                                   |                           |
| c. | yá-kú-fùl -íl- à Mùlèèngà Chòòlà   |                           |
|    | 3p-Pr-wash-Ap-FV Mulenga Chola   |                           |
|    | ‘they are washing Chola for Mulenga’                                       |                           |

When the applicative is used with both an object marker as well as an NP, either one can be the direct object or the indirect object as seen below.

- (94)
- |   |
|---|
| à- kú- <sup>l</sup> tú- pél -èl -à Chóólà                   |
| 3sg Pr 1pl shave Ap FV                                      |
| ‘he is shaving Chola for us’ ~ ‘he is shaving us for Chola’ |

When one object is indicated by a prefix and the other by a following independent pronoun, the former denotes the indirect object while the latter denotes the direct object, as seen in the examples below.

---

<sup>6</sup> The verb *ú-kú-<sup>l</sup>sú<sup>l</sup>-l-á*, used a number of times in this work. While it will generally be glossed as ‘blacksmith,’ it should be noted that it means ‘to sculpt, fashion, or forge something out of metal’.

- (95) a. à- kú- 'tú- pél -èl -à wèèwé  
 3sg Pr 1pl shave Ap FV you  
 'he is shaving us for you'
- b. à- kú- 'yá- pél -èl -à swèèswé  
 3sg Pr 3pl shave Ap FV us  
 'he is shaving them for us'

### 2.2.2.2 Reciprocal

The reciprocal extension /-an/ can be added to transitive verbs to give the sense of doing the action 'to each other.' Examples are given below.

- (96) a. ú-kú-fúl-à 'to wash'  
 b. ú-kú-fúl-án-à 'to wash each other'
- c. ú-kú-lá's-á 'to hit'  
 d. ú-kú-lá's-án-à 'to hit each other'
- e. ú-kú-sáákúl-à 'comb'  
 f. ú-kú-sáákúl-án-à 'comb each other'

### 2.2.2.3 Stative

The Stative /-ik/ (which sometimes surfaces as [-ek]) is added to make a transitive verb intransitive.

- (97) a. ú-kú-fúl-à 'to wash'  
 b. ú-kú-fúl-ík-à 'to be washed'
- c. ú-kú-kóm-à 'to cut'  
 d. ú-kú-kóm-ék-à 'to be cut'
- e. ú-kú-lól-à 'to see'  
 f. ú-kú-lól-ék-à 'to be seen'

### 2.2.2.4 Passive

The passive of a verb is generally formed by adding the suffix /-u/ which generally surfaces as [w], as seen in the following examples.



(98) Examples containing the passive extension

- |    |  |                 |
|----|--|-----------------|
| a. | ú-kú-fúl-à                               | ‘to wash’       |
| b. | ú-kú-fúl-w-á                             | ‘to be washed’  |
| c. | ú-kw-ééng-à                              | ‘to smelt’      |
| d. | ú-kw-ééng-w-á                            | ‘to be smelted’ |
| e. | ú-kú- <sup>l</sup> é <sup>l</sup> ét-à   | ‘to bring’      |
| f. | ú-kú- <sup>l</sup> é <sup>l</sup> ét-w-á | ‘to be brought’ |
| g. | ú-kú-lúk-à                               | ‘to weave’      |
| h. | ú-kú-lúk-w-á                             | ‘to be woven’   |
| i. | ú-kú-víimb-à                             | ‘to cover’      |
| j. | ú-kú-víimb-w-á                           | ‘to be covered’ |

After certain roots, such as those of the CV shape, the “long” Passive is added, as illustrated below. (The input forms of the roots are shown in parentheses.)<sup>7</sup>

- |      |    |   |                |        |
|------|----|---|----------------|--------|
| (99) | a. | ú-kú-sh-á                               | ‘to grind’     | (/si/) |
|      | b. | ú-kú-sí-íw-á                            | ‘to be ground’ |        |
|      | c. | ú-kú-ly-à                               | ‘to eat’       | (/lí/) |
|      | d. | ú-kú- <sup>l</sup> í- <sup>l</sup> íw-á | ‘to be eaten’  |        |
|      | e. | ú-kú-lw-á                               | ‘to fight’     | (/lu/) |
|      | f. | ú-kú-lw-ííw-á                           | ‘to be fought’ |        |

### 2.2.2.5 Short Causative

There are two ways in which the causative is formed in Cilungu. The first way to form the causative (which I will refer to as the “short causative”) is by adding the suffix /-i/ (which, as detailed below in section 3.5 will glide to [y] before a non-identical vowel as well as induce a “mutation” of the preceding consonant).

---

<sup>7</sup> After discussing the phonology of the long passive in §3.6 we conclude that it should be set up as /-igu/.

- (100)
- |    |  |                          |
|----|--|--------------------------|
| a. | ú-kú- <sup>1</sup> úm-à                    | ‘to dry (intr.)’         |
| b. | ú-kú- <sup>1</sup> úm-y-á                  | ‘to make dry’            |
| c. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-á     | ‘to be hard/strong’      |
| d. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-y-á   | ‘to harden, make strong’ |
| e. | ú-kú- <sup>1</sup> fú <sup>1</sup> lúm-à   | ‘to boil over (intr.)’   |
| f. | ú-kú- <sup>1</sup> fú <sup>1</sup> lúm-y-á | ‘to cause to boil over’  |
| g. | ú-kó- <sup>1</sup> óp-à                    | ‘to fear’                |
| h. | ú-kó- <sup>1</sup> óf-y-á                  | ‘to frighten’            |
| i. | ú-kú- <sup>1</sup> ó <sup>1</sup> ómb-à    | ‘to work’                |
| j. | ú-kú- <sup>1</sup> ó <sup>1</sup> ómv-y-á  | ‘to use, make work’      |
| k. | ú-kw-á <sup>1</sup> ánkán-à                | ‘to share’               |
| l. | ú-kw-á <sup>1</sup> ánkán-y-á              | ‘to divide’              |

#### 2.2.2.6 Long Causative

The second way to form the causative (which I will refer to as the “long causative”) is by adding the suffix /-iisi/ (which, due to phonological processes to be described later surfaces as [-iish] or [-eesh]).<sup>8</sup>

- (101)
- |    |  |                               |
|----|--|-------------------------------|
| a. | ú-kú-fúl-à                                   | ‘to wash’                     |
| b. | ú-kú-fúl-íish-á                              | ‘to cause to wash’            |
| c. | ú-kú- <sup>1</sup> sú <sup>1</sup> l-á       | ‘to sculpt’                   |
| d. | ú-kú- <sup>1</sup> su <sup>1</sup> l-íish-á  | ‘to cause to sculpt’          |
| e. | ú-kú- <sup>1</sup> lé <sup>1</sup> ét-à      | ‘to bring’                    |
| f. | ú-kú- <sup>1</sup> lé <sup>1</sup> ét-éesh-á | ‘to cause to bring’           |
| g. | ú-kú-lól-à                                   | ‘to see’                      |
| h. | ú-kú-lól-éesh-á                              | ‘to cause to see, to look at’ |
| i. | ú-kw-á <sup>1</sup> ázím-à                   | ‘to borrow’                   |
| j. | ú-kw-á <sup>1</sup> ázím-íish-á              | ‘to lend’                     |
| k. | ú-kú-mány-á                                  | ‘to know’                     |
| l. | ú-kú-mány-íish-á                             | ‘to let know’                 |
| m. | ú-kú-w-á                                     | ‘to fall’                     |
| n. | ú-kú-w-íish-á                                | ‘to fell’                     |

<sup>8</sup> The verb *ú-kú-<sup>1</sup>lé<sup>1</sup>éng-à* is also used periphrastically to mean ‘to cause’. E.g. *tú-kú-mù-lééng ú-<sup>1</sup>kú-pél-à* ‘we are causing him to shave’

- o. ú-kú-ly-à                      ‘to eat’  
 p. ú-kú-<sup>l</sup>í-<sup>l</sup>ish-á              ‘to feed’

We might ask whether it is possible to set up any linguistic criteria for determining whether any given root will take /-i/ or /-iisi/ as its causative. The most robust generalization, though it is by no means a perfect one is that intransitive verbs generally take /-i/, while transitive ones take /-iisi/. Still, there are a number of exceptions to this, as the reader can see in the forms above as well as a more complete list of /-i/ causatives given later in section 3.5. Given that the number of these exceptions is not insignificant, I think the most reasonable approach is to assume that a number of stems (again mostly, but not exclusively intransitives) are marked in the lexicon to take the /-i/ causative and all others take /-iisi/, as the latter seems to be the most generally productive of the two. Finally, it may be that this second causative is really two morphemes, /-iis/ (which Hyman (1994)) refers to as an “intermorph”) and /-i/ (the sole morpheme used in the short causative). Phonological evidence relevant to this will be presented below in section 3.5.

### 2.2.2.7 Intensive

The intensive is formed by adding the suffix /-isi/ (which, due to phonological rules to be discussed in section 3.3, will surface as either [-ish] or [-esh]). It should be noted that the first vowel of this Intensive prefix is short, whereas the first vowel of the long Causative (§2.2.2.6) is long.

- (102) a. ú-kú-fúl-à                      ‘to wash’  
       b. ú-kú-fúl-<sup>l</sup>ish-á              ‘to wash a lot’  
       c. ú-kú-<sup>l</sup>é-<sup>l</sup>ét-à                ‘to bring’  
       d. ú-kú-<sup>l</sup>é-<sup>l</sup>ét-<sup>l</sup>esh-á          ‘to bring a lot’  
       e. ú-kú-<sup>l</sup>sú-<sup>l</sup>l-á                ‘to blacksmith’  
       f. ú-kú-<sup>l</sup>sú-<sup>l</sup>ish-á              ‘to blacksmith a lot’

### 2.2.2.8 Transitive Reversive

The transitive reversion is formed by adding the suffix /-ul/ or /-ulul/.<sup>9</sup>

<sup>9</sup> On occasion a verb will contain the extension /-ulul/ but the meaning is less clearly reversion. E.g. *ú-kw-éél-à* ‘to sift/winnow’, *ú-kw-éél-úul-à* ‘to re-sift’.

(103) Transitive Reversive

- |    |   |                             |
|----|---|-----------------------------|
| a. | ú-kú-zíík-à                                 | ‘to bury, put dirt in hole’ |
| b. | ú-kú-zíík-úl-à                              | ‘to unbury, dig out hole’   |
| c. | ú-kú-fúúng-à                                | ‘to lock’                   |
| d. | ú-kú-fúúng-úl-à                             | ‘to unlock’                 |
| e. | ú-kú-síimp-à                                | ‘to stick into (ground)’    |
| f. | ú-kú-síimp-úl-à                             | ‘to pull out’               |
| g. | ú-kú-fyéént-à                               | to tighten (e.g. belt)      |
| h. | ú-kú-fyéént-úlúl-à                          | to loosen (tr)              |
| i. | ú-kú-pét-à                                  | ‘to fold’                   |
| j. | ú-kú-pét-úlúl-à                             | ‘to unfold’                 |
| k. | ú-kú- <sup>!</sup> sú <sup>!</sup> m-á      | ‘to sew’                    |
| l. | ú-kú- <sup>!</sup> sú <sup>!</sup> m-úlúl-à | ‘to undo a seam’            |

**2.2.2.9 Other extensions**

The most productive extensions are those given above. Beyond these, there are a few more which only appear on a very limited number of roots. The first of these is the extension /-uk/, which, like the Stative /-ik/, acts as an intransitivizer. This can be seen in the example below (where for phonological reasons to be discussed later it surfaces as [ok]).

- (104) a. ú-kó-ólól-à                      ‘to straighten’  
b. ú-kó-ólól-ók-à                      ‘to become straight’

If the transitive verb in question ends in /-ul/, then /-uk/ generally replaces it rather than being added after it.<sup>10</sup>

---

<sup>10</sup> It should be noted that there are in fact some cases where /-uk/ can in fact be co-occur with a preceding /-ul/. E.g. *ú-kú-fyéént-úl-úl-à* ‘to loosen (tr.)’, *ú-kú-fyéént-úl-úk-à* ‘to become loose’

- (105) a. ú-kú-páánd-úl-à 'to split'  
 b. ú-kú-páánd-úk-à 'to become split'
- c. ú-kú-<sup>1</sup>zy-ú<sup>1</sup>úl-à 'to awaken'  
 d. ú-kú-<sup>1</sup>zy-ú<sup>1</sup>úk-à 'to wake up'
- e. ú-kú-páándó-ól-à 'to break into little pieces'  
 f. ú-kú-páándó-ók-à 'to be broken into little pieces'
- g. ú-kú-<sup>1</sup>kó<sup>1</sup>ónt-ól-à 'to snap'  
 h. ú-kú-<sup>1</sup>kó<sup>1</sup>ónt-ók-à 'to be snapped'

There are numerous forms in the language (though not all intransitive) which end in [ok-a] or [uk-a] for which there is no corresponding form without this extension.

- (106) a. ú-kú-lámúk-à 'to greet'  
 b. ú-kú-<sup>1</sup>pú<sup>1</sup>umbúk-à 'to faint'  
 c. ú-kú-zúúngúk-à 'to become surprised, awed'

The extension /-am/, like the extensions /-ik/ and /-uk/ can also be used to render a transitive verb intransitive.

- (107) a. ú-kú-<sup>1</sup>fí<sup>1</sup>s-á 'to hide (tr)'  
 b. ú-kú-<sup>1</sup>fí<sup>1</sup>s-ám-à 'to hide from (intr)'  
 c. ú-kú-pét-à 'to fold (tr)'  
 d. ú-kú-pét-ám-à 'to be bent'

It should be noted that there are a number of forms in the language which end in [ama] and are intransitive, but which have no corresponding form without /-am/. Examples of forms with this “frozen” extension, all intransitive, are given below.

- (108) a. ú-kw-á<sup>1</sup>ásám-à 'to open one's mouth'  
 b. ú-kú-<sup>1</sup>bé<sup>1</sup>éndám-à 'to incline or bend'  
 c. ú-kú-cííndám-à 'to become important'  
 d. ú-kú-fúpám-à 'to lie on one's face'  
 e. ú-kú-lúúngám-à 'to be correct'  
 f. ú-kú-<sup>1</sup>sé<sup>1</sup>nám-à 'to lie on one's back'

Finally, there is an extension /-al/ which generally adds a reflexive meaning.

- (109) a. ú-kú-víimb-à 'to cover/thatch'  
 b. ú-kú-víimb-ál-à 'to cover oneself'  
 c. ú-kú-fúl-à 'to wash'  
 d. ú-kú-fúl-ál-à 'to wash oneself, bathe'  
 e. ú-kú-<sup>1</sup>pá<sup>1</sup>k-á 'to smear/rub on'  
 f. ú-kú-<sup>1</sup>pá<sup>1</sup>k-ál-à 'to smear/rub on oneself'

In some cases the meaning of /-al/ is more intransitive than overtly reflexive:

- (110) a. ú-kú-sh-à 'to leave'  
 b. ú-kú-<sup>1</sup>sh-á<sup>1</sup>ál-à 'to be left, remain'

There are certain roots which end in [ala], and are intransitive, but where the corresponding forms without /-al/ do not exist.

- (111) a. ú-kú-<sup>1</sup>kú<sup>1</sup>túmál-à 'to keep quiet'  
 b. ú-kú-<sup>1</sup>myá<sup>1</sup>álál-à 'to stop weeping'

#### 2.2.2.10 Combining extensions

In general, the language allows for a productive combination of its extensions. The ordering of the extensions generally follows from the scope of the added meanings. For instance, 'to unlock a lot' is rendered *ú-kú-fúúng-úl-ísh-á*, as the scope of the intensive includes the reversive, but not vice-versa (i.e. what one is doing a lot of is unlocking). The form \**ú-kú-fúúng-ísh-úl-à* is ungrammatical. (Semantically, this ungrammatical form would have to mean something like 'undoing the intensive locking' but such a meaning would have to be expressed with a larger phrase.) In some cases, two orderings are possible with the meaning determined by the scope.

- (112) a. ú-kú-úm-án-íl-à 'to beat each other for/because of'  
 b. ú-kú-úm-íl-án-à 'to beat for each other'

We now consider specific examples of combining some of the extensions discussed above. Since the presence of the two causative extensions as well as the intensive one induce a number of complex phonological and morphological alterations in the form, I will present and discuss them in detail in section 3.5. We begin with the extensions that can be combined with the Reversive.

- (113) a. Rev + Passive                      ú-kú-<sup>1</sup>fú<sup>1</sup>úng-úl-w-á                      ‘to be unlocked’  
 b. Rev + Intens                      ú-kú-<sup>1</sup>fú<sup>1</sup>úng-úl-ísh-á                      ‘to unlock a lot/in full’  
 c. Rev + Caus                      ú-kú-<sup>1</sup>fú<sup>1</sup>úng-úz-y-á                      ‘to cause to unlock’  
 d. Rev + Applic                      ú-kú-<sup>1</sup>fú<sup>1</sup>úng-w-ííl-à ~ ú-kú-fú<sup>1</sup>úng-úl-íl-à                      ‘to unlock for/using’ <sup>11</sup>  
 e. Rev + Passive + Applic                      ú-kú-<sup>1</sup>fú<sup>1</sup>úng-w-ííl-w-á ~ ú-kú-fú<sup>1</sup>úng-úl-íl-w-á                      ‘to be unlocked for’  
 f. Rev + Applic + Recip                      ú-kú-<sup>1</sup>fú<sup>1</sup>úng-w-ííl-án-à ~ ú-kú-fú<sup>1</sup>úng-úl-íl-án-à                      ‘to unlock for each other’

Let us now turn to cases of multiple extensions involving the Applicative. Examples of the Applicative and Passive are given below.

- (114) a. ú-kú-fúl-íl-w-á                      ‘to be washed for’  
 b. ú-kú-zíík-íl-w-á                      ‘to be buried for’  
 c. ú-kú-<sup>1</sup>sú<sup>1</sup>l-íl-w-á                      ‘to be blacksmithed for’  
 d. ú-kú-<sup>1</sup>lé<sup>1</sup>ét-w-á                      ‘to be brought for’

Below are cases where the Applicative combines with the Reciprocal. As noted above, if the meaning is ‘to verb for each other’, then the order is Applicative plus Reciprocal, as seen in (115). However, if the meaning is ‘to verb each other for or because of’ then the order is Reciprocal plus Applicative as seen in (116).

- (115) a. ú-kú-fúl-íl-án-à                      ‘to wash for each other’  
 b. ú-kú-kóm-él-án-à                      ‘to cut for each other’  
 c. ú-kú-<sup>1</sup>lé<sup>1</sup>ét-él-án-à                      ‘to bring for each other’  
 d. ú-kú-zíík-íl-án-à                      ‘to bury for each other’  
 e. ú-kú-lól-él-án-à                      ‘to watch after each other’s affairs (lit. see for e.o.)’
- (116) a. ú-kú-úm-án-íl-à                      ‘to beat each other because of’  
 b. ú-kú-fúl-án-íl-à                      ‘to wash each other because of’  
 c. ú-kw-á<sup>1</sup>ázw-áán-íl-à                      ‘to help each other because of’

Finally, we examine instances of multiple extensions, involving one of the less productive extensions /-al/.

- (117) a. ú-kú-fúl-à                      ‘to wash’  
 b. ú-kú-fúl-ál-à                      ‘to bathe’  
 c. ú-kú-fúl-ál-íl-à                      ‘to bathe for or with’  
 d. ú-kú-fúl-ál-ísh-á                      ‘to bathe a lot’  
 e. ú-kú-fúl-ál-íísh-á                      ‘to cause to bathe’

I conclude by noting that certain combinations, which might seem possible, are in fact not attested in the language. Given possible permutations of the long Causative, Applicative and Reciprocal, for example, the following combinations do not seem to be attested.

<sup>11</sup> The combination of extensions in (113d-f) optionally induces the process of “imbrication” which will be presented and analyzed in detail in chapter 4.

- (118) a. \*u-ku-ziik-an-il-ish-a (Reciprocal – Applicative – Long Causative)  
 b. \*u-ku-ziik-an-ish-il-a (Reciprocal – Long Caus – Applicative)  
 c. \*u-ku-ziik-il-an-ish-a (Applicative – Recip – Long Causative)  
 d. \*u-ku-ziik-il-ish-an-a (Applicative – Long Causative – Reciprocal)  
 e. \*u-ku-ziik-ish-an-il-a (Long Causative – Reciprocal – Applicative)  
 f. \*u-ku-ziik-ish-il-an-a (Long Causative – Applicative – Reciprocal)



## CHAPTER 3: PHONOLOGY OF SEGMENTS AND SYLLABLES

As is the case in most Bantu languages, the most common syllable type in Cilungu is CV, though syllables of the shape V are also amply attested. The only consonant clusters found are of the form: a) nasal + obstruent, and b) C + glide.<sup>1</sup> With very few exceptions (detailed in section 3.5) any consonant can precede any vowel. While length is contrastive for vowels, it is not for consonants; i.e. there are no geminate consonants. I assume there are no consonantal codas in Cilungu and therefore analyze all consonants as well as consonant clusters as being part of an onset, consistent with the fact that they can all occur word-initially as well as word-medially.

All obstruents in the language can be preceded by a nasal: mb, mp nd, nt, ng, nk, mv, mf, nz, ns, nsh, nj, nch. Of course, the question arises as to whether these are unitary phonemes or consonant clusters. In a monomorphemic word like *yèmbà* ‘lake’ it is admittedly somewhat ambiguous as to whether the [mb] is a unitary phoneme or a sequence of /m/ and /b/. And, of course, some phonological process could change one representation into the other. It is clear, however, that some instances of surface [nC] must begin as two separate phonemes. E.g. /ú-ku-n-súl-il-a/ > *ú-kúù-n-súl-il-à* ‘to blacksmith for me’ (where /n/ is representation of the 1 sg. object). Given that, I will assume, for concreteness, that all nasal+C units begin as two separate phonemes. We will see later that such nasals are moraic and wind up donating this mora to the preceding vowel, but whether the N+C cluster then becomes a unitary pre-nasalized stop or simply remains as an onset cluster must remain an open question. (See Downing (to appear) for a thorough discussion of this issue regarding NC sequences in several Bantu languages.)

With regard to C + glide sequences—the glides in question being [y] and [w]—nearly any consonant can be followed by one of these two glides in the output. The only consonant which never precedes the labio-velar glide [w] is the alveopalatal nasal [ɲ] (transcribed here as <ny>). There are more restrictions on what consonants can precede [y]. The following were never found: [ty], [ky], [gy], [cy], [jy], and [ng’y].<sup>2</sup>

The question arises as to whether all surface glides can be derived from the high vowels /i/ and /u/ or whether some must be set up as phonemes themselves. As this is an issue with many phonological implications, we will examine this question, with regard to glides which follow consonants as well as those which do not, in section 3.2 below (see also §10.1.3).

### 3.1 Rules affecting V-length

Let us now examine vowel length in Cilungu and what happens when there is some sequence of adjacent vowels underlyingly. Long vowels in Cilungu can be either underlying or derived. The contrastive vowel length distinction in Cilungu is exemplified by the minimal pairs below.

#### (1) Vowel length

- |                |              |
|----------------|--------------|
| a. ú-kú-zík-à  | ‘to be deep’ |
| b. ú-kú-zíík-à | ‘to bury’    |
| c. ú-kú-pél-à  | ‘to shave’   |
| d. ú-kú-péél-à | ‘to swing’   |

<sup>1</sup> There are a few words that contain a nasal plus consonant plus glide sequence. E.g. *símbwà* ‘dog’.

<sup>2</sup> It might initially appear from this list that the only obstruent-glide sequences permitted are when the obstruent is a labial, as both [by] and [py] is amply attested. But while rather rare, [dy] is attested as well, though only after a nasal. E.g. *ín-dy-è* ‘that I eat’.

e.	ú-kú-lúk-à	‘to weave’
f.	ú-kú-lúúk-à	‘to remember, be homesick for’
g.	ú-kú- <sup>!</sup> sú <sup>!</sup> l-á	‘to sculpt, forge (in blacksmithing)’
h.	ú-kú- <sup>!</sup> sú <sup>!</sup> úl-à	‘to ignore’
i.	ú-kú- <sup>!</sup> pí <sup>!</sup> sh-á	‘to drive’
j.	ú-kú- <sup>!</sup> pí <sup>!</sup> ísh-á	‘be overcooked’
k.	ú-kú-láy-à	‘to say goodbye, to promise’
l.	ú-kú-lááy-à	‘to set off early’
m.	ú-kú-cís-à	‘to injure’
n.	ú-kú-cíís-à	‘to iron’
o.	ú-kú- <sup>!</sup> tí <sup>!</sup> y-á	‘to celebrate a wedding’
p.	ú-kú- <sup>!</sup> tí <sup>!</sup> íy-à	‘to gather (esp. firewood)’
q.	ú-kú-tólók-à	‘to jump over’
r.	ú-kú-tólóók-à	‘to jump up and down (& skip)’
s.	ú-kú-sákúl-à	‘to kill (wild beast)’
t.	ú-kú-sáákúl-à	‘to comb’

Vowel length can also be derived both morphologically and phonologically. When the morphology concatenates two morphemes which bring together two like vowels, these will combine into one long vowel. This is exemplified below.

- (2)
- |    |   |                 |
|----|---|-----------------|
| a. | ú-kú-úm-à                                 | ‘to beat’       |
| b. | ú-kú-sí-íl-à                              | ‘to grind for’  |
| c. | ú-kú- <sup>!</sup> yá- <sup>!</sup> ásh-á | ‘to light them’ |

While I know of no segmental processes which conclusively proves that these VV sequences are tautosyllabic and not heterosyllabic, there is ample tonal evidence, to be presented below in chapters 5 and 6, which diagnoses these as tautosyllabic long vowels.

Long vowels can also be derived via compensatory lengthening in three ways: deletion, gliding, and nasal demorification. These will be discussed in turn.

### 3.1.1 Vowel Deletion

First, let us consider deletion. The low vowel /a/ will delete before a non-identical vowel, which is compensatorily lengthened. Examples below show that this is always triggered by a root-initial vowel, whether the target is a noun class marker, object marker, TAM prefix, or subject marker.<sup>3</sup>

- (3) a. á- m- í'ínò < /á-ma-íno/ (Cf. í-lí-í'ínò 'eye')  
 PP-C5-tooth  
 'teeth'
- b. ú- kú- 'y- é'él -él -à < /ú-ku-yá-el-el-a +H/ <sup>4</sup>  
 PP-C15-3plOM-winnow-Ap-FV  
 'to winnow for them'
- c. ú- kú- 'yú- 'úm -à < /ú-ku-yá-um-a +H/  
 PP-C15-3plOM- beat-FV  
 'to beat them'
- d. tùù- ng-úúm -il- á < /tu-ngá-um-il-á/  
 1pl Pot beat Ap FV  
 'we can beat for'
- e. y- úúm-il-é < /yá-um-ile +H/  
 3pl beat Prf FV  
 'we have beaten'

The input and output representations of (3a) are given below.

- (4) a. a-ma-ino Input  
 | | |  
 μ μ μ μ
- b. a-m -i no Output  
 | / \ |  
 μ μ μ μ  
 | \ / |  
 σ σ σ

The deletion of the Low vowel sets its mora afloat. The free mora then reattaches to the vowel which precipitated the deletion. Thus, the second vowel is compensatorily lengthened, which preserves the mora count.

<sup>3</sup> The question does arise in the analysis of these cases as to whether they could also be analyzed as vowel harmony (of the first vowel to the second) where nothing is deleting. This issue will be revisited when vowel deletion across a word boundary is discussed in chapters 8 and 9.

<sup>4</sup> The input forms (given as an aid to the reader) contain both segmental and tonal information. The “+H”—to be discussed in great detail in section 5.3—signals that a (floating) High tone is added to the stem.

Next we note that an underlying long vowel will not delete before another vowel. This can be seen in the Immediate Future forms below, where the /a/ in the tense/aspect prefix /maa-/ surfaces even though it is immediately followed by another vowel.

(5) V-initial roots in the Immediate Future

a.	tú-máà-ìmb-à	‘we will now dig’	/tú-máa-imb-a/
b.	tú-máà-èng-à	‘we will now smelt (or extract oil)’	/tú-máa-eng-a/
c.	tú-máà-ám-à	‘we will now call’	/tú-máa-am-a/
d.	tú-máà-òmb-à	‘we will now clap’	/tú-máa-omb-a/
e.	tú-máà-ùm-à	‘we will now beat’	/tú-máa-um-a/

The resistance of long vowels to deletion can be seen in other tense/aspects as well. (Justification that these TAM prefixes have long vowels is presented in §5.1.)

(6)	a.	tú-máà-ík-à	‘these days we put’	/tú-ma-áa-ík-a/
	b.	tú-káà-ìmb-à	‘we will continue to dig’	/tú-ka-áa-imb-a/
	c.	tú-láà-ík-à	‘we will be going down’	/tú-la-áa-ik-a/
	d.	tú-káà-ìmb-à	‘we dig’	/tú-káa-imb-a/
	e.	tw-áà-ìmb-à	‘and then we started to dig’	/tú-aa-imb-a/
	f.	tw-áà-ìmb-à	‘let us start digging’	/tú-aa-imb-a/

I have found only two cases where the first (non-high) vowel of an underlying VV sequence does not glide. The first is within reduplicated forms, as shown in (7) (cf. §5.5) and the second is when an onsetless SM immediately precedes a vowel-initial root.

(7)	a.	yá-kw-íimb-á-íimb-à	‘they are digging repeatedly’	/yá-ku-imb-a-imb-a/
	b.	yá-kw-éél-á-éél-à	‘they are winnowing repeatedly’	/yá-ku-el-a-el-a/
(8)	a.	à-éél-à	‘and then he/she winnowed’	/a-el-a +H/
	b.	á-éél-è	‘that he/she winnow’	/á-el-é/

In the case of the reduplicated forms, I assume that the non-deletion of the FV is due to a strong phonological boundary between the reduplicant and base (cf. §5.5). The forms in (8) are unusual in several respects and are explored in more detail in §10.7.2.

Let us now examine certain cases of three consecutive input vowels. We see in the Yesterday Past, that the tense/aspect prefix /á-/ will delete before a non-identical root-initial vowel.

(9)	a.	tw-íís-il-é	‘we went down’	/tú-á-ik-il-é/
	b.	tw-éénz-il-é	‘we smelted’	/tú-á-eng-il-é/
	c.	t-óós-il-é	‘we burned’	/tú-á-oc-il-é/

If this tense/aspect prefix is preceded by another /a/, e.g. in a subject marker or negative marker, that /a/ will delete as well.

- |      |    |               |                                 |                      |
|------|----|---------------|---------------------------------|----------------------|
| (10) | a. | y-ééz-il-é    | ‘they winnowed’                 | /yá-á-el-il-é/       |
|      | b. | y-éénz-il-é   | ‘they smelted’                  | /yá-á-eng-il-é/      |
| (11) | a. | tù-t-íís-il-é | ‘we went down’ (Yesterday)      | /tu-tá-á-ik-il-é/    |
|      | b. | tù-t-íis-íl-é | ‘we went down’ (Far Past)       | /tu-tá-a-ik-il-e +H/ |
|      | c. | tù-t-íik-á    | ‘we have not already come down’ | /tù-tá-a-ik-a +H/    |

Thus, while a long tautomorphic vowel does not undergo deletion before another vowel, a long heteromorphic vowel will. It should be noted that the first syllable in the forms (10) and the second syllable in the forms in (11) are bimoraic phonetically and not trimoraic. I take this as evidence for a rule of mora pruning whereby any syllable with more than two morae in it is trimmed back to two morae. The effects that this has on the tone pattern will be discussed later in section 10.4.5.

Since the above discussion of vowel deletion has been limited to the deletion of the low vowel /a/ before other vowels, one might naturally wonder if the other vowels delete. As we will see below (in §3.1.2), the high vowels /i/ and /u/ usually glide before non-identical vowels. An apparent exception is found in forms like the following which are consistent with an analysis of /u/ deleting before /o/.

- |      |    |            |                  |                 |
|------|----|------------|------------------|-----------------|
| (12) | a. | ú-k-óóp-à  | ‘to fear’        | /ú-ku-op-a/     |
|      | b. | ú-k-óómb-à | ‘to clap’        | /ú-ku-omb-a/    |
|      | c. | t-óómb-é   | ‘that we clap’   | /tú-omb-e +H/   |
|      | d. | t-óóf-il-é | ‘we have feared’ | /tú-op-il-e +H/ |

One possible analysis of these forms is to posit a rule which deletes /u/ before /o/. However, below I will suggest an alternative approach that may be slightly better motivated whereby /u/ glides in these cases and it is the [w] which is subsequently deleted (e.g. /u-ku-op-a/ > ukwoopa > ukoopa), as \*wu and \*wo sequences are never found.

That leaves only /e/ and /o/ as possible targets for deletion. Like many 5 vowel Bantu languages, it turns out that it is simply not possible to test this word-internally between prefixes and a following vowel since all verbal (as well as nominal) prefixes contain only the “peripheral” vowels /i/, /u/, and /a/. The only place, word-internally, where this might be tested, would be between a root-final /e/ or /o/ and a following vowel, either from an extension, or the Final Vowel. (Cases of vowel deletion across words is addressed in section 9.9.) The available evidence suggests that the two mid vowels actually behave asymmetrically with regard to their fate before another vowel. The behavior of CV roots, discussed in more detail below in section 3.4, suggests that /o/ glides to [w] before another vowel, while /e/ will delete in the same context. These verbs are given below.

- |      |    |             |                    |                  |
|------|----|-------------|--------------------|------------------|
| (13) | a. | ú-kú-mw-à   | ‘to drink’         | /ú-ku-mó-a +H/   |
|      | b. | ú-kú-ng’w-à | ‘to drink’         | /ú-ku-ng’ó-a +H/ |
| (14) | a. | ú-kú-c-à    | ‘to dawn, be ripe’ | /ú-ku-cé-a +H/   |
|      | b. | ú-kú-t-à    | ‘to stop, lay egg’ | /ú-ku-té-a +H/   |
|      | c. | ú-kú-p-à    | ‘to give’          | /ú-ku-pé-a +H/   |

### 3.1.2 Gliding

Now let us now turn to gliding. In Cilungu the high vowel /i/ will glide before any non-identical vowel and /u/ will glide (and surface as [w]) before any non-round vowel. The following vowel then surfaces as long as seen in the examples below.

(15) Underlying sequences of /i + V/

- |    |                                 |                        |                   |
|----|---------------------------------|------------------------|-------------------|
| a. | tú- kú- <sup>l</sup> vy-ééng -à | < /tú-ku-ví-eng-a/     |                   |
|    | 1pl-PP-C8O-smelt-FV             |                        |                   |
|    | ‘we are smelting them’          |                        |                   |
| b. | tú-kú- <sup>l</sup> vy-áásh-á   | ‘we are lighting them’ | /tú-ku-ví-ak-i-a/ |
| c. | tú-kú- <sup>l</sup> vy-óóp-à    | ‘we are fearing them’  | /tú-ku-ví-óp-a/   |
| d. | tú-kú- <sup>l</sup> vy-úúm-à    | ‘we are beating them’  | /tú-ku-ví-um-a/   |
| e. | tú-kú- <sup>l</sup> ví-ík-à     | ‘we are putting them’  | /tú-ku-ví-ík-a/   |

(16) Underlying sequences of /u + V/

- |    |                 |                   |                |
|----|-----------------|-------------------|----------------|
| a. | tú- kw-ííz -à   |                   |                |
|    | 1pl Pr-come-FV  |                   |                |
|    | ‘we are coming’ |                   |                |
| b. | tú-kw-éél-à     | ‘we are winnowing | /tú-ku-el-a/   |
| c. | tú-kw-áásh-á    | ‘we are lighting’ | /tú-ku-ak-i-a/ |
| d. | tú-k-óóp-à      | ‘we are fearing’  | /tú-ku-op-a/   |
| e. | tú-kú-úm-à      | ‘we are beating’  | /tú-ku-um-a/   |

The input and output representations of (15c) are given below.

- |      |    |               |        |
|------|----|---------------|--------|
| (17) | a. | tu-ku-vi-op-a | Input  |
|      |    |               |        |
|      |    | μ μ μ μ μ     |        |
|      | b. | tu-ku-vi-op-a | Output |
|      |    | / \           |        |
|      |    | μ μ μ μ μ     |        |
|      |    | \ /           |        |
|      |    | σ σ σ σ       |        |

When the /i/ glides it loses its mora which then gets reassociated to the following vowel (in this case /o/), again illustrating mora conservation and compensatory lengthening.

We saw above (in §3.1.1) that a long vowel was immune to undergoing deletion. Long vowels are also immune from undergoing gliding as seen in the examples below.

- (18) a. tú-cí-líi-èng-à 'we are still smelting' /tú-cí-líi-eng-a/  
 b. tú-cí-líi-ám-à 'we are still calling' /tú-cí-líi-ám-a/

While the morphology did not provide any context to check to see if vowel deletion would apply between a SM and a TAM prefix, the morphology does provide such a context for gliding and such will occur as seen below.

- (19) a. tw-áá-fúz-il-é 'we washed (YP)' /tú-á-ful-il-é/  
 b. mw-áá-fùz-íl-é 'you (pl.) washed (FP)' /mú-a-ful-il-e +H/  
 c. tw-áà-fùl-à 'let us start to wash' /tú-áa-ful-a/  
 (20) a. vy-áá-fúz-il-é 'they (C8) washed (YP)' /ví-á-ful-il-é/  
 b. zy-áá-fùz-íl-é 'they (C10) washed (FP)' /zí-a-ful-il-e +H/  
 c. vy-áà-fùl-à 'let them (C8) start to wash' /ví-áa-ful-a/

Finally, gliding will take place between a root-final high vowel and another vowel within the stem, as shown below.

- (21) a. tú-máà-zw-ààng-à 'we will now be bleeding' /tú-maa-zu-ang-a/  
 b. tú-kú-zw-á 'we are bleeding' /tú-ku-zu-a/  
 c. tú-kú-<sup>l</sup>témw-á 'we are loving' /tú-ku-tému-a/  
 d. tú-kú-<sup>l</sup>ly-á 'we are eating' /tú-ku-lí-a/  
 e. yá-kú-<sup>l</sup>ly-áán-à 'they are eating each other' /yá-ku-lí-an-a/

The gliding of /i/ and /u/ could be accounted for in one of two ways. First, we could build into the rule of gliding that /i/ only glides before a non-identical vowel and that /u/ only glides before non-round vowels. There would then be a rule which deleted /u/ before /o/. (Derivationally, if u-deletion precedes gliding then we could generalize that a high vowel glides only before a non-identical vowel.) Alternatively, one could assume that /u/ and /i/ will glide before any vowel, with subsequent compensatory lengthening, and that subsequent rules will delete the glides. Specifically, one rule will delete [w] before a round vowel. (I.e. /u-o/ > woo > oo, /u-u/ > wuu > uu) and another rule would delete [y] only before [i].

- (22) a.  $y \rightarrow \emptyset / \_\_ i$   
 b.  $w \rightarrow \emptyset / \_\_ \{o,u\}$

Having such glide deletion rules predicts that there should be no phonetic [wo], [wu] or [yi] sequences in the language and this is in fact correct. Independent evidence for a rule which deletes [y] before [i] can be seen in the forms below.

- (23) a. yá-ám-è 'that they call' /yá-am-e +H/  
 b. í-íz-è 'that they come' /yá-iz-e +H /  
 c. í-ík-è 'that they come down' /yá-ik-e +H /

In forms (23b-c) the /i/ of the verb root first precipitates the deletion of preceding /a/, and then precipitates the deletion of the preceding [y]. (I.e. /ya-iz-e/ > yiize > iize)

Since the [w] is not found before either non-low back vowel, we might ask whether [y], in a symmetrical way, is absent not only before [i], but [e] as well. Sequences of [Cye] and [ye] which are not derived due to gliding before a heteromorphemic vowel are rare. The few such tautomorphemic cases which I have encountered are given below, and all are consistent with the [yee] sequence being derived from /ie/, since they are consistent with an analysis of gliding and compensatory lengthening.

- (24)
- |    |  |              |
|----|--|--------------|
| a. | ú-kú- <sup>1</sup> pyé <sup>1</sup> él-à | ‘to sweep’   |
| b. | sílyèenjé                                | ‘male ant’   |
| c. | yèembà                                   | ‘lake’       |
| d. | ú-kú-yéénz-à                             | ‘to be red’  |
| e. | ú-kú-yééngéés-à                          | ‘to glitter’ |

Examples of heteromorphologically derived such sequences are plentiful. Some examples follow:

- (25)
- |    |  |                           |                      |
|----|--|---------------------------|----------------------|
| a. | ú-kú- <sup>1</sup> zy-é <sup>1</sup> élék-à  | ‘to cook them (C10)’      | /ú-ku-zí-elek-a +H/  |
| b. | ú-kú- <sup>1</sup> vy-é <sup>1</sup> élék -à | ‘to cook them (C8)’       | /ú-ku-ví-elek-a +H/  |
| c. | ú-kú- <sup>1</sup> vy-é <sup>1</sup> él-él-à | ‘to winnow for them (C8)’ | /ú-ku-ví-el-il-a +H/ |
| d. | y-èèng-é                                     | ‘that they smelt’         | /yá-eng-é/           |

Finally, it should be noted that there are a few verb roots in the language which ostensibly begin with a vowel, but do not trigger the expected gliding or deletion of a preceding vowel. The hiatus between the two vowels is simply maintained. Examples of this are given below:

- (26)
- |    |  |                         |                       |
|----|--|-------------------------|-----------------------|
| a. | ú-kú-óómb-à                                  | ‘to get wet’            | /ú-ku-bomb-a/         |
| b. | ú-kú- <sup>1</sup> ví-ó <sup>1</sup> ómv-y-á | ‘to make them (C8) wet’ | /ú-ku-ví-bomb-i-a +H/ |
| c. | ú-kú- <sup>1</sup> yá-ó <sup>1</sup> ómv-y-á | ‘to make them (C2) wet’ | /ú-ku-yá-bomb-i-a +H/ |
| d. | ú-kú- <sup>1</sup> lú-ó <sup>1</sup> ómv-y-á | ‘to make it (C11) wet’  | /ú-ku-lú-bomb-i-a +H/ |
- (27)
- |    |  |                    |                       |
|----|--|--------------------|-----------------------|
| a. | ú-kú- <sup>1</sup> ó <sup>1</sup> ómb-à      | ‘to work’          | /ú-ku-bómb-a +H/      |
| b. | ú-kú- <sup>1</sup> ví-ó <sup>1</sup> ómv-y-á | ‘to use them (C8)’ | /ú-ku-bómb-i-a +H/    |
| c. | ú-kú- <sup>1</sup> yá-ó <sup>1</sup> ómv-y-á | ‘to use them (C2)’ | /ú-ku-yá-bómb-i-a +H/ |
| d. | ú-kú- <sup>1</sup> lú-ó <sup>1</sup> ómv-y-á | ‘to use it (C11)’  | /ú-ku-lú-bómb-i-a +H/ |
- (28)
- |    |   |                   |                    |
|----|---|-------------------|--------------------|
| a. | ú-kú-ól-à                                   | ‘to rot’          | /ú-ku-gol-a/       |
| b. | ú-kú- <sup>1</sup> yá- <sup>1</sup> ól-él-à | ‘to rot for them’ | /ú-ku-yá-gol-il-a/ |
- (29)
- |    |  |                       |                     |
|----|--|-----------------------|---------------------|
| a. | ú-kú- <sup>1</sup> ú <sup>1</sup> úmb-à                  | ‘to create’           | /ú-ku-gúmb-a +H/    |
| b. | ú-kú- <sup>1</sup> ví- <sup>1</sup> ú <sup>1</sup> úmb-à | ‘to create them (C8)’ | /ú-ku-ví-gúmb-a +H/ |
| c. | ú-kú- <sup>1</sup> yá- <sup>1</sup> ú <sup>1</sup> úmb-à | ‘to create them (C2)’ | /ú-ku-yá-gúmb-a +H/ |
| d. | ú-kú- <sup>1</sup> lú- <sup>1</sup> ú <sup>1</sup> úmb-à | ‘to create it (C11)’  | /ú-ku-lú-gúmb-a +H/ |



- (30)
- |    |  |                  |
|----|--|------------------|
| a. | ú-lú-òyá                                   | ‘bee-sting’      |
| b. | á-má-ímbì                                  | ‘waves’          |
| c. | í-cí- <sup>1</sup> ú <sup>1</sup> umbá     | ‘wall’           |
| d. | í-mí- <sup>1</sup> ú <sup>1</sup> undò     | ‘autumn’         |
| e. | í-cí-ùùngú                                 | ‘caterpillar’    |
| f. | í-cí- <sup>1</sup> ó <sup>1</sup> omb-él-ò | ‘tool’           |
| g. | á-má-úkàsì                                 | ‘types of beads’ |
| h. | á-ká- <sup>1</sup> ú <sup>1</sup> ungwé    | ‘grouping, herd’ |

I assume that all of the roots in the above forms begin with a consonant underlyingly. As will be shown below in section 3.3, where these are discussed in greater detail, there is ample evidence that this consonant is either /b/ or /g/, and that it deletes when it is morpheme initial and not preceded by a nasal. Assuming that this consonant deletion rule applies after deletion and gliding, we account for the behavior in these forms.

This same lack of gliding and deletion resulting in a surface vowel hiatus can be seen in forms containing one of the four object prefixes which begin with /g/.

- (31)
- |    |                             |                         |                     |
|----|-----------------------------|-------------------------|---------------------|
| a. | tú-l-íimb-á                 | ‘we will dig’           | /tú-la-imb-a +H/    |
| b. | tú-lá- <sup>1</sup> í-lás-á | ‘we will hit them (C4)’ | /tú-la-gí-lás-a +H/ |
| c. | tú-lá- <sup>1</sup> í-lás-á | ‘we will hit it (C9)’   | /tú-la-gí-lás-a +H/ |
| d. | tú-lá- <sup>1</sup> ú-lás-á | ‘we will hit it (C3)’   | /tú-la-gú-lás-a +H/ |
| e. | tú-lá- <sup>1</sup> ú-lás-á | ‘we will hit it (14)’   | /tú-la-gú-lás-a +H/ |
- (32)
- |    |                             |                             |                     |
|----|-----------------------------|-----------------------------|---------------------|
| a. | ú-kw-íimb-à                 | ‘to dig’                    | /ú-ku-lol-a/        |
| b. | yá-kú- <sup>1</sup> í-lól-à | ‘they are seeing them (C4)’ | /yá-ku-gí-lol-a +H/ |
| c. | yá-kú- <sup>1</sup> í-lól-à | ‘they are seeing it (C9)’   | /yá-ku-gí-lol-a +H/ |
| d. | yá-kú- <sup>1</sup> ú-lól-à | ‘they are seeing it (C3)’   | /yá-ku-gú-lol-a +H/ |
| e. | yá-kú- <sup>1</sup> ú-lól-à | ‘they are seeing it (C14)’  | /yá-ku-gú-lol-a +H/ |

### 3.1.3 Nasal Demorification

The final type of compensatory lengthening occurs when a vowel precedes a nasal – consonant sequence, as illustrated in (33).

- (33)
- |    |                      |                |
|----|----------------------|----------------|
| a. | ú- múú-ntù           | /ú-mu-ntu/     |
|    | PP C1 person         |                |
|    | ‘person’             |                |
| b. | í- cíí-nsáanzò       | /í-ci-nsanzo/  |
|    | PP C7 nest           |                |
|    | ‘nest’               |                |
| c. | ú- kúú- m- fúl -à    | /ú-ku-n-ful-a/ |
|    | PP C15 1sgOM wash FV |                |
|    | ‘to wash me’         |                |

These forms can be accounted for if we assume that a pre-consonantal nasal is moraic (whether it be that way in the UR or be assigned a mora by rule), and that a phonological process makes the nasal part of the onset of the following syllable. As part of this process the nasal must be disassociated from its mora which then attaches to the vowel in the previous syllable. This is illustrated below.

(34)	u-ku-n-ful-a	Input
	u-ku-n-ful-a	Mora Assignment
	μ μ μ μ μ	
	u-k u-n- ful-a	Demorification & Syllabification
	/\	
	μ μ μ μ μ	
	\ /	
	σ σ σ σ	

Nasal Demorification is exhibited within morphemes as well. While there are many instances of surface tautomorphemic CVVNC sequences, there are no such cases of CVNC.

- (35) a. ú-kú-léeng-à 'to draw'  
b. cíimbwí 'hyena'  
c. yá-kú-<sup>l</sup>bééndám-à 'they are inclining'

In the event that the morphology creates a sequence of two nasals, the first one will delete and the vowel before the sequence is lengthened as seen below.

- (36) a. ú-kú-mány-á 'to know' /ú-ku-many-a/  
b. ú-kúú-mány-á 'to know me' /ú-ku-n-many-a/  
c. ú-kú-míl-à 'to swallow' /ú-ku-mil-a/  
d. ú-kúú-míl-à 'to swallow me' /ú-ku-n-mil-a/

We can account for these forms in the same way we accounted for the forms in (33). The first nasal will undergo Nasal Demorification. However, since the language does not tolerate geminate consonants (\*úkúúmmílà), one of the nasals will delete.

There are two cases where the vowel of an underlying VNC sequence surfaces as short and not long. The first case involves phrase-initial instances of class 9/10 nouns. These invariably surface with a short vowel as seen below.

- (37) a. í-n-<sup>l</sup>dá 'lice'  
b. í-n-swàá 'flying ant'  
c. í-n-zóvù 'elephant'  
d. í-m-bázò 'rib'  
e. í-m-péléémbè 'antelope'

As illustrated by the words below is not possible to posit a general rule which shortens a word-initial or phrase-initial long vowel.

- |      |    |           |                             |                |
|------|----|-----------|-----------------------------|----------------|
| (38) | a. | òómb-á    | ‘be wet’                    | /bomb-a +H/    |
|      | b. | ì-n-dy-á  | ‘and then it (C9) ate me’   | /i-n-lí-a +H/  |
|      | c. | ì-n-dòl-á | ‘and then they (C4) saw me’ | /i-n-lol-a +H/ |

The forms in (38b-c) show that when the word-initial V preceding NC is not the Class 9/10 preprefix, then demorification and compensatory lengthening do in fact apply.

That the class 9/10 prefix does in fact get assigned a mora can be seen in the forms below where it is directly preceded by another class prefix, and not a preprefix.

- |      |    |                  |                     |                  |
|------|----|------------------|---------------------|------------------|
| (39) | a. | í-m-péléembè     | ‘antelope’          | /i-m-pelembe/    |
|      | b. | ú-múú-m-péléembè | ‘in the antelope’   | /ú-mu-m-pelembe/ |
|      | c. | í-m-báázò        | ‘carving axe’       | /i-m-baazo/      |
|      | d. | á-káá-m-báázò    | ‘small carving axe’ | /a-ka-m-baazo/   |

Thus, I must assume a morphologically conditioned rule which shortens a word-initial bimoraic V belonging to a nominal preprefix.

The second case where lengthening fails to apply involves /VNC/ roots. Consider the forms below from the Immediate Future tense, where the pre root-initial vowel does not delete or glide. The verb in (40a) is one of the verbs discussed above in (26) which will be analyzed with a /b/ at the beginning of the root (i.e. as /bomb/) which later deletes, as its root vowel never triggers deletion or glidings. The form in (40b) is among the many vowel initial roots which induce gliding and vowel deletion when preceded by a short vowel.

- |      |    |               |                       |                 |
|------|----|---------------|-----------------------|-----------------|
| (40) | a. | tú-máá-òòmb-à | ‘we will now get wet’ | /tú-máa-bomb-a/ |
|      | b. | tú-máá-òmb-à  | ‘we will now clap’    | /tú-máa-omb-a/  |

As can be seen, these forms do not surface homophonously. The root vowel in (40a) is long while the root vowel in (40b) is short. This length difference can also be seen clearly in the Imperative forms of these verbs.

- |      |    |        |            |             |
|------|----|--------|------------|-------------|
| (41) | a. | òómb-á | ‘get wet!’ | /bomb-a +H/ |
|      | b. | òmb-á  | ‘clap!’    | /omb-a +H/  |

How, then, can the short vowel before NC be accounted for in (40b) and (41b)? I would like to adopt a suggestion from an anonymous reviewer that these can be accounted for by a rule which shortens a root-initial long vowel. This rule will follow nasal demorification, but will precede a number of tone rules to be presented in Chapter 5. This analysis predicts that all root-initial Vs should behave as short, i.e. not only /VNC/, but /VC/ as well. This, in fact, appears to be correct, as the length of a root-initial V is not contrastive, they invariably behave as short.<sup>5</sup>

<sup>5</sup> It is not possible to generalize this across all morphemes, as I have good reason to posit /aa-/ as a TAM prefix (cf. §5.1).

### 3.1.4 Word-final Shortening

In (42b) and (42c) below, word-final vowels surface as short, even though compensatory lengthening would predict that they surface as long (cf. (42a)).

- (42) a. ú- kú- zw -ííl-á /ú-ku-zu-il-a/  
PP C15 leak Ap FV  
'to leak on'
- b. ú- kú- zw -á /ú-ku-zu-a/  
PP C15 leak FV  
'to leak'
- c. ú-kú zw-à sáaná /ú-ku-zu-a sáaná/  
'to leak a lot'

In (42a) we see that when the high vowel in /zu/ 'to leak, bleed' glides, compensatory lengthening will follow. In (42b-c), however, gliding also occurs, but the following vowel is short. To account for this I posit a rule of Word-final Shortening.

#### (43) Word-final Shortening

$$\begin{array}{c} \sigma_w ] \\ / \backslash \\ \mu \quad \mu \rightarrow \emptyset \end{array}$$

The one environment where this rule does not apply is when the word-final syllable bears a Rising tone. Rising tones in Cilungu are always borne by a bimoraic V and never a monomoraic one. (Cf. §10.4.4 on the distribution of Rising tones, and §5.2.1 and §9.7 on more on the formalization of Word-final Shortening.)

- (44) a. sh-àá 'grind!' /si-a +H/  
b. zw-àá 'bleed!' /zu-a +H/  
c. à-sh-àá 'and then he/she ground' /a-si-a +H/  
d. tú-mú-sh-èè 'that we grind him/her' /tú-mu-si-e +H/

Tonal evidence to be presented in §9.7 suggests that there are actually two different Word-final Shortening rules in Cilungu: one which shortens a word-final syllable containing a root-initial mora (which operates on forms such as those in (42), and one which shortens a word-final syllable which contains a non-root-initial TBU, such as the passive or short causative suffix seen in the forms below.

- (45) a. ú-kú-fúl-w-á 'to be washed' /ú-ku-ful-u-a/  
b. yá-kú-<sup>l</sup>léét-w-á 'they are being brought' /yá-ku-léet-u-a/  
c. yá-kú-<sup>l</sup>kóm-y-á 'they are hardening' /yá-ku-kóm-i-a/  
d. yá-kú-fúlúm-y-á 'they are causing to boil' /yá-ku-fúlum-i-a/

It will be shown that the rule operating in forms such as (42) must remove the second mora (as formalized in (43)), while the rule operating in forms such as those in (45) must remove the first mora. Additionally the two rules are ordered differently with respect to other (tone) rules.

### 3.1.5 Trimoraic Pruning

When the phonological processes outlined above create a syllable which contains more than two morae, then morae are pruned until the mora count reaches two. The question as to which morae in particular get pruned relies on tonal evidence which will be discussed in section 10.4.5. (And the section where the TAM morphology is discussed is given for each set.)

The application of Trimoraic Pruning can be clearly seen in the pairs below which surface homophonously even though some syllable in the second member of each pair acquires three morae.

- |      |                                |                                |                     |          |
|------|--------------------------------|--------------------------------|---------------------|----------|
| (46) | a. tw-áálúk-ìil-é              | ‘we wove for (YP)’             | /tú-á-luk-il-il-é/  | (§5.2.2) |
|      | b. tw-áálúk-ìil-é              | ‘we betrayed (YP)’             | /tú-á-aluk-il-il-é/ |          |
| (47) | a. yáá-n-j-í <sup>1</sup> mb-á | ‘and then they dug me up’      | /yá-n-ímb-a +H/     | (§5.3.8) |
|      | b. yáá-n-j-í <sup>1</sup> mb-á | ‘they have just dug me up’     | /yá-á-n-ímb-a +H/   | (§5.2.4) |
| (48) | a. tw-áà-sh-á                  | ‘we have already left’         | /tú-a-sí-a +H/      | (§5.3.5) |
|      | b. tw-áà-sh-á                  | ‘let us begin to leave (some)’ | /tú-áa-sí-a/        | (§5.1.6) |
| (49) | a. tw-éél-á                    | ‘we have just fished’          | /tú-á-él-á/         | (§5.2.6) |
|      | b. tw-éél-á                    | ‘and then we fished’           | /tú-él-a +H/        | (§5.3.8) |
| (50) | a. yà-táá-n-dèm-á              | ‘let them not grab me’         | /ya-tá-n-dem-a +H/  | (§5.3.9) |
|      | b. yà-táá-n-dèm-á              | ‘they have not grabbed me’     | /ya-tá-a-n-dem-á/   | (§5.3.5) |
| (51) | a. yá-á-n-sh-á                 | ‘and then they left me’        | /yá-n-sí-a +H/      | (§5.3.8) |
|      | b. yá-á-n-sh-á                 | ‘they have just left me’       | /yá-á-n-sí-á/       | (§5.2.6) |

When a syllable has four morae underlyingly it is reduced to two.

- |      |                |                                     |                  |          |
|------|----------------|-------------------------------------|------------------|----------|
| (52) | a. yá-à-n-sh-á | ‘and then they started to leave me’ | /yá-aa-n-sí-a/   | (§5.1.2) |
|      | b. yá-à-n-sh-á | ‘let them start to leave me’        | /yá-áa-n-sí-a/   | (§5.1.6) |
|      | c. yá-à-n-sh-á | ‘they have already left me’         | /yá-a-n-sí-a +H/ | (§5.3.5) |

### 3.1.6 Pre-stem shortening

There is a process in Cilungu which shortens certain long vowels when they are followed by more than two morae within the word. We first illustrate this process with the Persistent forms below, where the TAM prefix /lɪi-/ sometimes surfaces as short and sometimes as long. (Cf. §5.1.10 for justification on why this prefix must be set up as underlyingly long and not short.)

- |      |    |                       |                                   |                         |
|------|----|-----------------------|-----------------------------------|-------------------------|
| (53) | a. | tú-cí-líi-sh-à        | ‘we are still grinding’           | /tú-cí-líi-si-a/        |
|      | b. | tú-cí-líi-fùl-à       | ‘they are still washing’          | /tú-cí-líi-ful-a/       |
|      | c. | tú-cí-líi-ùm-à Chòòlà | ‘we are still beating Chola’      | /tú-cí-líi-um-a Choola/ |
|      | d. | tú-cí-lí-lùk-il-à     | ‘we are still weaving for’        | /tú-cí-líi-luk-il-a/    |
|      | e. | tú-cí-lí-mù-fùl-à     | ‘we are still washing him/her’    | /tú-cí-líi-mu-ful-a/    |
|      | f. | tú-cí-lí-zìik-à       | ‘we are still burying’            | /tú-cí-líi-ziik-a/      |
|      | g. | yá-cí-lí-swèèl-èl-w-à | ‘they are still being brewed for’ | /yá-cí-líi-suel-il-u-a/ |

In (53a-c) where two morae follow this TAM prefix, it surfaces as long, whereas in (53d-g) when more than two morae follow, it surfaces as short. (The lack of shortening in (53c) shows that the domain in which the morae are counted is the stem and not, e.g. the phonological phrase.)

Another place where this shortening process is visible is in andative infinitival forms (cf. §6.1.3).

- |      |    |                  |                          |                     |
|------|----|------------------|--------------------------|---------------------|
| (54) | a. | ú-kú-yáá-sh-á    | ‘to go and grind’        | /ú-ku-yaa-si-a/     |
|      | b. | ú-kú-yáá-fùl-à   | ‘to go and wash’         | /ú-ku-yaa-ful-a/    |
|      | c. | ú-kú-yàà-él-à    | ‘to go and fish’         | /ú-ku-yaa-él-a/     |
| (55) | a. | ú-kú-yá-mú-fùl-à | ‘to go and wash him/her’ | /ú-ku-yaa-mu-ful-a/ |
|      | b. | ú-kú-yà-símùl-à  | ‘to go and run’          | /ú-ku-yaa-símul-a/  |

When more than two morae follow the andative prefix /yaa-/ then it will shorten, as seen in (55).

This process is also evident in forms where the FV of a verb is immediately followed by the preprefix of a following noun (cf. §7.8.2). This is seen below.

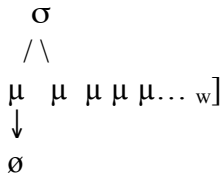
- |      |    |                        |                              |                         |
|------|----|------------------------|------------------------------|-------------------------|
| (56) | a. | tú-kú-sh ùú-mú-sè      | ‘we are grinding the basket’ | /tú-ku-si-a ú-mu-se/    |
|      | b. | tú-kú-lòl ùú-mú-tì     | ‘we are seeing the tree’     | /tú-ku-lol-a ú-mu-ti/   |
|      | c. | tú-kú-fùl íí-sótè      | ‘we are washing the grass’   | /tú-ku-ful-a í-sote/    |
|      | d. | tú-kú-s í-víí-ntù      | ‘we are grinding the things’ | /tú-ku-si-a í-vi-ntu/   |
|      | e. | tú-kú-fùl ù-mú-lómò    | ‘we are washing the mouth’   | /tú-ku-ful-a ú-mu-lomo/ |
|      | f. | tú-kú-fùl ù-lú-nyélélè | ‘we are washing the ant’     | /tú-ku-ful-a ú-lu-ñele/ |

In each case the preprefix of the noun precipitates the deletion of the FV of the verb, after which I assume compensatory lengthening applies rendering this syllable bimoraic. (In the case of (56a,d) the resulting syllable is initially trimoraic, though Trimoraic Pruning (§10.4.5) will reduce this to two.) In (56a-c) a long V surfaces, but in (56d-f) this syllable will be shortened to a monomoraic syllable since more than two morae follow in the word.

To formally account for these cases I propose a rule of Pre-Stem Shortening, which shortens a bimoraic syllable when it is followed by three or more morae in the word.<sup>6</sup>

<sup>6</sup> This rule also applies in Copulative forms to be presented and discussed in §7.7.

(57) Pre-Stem Shortening<sup>7</sup>



Of course, it is certainly not the case that Cilungu has a general prohibition on the appearance of a long pre-stem vowel, as seen in the examples below.

- |      |    |                  |                          |                     |
|------|----|------------------|--------------------------|---------------------|
| (58) | a. | tw-áà-sópólól-á  | ‘we have already untied’ | /tú-a-sópolol-a +H/ |
|      | b. | tú-máà-zìik-à    | ‘we will now be burying’ | /tú-maa-ziik-a/     |
|      | c. | ú-múú-m-péléémbè | ‘in the antelope’        | /ú-mu-m-pelembe/    |

It will therefore be necessary to include some morphological conditioning on the mora targeted for deletion in the rule in (57) as it must either belong to the preprefix, the Persistent prefix /líi-/, or the Andative prefix /yaa-/.<sup>8</sup>

### 3.2 Phonemic status of glides

Let us now consider the phonemic status of the glides. All documented instances of phonetic [y] and [w] which follow a consonant are followed by a long vowel (regardless of whether the following vowel is tautomorphemic or heteromorphemic)—something directly predicted via gliding and compensatory lengthening if they are derived from input /i/ and /u/ respectively.

- |      |    |  |             |                  |
|------|----|--|-------------|------------------|
| (59) | a. | ú-kú-swéél-à                             | ‘to brew’   | /ú-ku-suel-a/    |
|      | b. | ú-kú- <sup>1</sup> kwá <sup>1</sup> át-à | ‘to have’   | /ú-ku-kúat-a +H/ |
|      | c. | ú-kú- <sup>1</sup> pwí <sup>1</sup> íl-à | ‘to suck’   | /ú-ku-púil-a +H/ |
|      | d. | í-fwááf-wá                               | ‘sp. snake’ | /í-fuafuá/       |
- 
- |      |    |   |            |                   |
|------|----|---|------------|-------------------|
| (60) | a. | ú-kú-byáát-à                              | ‘to flash’ | /ú-ku-biat-a/     |
|      | b. | ú-kú- <sup>1</sup> myá <sup>1</sup> ánt-à | ‘to lick’  | /ú-ku-míant-a +H/ |
|      | c. | ú-mú-lyáángò                              | ‘doorway’  | /ú-mu-liango/     |
|      | d. | ú-mú- <sup>1</sup> ká <sup>1</sup> zyáánà | ‘girl’     | /ú-mu-káziana +H/ |

Let us now consider glides not preceded by a consonant. In the case of [y], a long vowel follows in most cases (61), though there are some exceptions as seen below (62).

<sup>7</sup> While the above formalization of Pre-Stem Shortening might be an adequate descriptive tool to account for this shortening, it is surely theoretically undesirable in any theory which does not countenance “counting” an arbitrary number of linguistic units. One possible alternative, which will not be fleshed out here would be to build a maximally bimoraic foot within the macrostem of the verb and then have a rule which shortens the pre-macrostem syllable unless it is adjacent to this foot.

<sup>8</sup> I note here that this phenomenon of having a certain morpheme surface as long if it is followed in the word by more than two morae, and as short otherwise, has been found in other Zone M languages as well, e.g. Chindali (M301) (Botne 1988) and Malila (M24) (Lojenga 2006).

- |      |    |   |                       |                     |  |
|------|----|---|-----------------------|---------------------|--|
| (61) | a. | ú-kú-yáál-à   | ‘to close’            | /ú-ku-ial-a/        |  |
|      | b. | ú-kú-yúúl-à   | ‘to open’             | /ú-ku-iul-a/        |  |
|      | d. | ú-kú-yúúvw-á  | ‘to boast’            | /ú-ku-íuvu-a +H/    |  |
|      |    |   |                       |                     |  |
| (62) | a. | í-yé <sup>1</sup> léénà                                   | ‘ear-ring’            | /í-yéleena +H/      | (pl. á-má- <sup>1</sup> yé <sup>1</sup> léénà) |
|      | b. | á-ká- <sup>1</sup> lí- <sup>1</sup> yé <sup>1</sup> léénà | ‘small ear-ring’      | /á-ka-lí-yélena +H/ |  |
|      | c. | í-yúlù  | ‘sky’                 | /í-yulu/            |  |
|      | d. | í-yé <sup>1</sup> lé                                      | ‘breast, breast-milk’ | /í-yéle +H/         | (pl. á-má- <sup>1</sup> yé <sup>1</sup> lé)    |
|      | e. | í-yéli  | ‘first-born’          | /í-yeli/            | (pl. á-má-yéli)                                |

In addition the 3 pl. subject marker /ya-/ contains a palatal glide followed by a short vowel (63a). This is contrasted with a word-initial /i-a/ sequence where gliding of the high vowel /i/ causes a compensatory lengthening of the following vowel (63b).

- |      |    |                               |                           |                    |
|------|----|-------------------------------|---------------------------|--------------------|
| (63) | a. | yá-fúz-il-w-é                 | ‘they have been washed’   | /yá-ful-il-w-e +H/ |
|      | b. | y-àà-fúz-il- <sup>1</sup> w-é | ‘it (C9) was washed (YP)’ | /i-á-ful-il-w-é/   |

I must therefore assume that for the case of /ya-/, as well for the roots in (62), in a very limited set of environments, /y/ is in fact contrastive with /i/ in Cilungu.

With respect to [w] (not preceded by a consonant) certain tokens are followed by a long vowel while others are followed by a short one, as seen below.

- |      |    |  |                 |                    |
|------|----|--|-----------------|--------------------|
| (64) | a. | ú-kú-wááz-à                                | ‘to carve’      | /ú-ku-uaz-a/       |
|      | b. | ú-kú-wéél-à                                | ‘to return’     | /ú-ku-uel-a/       |
|      | c. | ú-kú- <sup>1</sup> wé <sup>1</sup> ékézy-á | ‘to repeat’     | /ú-ku-úekezi-a +H/ |
|      |    |  |                 |                    |
| (65) | a. | ú-kú- <sup>1</sup> wá <sup>1</sup> y-á     | ‘to be painful’ | /ú-ku-wáy-a +H/    |
|      | b. | ú-kú- <sup>1</sup> wá <sup>1</sup> l-á     | ‘to shine’      | /ú-ku-wál-a +H/    |

Certainly, the forms in (64) can be set up as /u/-initial. At first glance one could think that it might be possible that the forms in (65) are actually /a/-initial and that the [w] is inserted by rule between a /u/ and a following vowel. Unfortunately, however, this predicts that the Imperative forms, with no prefix, should not surface as [w]-initial; but they do as seen below (as contrasted with *ám-à* ‘call!’ (</ám-á/)).

- |      |    |       |               |          |
|------|----|-------|---------------|----------|
| (66) | a. | wáy-à | ‘be painful!’ | /wáy-á / |
|      | b. | wál-à | ‘shine!’      | /wál-á / |

It seems, then, that we have no choice but to either 1) set up /w/ as a phoneme, or 2) set up roots such as those in (65) as /u/ initial, and annotate them as exceptions to compensatory lengthening. The roots in (65) and (65) will be discussed again below in section 3.3 with respect to their behavior after nasal prefixes.

With regard to phonetic [ny], the question arises as to whether this is a unitary phoneme /ñ/ or simply the cluster /ny/. If we were to assume that all instances of phonetic [ny] were really clusters and if, as proposed above, (nearly) all glides are derived from high vowels, then that would mean that phonetic [nyV] would be derived from underlying /niV/ which would then predict that the vowel following phonetic [y] should be long



due to compensatory lengthening. What we find, however, is that some instances of surface [ny] are followed by long vowels (67), but many are not (68).

- (67) a. nyàánù ‘cat’  
b. ú-kú-nyínyínd-à ‘to suspend by hanging’
- (68) a. í-nyámà ‘meat’  
b. ú-lú-nyèlé ‘hair’  
c. ú-kú-nyémúl-à ‘to lift’  
d. ú-kú-nyé<sup>1</sup>p-á ‘to tie a knot’  
e. tw-áá-mány-ilé ‘we know’  
f. ú-kú-fúny-án-à ‘to scratch each other’  
g. ú-kú-mány-án-à ‘to know each other’

I take this as evidence then that there is an alveopalatal nasal (/ɲ/) phoneme, as the only alternative would be to annotate the very general rule of compensatory lengthening to have as exceptions the list of words in which surface [ny] (to be derived from /ni/) is followed by a short vowel. Additionally, we will see evidence below (cf. (98)) that a /y/ hardens to [j] after a nasal, which argues against an analysis which assumes that [ny] above represents a cluster rather than a unitary sound.

### 3.3 Segmental Rules

Cilungu has a productive rule of homorganic nasal assimilation that is operative both within and across morphemes, as seen in the examples below:

- (69) Tautomorphemic NC clusters illustrating homorganic nasal assimilation

- |    |                                |                          |  |
|----|--------------------------------|--------------------------|--|
| a. | ú-kú-óómb-à                    | ‘to be wet’              |  |
| b. | ú-kú-tú <sup>1</sup> úmp-à     | ‘be stupid’              |  |
| c. | ú-kú-óómv-y-á                  | ‘to make wet’            | [úkúóómvá]                             |
| d. | tw-áá-túúm <sup>1</sup> f-il-é | ‘we dipped’              | [twáátúúm <sup>1</sup> filé]           |
| e. | ú-kú-séénd-à                   | ‘to carry’               |  |
| f. | ú-kú-fyéént-à                  | ‘to tighten (e.g. belt)’ |  |
| g. | ú-mw-á <sup>1</sup> ánc-è      | ‘young person’           | [úm <sup>1</sup> wá <sup>1</sup> áñčè] |
| h. | ú-kú-cíinj-á                   | ‘to slaughter, change’   | [úkúcíñjà]                             |
| i. | ú-kw-ééng-à                    | ‘to smelt’               | [úkwééngà]                             |
| j. | ú-k-ó <sup>1</sup> ónk-à       | ‘to suckle’              | [úkó <sup>1</sup> ónkà]                |

(70) Heteromorphemic NC clusters illustrating homorganic nasal assimilation

a.	ú-kúù-m-pé-él-à	‘to give to me’	
b.	ú-kúú-m-bóómv-y-á	‘to make me wet’	
c.	ú-kúú-m-víímb-à	‘to cover me’	[úkúúm̥víímbà]
d.	ú-kúú-m-fyéént-él-à	‘to tighten for me’	[úkúúm̥fyééntélà]
e.	ú-kúú-n-tíínt-à	‘to pull me’	
f.	ú-kúù-n-déét-à	‘to bring me’	
g.	ú-kúú-n-cék-à	‘to cut me’	[úkúúñčékà]
h.	ú-kúú-n-jáál-íl-à	‘to close for me’	[úkúúñjáálílà]
i.	ú-kúú-n-kóm-él-à	‘to cut for me’	[úkúúñkómélà]
j.	ú-kúú-n-gúm-à	‘to beat me’	[úkúúñgúmà]

As noted above, since the place of nasals does not contrast before a consonant, in this work [m̥f] and [m̥v] will be transcribed as <mf> and <mv> respectively, [ñč] and [ñj] will be transcribed as <nc> and <nj> respectively, and [ŋk] and [ŋg] will be transcribed as <nk> and <ng> respectively—which also reflects how these combinations are written by native speakers. I note here that while /m/, /n/ and /ny/ are amply attested in prevocalic environment, <ng> (= [ŋ]) is only found in a very few words pre-vocalically. Still, the existence of these words necessitate setting it up as a contrastive sound, and not, e.g. only as the result of the homorganic nasal assimilation rule described above.

(71) Word with pre-vocalic velar nasals

a.	í-ng’àandá	‘house’
b.	í-ng’óómbè	‘cattle’
c.	í-ng’úúmbà	‘barren woman’
d.	ú-kú- <sup>1</sup> né <sup>1</sup> ng’-á	‘to steadily spin’
e.	ú-kú-ng’w-à	‘to drink’

Let us now turn to a discussion of the voiced obstruents. While there are many phonetic occurrences of [mb], [nd], [nj] and [ng], there are no instances of [d], [j] or [g] which occur post-vocally or post-pausally. I.e. the only voiced obstruent that can occur in environments other than the post-nasal one is /b/ (which in these environments surfaces as [β]).<sup>9</sup>

(72) a.	í-béli	‘firstborn’	[í-βéli]
b.	í-cí- <sup>1</sup> bá <sup>1</sup> lá	‘scar’	[í-cí- <sup>1</sup> βá <sup>1</sup> lá]
c.	í-cí- <sup>1</sup> bá <sup>1</sup> tá	‘duck’	[í-cí- <sup>1</sup> βá <sup>1</sup> tá]
d.	ú-kú- <sup>1</sup> bé <sup>1</sup> lééng-à	‘to read’	[ú-kú- <sup>1</sup> βé <sup>1</sup> lééng-à]

<sup>9</sup> Guthrie (1967) states that in Cilungu \*b deleted historically along with \*g. If true, then it may be that the forms in (72) were borrowed subsequent to this general deletion. However, it should be noted that while the number of occurrences of phonetic [β] are small and while they seem to be restricted to root-initial position, my consultants did not feel like any of the words in (72) were borrowings.

e.	ú-kú-byáát-à	‘to flash’	[ú-kú-βyáát-à]
f.	ú-kú-bíl-à	‘to sew’	[ú-kú-βíl-à]
g.	ú-kú-béép-à	‘to lie’	[ú-kú-βéép-à]
h.	ú-kú- <sup>1</sup> bó <sup>1</sup> s-á	‘to bark’	[ú-kú- <sup>1</sup> βó <sup>1</sup> s-á]
i.	ú-kú-búlúúngaán-à	‘to be round’	[ú-kú-βúlúúngaán-à]

As is the case in a number of Bantu languages, the alveolar liquid [l] and voiced stop [d] are in complementary distribution, with [d] appearing after nasals, and [l] appearing elsewhere. They alternate in many environments, one example of which is given below.

- (73) a. ú- kú -lém -à                      b. ú- kúú -n- dém -à  
           PP C15 grab FV                      PP C15 1sOM grab FV  
           ‘to grab’                              ‘to grab me’

With regard to tautomorphemic phonetic occurrences of [mb] and [ng], I assume that these are consonant sequences underlyingly. In this way, the pre-consonantal nasal can be assigned a mora (perhaps in the standard “weight by position” fashion if the nasals are initially syllabified as codas) which, due to the process of nasal demorification discussed above in section 3.1.3, will reassociate to the preceding vowel rendering it long.

Let us now consider the voiceless alveopalatal fricative <sh> (= [š]), which has an interesting distribution in Cilungu. There are clear alternations between [s] and [sh] as seen in the following forms involving the root /si/ ‘grind’.

- (74) a. ú- kú- sí -íl -à                      /ú-ku-si-il-a/  
           PP-C15-grind-Ap-FV  
           ‘to grind ‘for’
- b. ú- kú- sh -áán-à                      /ú-ku-si-an-a/  
           PP-C15-grind-Rec-FV  
           ‘to grind each other’
- c. tú- sh -è                                  /tú-si-é/  
           1pSM-grind-FV  
           ‘let’s grind’

Each instance of [sh], such as those found in (74b,c) can be derived from /s/ by assuming that the latter palatalizes before [y], which is in turn derived from /i/ through a regular process of gliding. A subsequent rule will then apply in which [y] is deleted or “absorbed” after a palatal consonant.<sup>10</sup> This is illustrated for (74a).

<sup>10</sup> It should be noted that there does appear to be some variation between [sh], [shy] and to a lesser degree [sy] within the Cilungu speaking area, both within and across dialects. For instance it is possible to hear ‘to grind’ pronounced as [úkúshá] ~ [úkúshyá] ~ [úkúsyá]. My consultants applied the rule of palatalization fairly consistently, whereas y-deletion after a palatal C was preferable, but not obligatory. This process of palatalization affecting /s/ naturally raises the question of what happens to /z/ in the same environment (i.e. in a /zi+V/ sequence). It turns out that /z/ has a different behavior than /s/. In general /zi+V/ were pronounced as [zy+V] by my two primary consultants. E.g. ú-mú-<sup>1</sup>ká<sup>1</sup>zyáánà ‘girl’, ú-kú-<sup>1</sup>zy-áámà ‘to call them (Cl 10)’. Still,

(75)	u-ku-si-an-a	Input
	u-ku-sy-aan-a	Gliding & Compensatory Lengthening
	u-ku-shy-aan-a	Palatalization
	u-ku-sh-aan-a	y-absorption

Phonetically, the sounds [sh] and [s] are in partial complementary distribution. While both can occur before /e,u,o,a/ only the latter can occur before /i/ (i.e. there are no cases of \*[shi]).

(76)	a. síkúlú	‘grandfather’
	b. ú-m-ó <sup>1</sup> ónsì	‘man’
	c. ú-ú- <sup>1</sup> sí <sup>1</sup> kú	‘night’
	d. ú-mú-sílà	‘root’
	e. ú-mú-siindá	‘tail’
	f. í-cí-símà	‘pond’
	g. ú-kú- <sup>1</sup> sí <sup>1</sup> múl-à	‘to run’

It seems possible, then, to derive all instances of [sh] from /s/ by assuming that all cases of [shV] come from /siV/. Given a process of compensatory lengthening discussed above, this predicts that all Vs following [sh]—both tautomorphemically and heteromorphemically—should be long. According to all available data, this is true.

(77)	a. ú-kú- <sup>1</sup> sh-á <sup>1</sup> ál-à	‘to remain’	/ú-ku-sí-al-a +H/
	b. ú-kú-sh-áán-à	‘to grind each other’	/ú-ku-si-an-a/
(78)	a. ú-kú- <sup>1</sup> shé <sup>1</sup> ét-à	‘to chew’	/ú-ku-siet-a +H/
	b. ú-kú-shéétúk-à	‘to slip’	/ú-ku-sietuk-a/
	c. ú-kú-shóómóól-à	‘to trample’	/ú-ku-siomol-a/

Let us now turn to the distribution of [c]. It seems likely that there was some sort of \*ki > ky > c rule at a certain point in history during the development from Proto Bantu to Cilungu. (This would neatly account for the complete lack of [ky] in modern Cilungu.) For example, the Proto Bantu Class 7 marker \*ki- has the reflex [ci-] in Cilungu. The question then arises as to whether it might be possible to derive all surface [c]s in Cilungu from /k/.<sup>11</sup> I would like to argue against this. First, it will not be possible to derive all surface [c]s from underlyingly /k/s, where the trigger is simply a following /i/, as there are many phonetic [ki] sequences synchronically. It turns out, however, that nearly all these [ki] sequences are heteromorphemic, as illustrated by the examples below.<sup>12</sup>

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some Cilungu speakers do palatalize the z to zh (Ž) in these cases and it is then optional as to whether the following [y] deletes or not.

<sup>11</sup> Hyman (1992) explored this very issue for closely related Bemba.

<sup>12</sup> There are a couple of cases of [ki] sequences which might well be historically derived, though this is less transparent synchronically, e.g. *í-cí-sìkì* ‘tree stump’, *ú-kú-síkís-à* ‘be scorched.’ Cf. *ú-kú-sík-à* ‘make fire by

- (79) a. *ú-kú-lúk-íl-à* 'to weave for'  
 b. *ú-kú-pík-ísh-á* 'to shoot a lot'  
 c. *ú-kú-zíik-íl-w-á* 'to be buried for'

Next, we might ask whether every instance of [cV] could be derived from /kiV/ in much the same way we derived surface [shV] from underlying /siV/. It turns out that this will not be possible for two separate reasons. First, this analysis predicts there should be no phonetic [ci] sequences (as we found no [shi] sequences) since there would be no gliding in /ki+i/. Yet there are many such sequences, though they all seem to occur tautomorphemically. Secondly, deriving all [cV] sequences from underlying /kiV/ predicts that [c] should always be followed a long V (something true in the case of [sh]), but this is not so, as seen in the following words:

- (80) a. *ú-kú-<sup>1</sup>cí<sup>1</sup>t-à* 'to do'  
 b. *ú-kú-<sup>1</sup>cí<sup>1</sup>l-à* 'to overflow'  
 c. *ú-kú-cís-à* 'to injure'  
 d. *í-cí-lézù* 'chin'  
 e. *ú-lú-cési* 'pillar'  
 f. *cékwé* 'molar'  
 g. *ú-mú-<sup>1</sup>cé<sup>1</sup>lé* 'salt'  
 h. *ú-mú-cékà* 'cat'

In fact, when [c] is followed by a front vowel, that vowel is short in nearly every case. The only exceptions found to this are listed below.<sup>13</sup>

- (81) a. *cíílí* 'two'  
 b. *cíímàní* 'left'  
 c. *ú-kú-<sup>1</sup>cé<sup>1</sup>ép-à* 'to be few or small'  
 d. *ú-kú-<sup>1</sup>cé<sup>1</sup>élw-á* 'to be late'

It turns out that there are very few forms where /c/ is followed by a tautomorphemic back vowel. In all known cases, however, the vowel is long, as seen below.

- (82) a. *còólwá* 'zebra'  
 b. *cùùlá* 'frog'  
 c. *cúúti* 'holiday'  
 d. *ú-kú-<sup>1</sup>cú<sup>1</sup>úl-à* 'to suffer'

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rubbing sticks'. As noted in §2.2.2.6, the long Causative in modern Cilungu surfaces as [-iish] before /-a/, not [-is]. And while there is a productive nominalizing suffix /-i/ (e.g. *ú-kú-lúúng-à* 'to hunt', *ú-mú-lúúnz-i* 'hunter'), it seems like a stretch to derive 'tree stump' as a nominal of the verb 'to make fire by rubbing sticks'. Borrowings may also contain a monomorphemic [ki] sequence. E.g. *í-cí-ikíni* 'kitchen'

<sup>13</sup> The first form appears to be derived from class 7 /ci-/ plus root /ili/. In the case of the last form, it is quite likely that at least historically this verb is the passive applicative form of *ú-kú-c-à* 'to dawn'.

These facts seem to be consistent with a historical scenario by which /k/ palatalized to /c/ before a front vowel, explaining the plethora of [ce] and [ci] sequences and the dearth of [co], [cu] and [ca] sequences. The latter sequences which do occur could have come from /kiV/ (where V is a back vowel) accounting for the fact that the vowel is long. But what of heteromorphemic [k-i] and [k-e]? It should be kept in mind that while the aforementioned diachronic palatalization rule would render a root such as \*keka ‘cat’ to always be pronounced as [ceka] (e.g. regardless of what other affixes it appeared with), a root such as \*ziik ‘to bury’ would initially become [ziic] before suffixes beginning with a front vowel (e.g. the applicative /-il/ or long causative /-iisi/), but would be [ziik] before suffixes beginning with a back vowel (e.g. the FV /-a/, reciprocal /-an/). What might have then happened would be a type of paradigm uniformity effect where forms exhibiting an alternation between k ~ c (which would include /ziik ~ ziic/ but not /ceek/) all came to be (re-)pronounced with the k variant.

In summary, synchronically it seems to make sense to simply consider /c/ to be a phoneme. The historical scenario above predicts that while /c/ is predicted to occur morpheme-initially before a front vowel (of either length) and before a long back vowel, it should not occur morpheme-finally. This seems to be true of Cilungu, with a single exception, noted below.

- (83)
- |    |                 |                          |
|----|-----------------|--------------------------|
| a. | ú-k-óóc-à       | ‘to burn                 |
| b. | ú-k-óóc-án-à    | ‘to burn each other’     |
| c. | ú-k-óóc-él-à    | ‘to burn for’            |
| d. | ú-k-óóc-ésh-á   | ‘to burn a lot’          |
| e. | ú-k-óóc-él-án-à | ‘to burn for each other’ |

While the historical development of this root is not completely clear (as it is set up by Guthrie (1967-71) as \*yòk(i) ‘roast, burn’), the obvious synchronic account is to postulate the root as /oc/. We will see later that this is consistent with facts regarding its mutation. The fact that /c/ has become a phoneme of the language seems to have paved the way for its occurrence in positions other than the morpheme initial one in which it first occurred. (If we set up this root as /oki/ (drawing on the proto form) then we would expect compensatory lengthening of a following vowel, which is not the case, as seen in (83).

Let us now turn to [c]’s voiced counterpart [j]. This voiced alveopalatal affricate has a very limited distribution. Like [d] and [g] it only occurs following a nasal. It does not appear possible, however, to derive all occurrences of [nj], e.g. from /ng/, as they can in fact both occur in the same phonetic environment. Tautomorphemically, there are many instances of [ng], and this sequence can occur before any vowel. There are very few occurrences of tautomorphemic [nj]. Those that I am aware of are listed below:

- (84)
- |    |  |                        |
|----|--|------------------------|
| a. | mùunjìli                                   | ‘warthog’              |
| b. | ú-mùù-njí                                  | ‘my friend’            |
| c. | í-óléénjì                                  | ‘orange’ (Bor)         |
| d. | ú-kú- <sup>!</sup> cé <sup>!</sup> énjél-à | ‘to be sly’            |
| e. | ú-kú- <sup>!</sup> cí <sup>!</sup> ínj-á   | ‘to change, slaughter’ |

Some examples of [ng] occurring in the same phonological environment are shown below:

- (85) a. í-cí-núúngì 'porcupine'  
 b. í-làángì 'color'  
 c. -ingi 'many' (e.g. í-víi-ntù í-ví-ingì 'many things')  
 d. ú-kú-<sup>1</sup>zí'íng-à 'to chase away'  
 e. yá-zííng-é 'that they chase away'

Given words like those above, I must conclude that both /g/ and /j/ have come to be separate (contrasting) phonemes.<sup>14</sup>

Finally, let us examine the one root which seems to end in /j/.

- (86) a. ú-kú-<sup>1</sup>cí'ínj-áán-à 'to slaughter each other'  
 b. ú-kú-<sup>1</sup>cí'ínj-íz-y-á 'to slaughter for'

As can be seen, the vowel of the reciprocal extension /-an/ surfaces as long while the vowel of the applicative surfaces as short. The two most obvious choices for this root are /cinj/ and /cinji/, each apparently necessitating a special rule to adjust the length in one of the extensions. I return to this choice below.

Let us now pursue in some detail whether, as it might seem to be the case up to this point, the phonemes /g/ and /j/ are restricted in their distribution only occurring after nasals. Let us begin by examining a certain morphological environment in which [ng] and [nj] are largely in complementary distribution. This environment involves what appears to be a vowel-initial root preceded by the 1<sup>st</sup> person singular OM /n-/. If the root begins with a front vowel, then the voiced alveo-palatal affricate /j/ appears between the nasal and the root vowel. If the root begins with a back vowel, then, in general, the voiced velar stop /g/ appears after the nasal. Some representative examples are given below. For now, the [j] and [g] are shown below as neither belonging morphologically to the OM nor to the root. I suggest that they are epenthesized in this environment. This issue is taken up in more detail immediately below.

- |      |    |             |                   |                     |                         |
|------|----|-------------|-------------------|---------------------|-------------------------|
| (87) | a. | ú-kw-íimb-à | 'to dig'          | ú-kúú-n-j-ímb-íl-à  | 'to dig for me'         |
|      | b. | ú-kw-íík-à  | 'to come down'    | ú-kúú-n-j-ík-íl-à   | 'to come down to/on me' |
|      | c. | ú-kw-ééng-à | 'to smelt'        | ú-kúú-n-j-éng-él-à  | 'to smelt for me'       |
|      | d. | ú-kw-éél-à  | 'to winnow'       | ú-kúú-n-j-él-él-à   | 'to winnow for me'      |
| (88) | a. | ú-kú-úm-à   | 'to beat'         | ú-kúú-n-g-úm-à      | 'to beat me'            |
|      | b. | ú-kú-úlúk-à | 'to blow'         | ú-kúú-n-g-úlúk-íl-à | 'to blow for me'        |
|      | c. | ú-kó-ómb-à  | 'to clap'         | ú-kúú-n-g-ómb-él-à  | 'to clap for me'        |
|      | d. | ú-kó-óc-á   | 'to burn'         | ú-kúú-n-g-óc-él-à   | 'to burn for me'        |
|      | e. | ú-kw-á'ám-à | 'to call, invite' | ú-kúú-n-g-ám-à      | 'to call me'            |
|      | f. | ú-kw-áánz-à | 'to spread'       | ú-kúú-n-g-ánz-íl-à  | 'to spread for me'      |

As can be seen above, in the simple infinitival forms of these verbs (with no object marker) the roots are vowel-initial and induce the normal gliding or deletion of the preceding vowel. In the right hand column the respective verb forms are listed where the 1 sg. OM /n-/ is present. (Some forms also include the applicative extension, while some do not.) Whenever /n-/ is present a post-alveolar voiced obstruent also occurs

<sup>14</sup> Finally, there are also certain words in which [ng] and [nj] are in free variation. E.g. *ú-lúú-njélwá* ~ *ú-lúú-ngélwá* 'brick'

immediately following the nasal. Before a front vowel, [j] appears after the nasal; elsewhere [g] appears. This is also true of the imperatives with a 1 sg. OM, as seen below.

- (89)
- |    |              |                    |
|----|--------------|--------------------|
| a. | n-j-ìmb-é    | ‘dig me up!’       |
| b. | n-j-ìk-é     | ‘come down on me!’ |
| c. | n-j-èng-él-é | ‘smelt for me!’    |
| d. | n-j-èl-él-é  | ‘winnow for me!’   |
- (90)
- |    |               |                  |
|----|---------------|------------------|
| a. | n-g-ùm-é      | ‘beat me!’       |
| b. | n-g-ùlúk-íl-é | ‘blow for me!’   |
| c. | n-g-òmb-él-é  | ‘clap for me!’   |
| d. | n-g-òc-él-é   | ‘burn for me!’   |
| e. | n-g-ám-é      | ‘call me!’       |
| f. | n-g-ànz-íl-é  | ‘spread for me!’ |

Next, I note here that the presence of this voiced post-alveolar obstruent seems to be limited to forms with a 1 sg. OM. That it is not found in this position when the nasal is a SM can be seen below.<sup>15</sup>

- (91)
- |    |             |                     |                 |
|----|-------------|---------------------|-----------------|
| a. | n-íimv-íl-é | ‘I have sung’       | /ń-ímb-il-e +H/ |
| b. | n-ééz-íl-é  | ‘I have fished’     | /ń-él-il-e +H/  |
| c. | n-íís-íl-é  | ‘I have put’        | /ń-ík-il-e +H/  |
| d. | n-éél-á     | ‘and then I fished’ | /ń-él-a +H/     |
| e. | n-íík-á     | ‘and then I put’    | /ń-ík-a +H/     |

These forms, then, are consistent with an analysis in which a /g/ is inserted between the 1 sg OM /n-/ and a vowel initial root, after which a palatalization rule applies which changes the /g/ to /j/ before a front vowel. That this palatalization process is not completely general phonological can be seen in the following forms. When /ng/ is tautomorphemic, e.g., there is no alternation.

- (92)
- |    |                |                        |                    |
|----|----------------|------------------------|--------------------|
| a. | y-ééng-è       | ‘that they smelt’      | /yá-eng-é/         |
| b. | yá-zìing-é     | ‘that they chase away’ | /yá-ziing-é/       |
| c. | yá-lùung-é     | ‘that they hunt’       | /yá-lung-é/        |
| d. | fùl-ááng-ííní  | ‘be washing (pl.)!’    | /ful-ang-iini +H/  |
| e. | zìik-ááng-ííní | ‘be burying (pl.)!’    | /ziik-ang-iini +H/ |

One possibility, then, would be formalize the  $g > j / N + \_\_ \{i,e\}$  rule such that the preceding nasal must belong to a separate morpheme.

One might wonder whether the /g/ which surfaces after the nasal could simply be set up as the first segment of the verb root. To understand the drawback of that analysis, we recall that there are four verbs, presented above in section 3.1.2 which did not induce gliding or vowel deletion (all of which begin with back rounded

<sup>15</sup> It should be noted that there is in fact some variation here. For a limited set of verbs my consultants will also accept a variant with a voiced obstruent. E.g. *n-j-é-z-íl-é* ‘I have fished’ in addition to the one with out it.



vowels). As can be seen below, one of them surfaces with a [g] after the 1 sg. OM /n-/, two surface with [b], and one surfaces with just the velar nasal.<sup>16</sup>

- |      |    |                           |             |                     |                    |
|------|----|---------------------------|-------------|---------------------|--------------------|
| (93) | a. | ú-kú-ól-à                 | ‘to rot’    | ú-kúú-n-gól-él-à    | ‘to rot for me’    |
|      | b. | ú-kú-óómb-à               | ‘to be wet’ | ú-kúú-m-bóómv-y-á   | ‘to make me wet’   |
|      | c. | ú-kú- <sup>1</sup> óómb-à | ‘to work’   | ú-kúù-m-bóómb-él-à  | ‘to work for me’   |
|      | d. | ú-kú- <sup>1</sup> úumb-à | ‘to create’ | ú-kúù-ng’-úumb-íl-à | ‘to create for me’ |

By setting up the roots in (93a-c) with a root-initial /b/ or /g/, we correctly account for the fact that the vowel which immediately precedes the root does not undergo deletion or gliding simply by ordering these processes before the rule which deletes /b/ and /g/ intervocalically and word-initially. But roots such as those in (87) and (88) do trigger gliding and deletion of an immediately preceding V and therefore they cannot be set up with an initial /g/.

In addition to the roots found in (93), there are affixes which also need to be set up with a morpheme initial C (/g/ in the cases below) which deletes if not preceded by a nasal. As seen below, the class 3 and class 14 object markers generally surface as [u] and the class 4 and 9 object markers generally surface as [i].

- |      |    |                        |                  |               |
|------|----|------------------------|------------------|---------------|
| (94) | a. | ú-fú <sup>1</sup> -l-é | ‘wash it (C3)’   | /gú-ful-e +H/ |
|      | b. | ú-fú <sup>1</sup> -l-é | ‘wash it (C14)’  | /gú-ful-e +H/ |
|      | c. | í-fú <sup>1</sup> -l-é | ‘wash them (C4)’ | /gí-ful-e +H/ |
|      | d. | í-fú <sup>1</sup> -l-é | ‘wash it (C9)’   | /gí-ful-e +H/ |
- 
- |      |    |  |                       |                    |
|------|----|--|-----------------------|--------------------|
| (95) | a. | ú-kú- <sup>1</sup> ú- <sup>1</sup> fúl-à | ‘to wash it (Cl 3)’   | /ú-ku-gú-ful-a +H/ |
|      | b. | ú-kú- <sup>1</sup> ú- <sup>1</sup> fúl-á | ‘to wash it (Cl 14)’  | /ú-ku-gú-ful-a +H/ |
|      | c. | ú-ku- <sup>1</sup> í- <sup>1</sup> fúl-á | ‘to wash them (Cl 4)’ | /ú-ku-gí-ful-a +H/ |
|      | d. | ú-ku- <sup>1</sup> í- <sup>1</sup> fúl-á | ‘to wash it (Cl 9)’   | /ú-ku-gí-ful-a +H/ |

To account for the fact that the vowels in these OMs never precipitate deletion or gliding of the preceding V, these were set up in §3.1 with an initial /g/. This /g/ surfaces after a nasal and then becomes [j] when the following V is front.

- |      |    |                            |                          |                 |
|------|----|----------------------------|--------------------------|-----------------|
| (96) | a. | ín-gú-fú <sup>1</sup> -l-é | ‘that I wash it (C3)’    | /ń-gú-ful-e +H/ |
|      | b. | ín-gú-fú <sup>1</sup> -l-é | ‘that I wash it (C14)’   | /ń-gú-ful-e +H/ |
|      | c. | ín-jí-fú <sup>1</sup> -l-é | ‘that I wash them (C 4)’ | /ń-gí-ful-e +H/ |
|      | d. | ín-jí-fú <sup>1</sup> -l-é | ‘that I wash it (C 9)’   | /ń-gí-ful-e +H/ |

While the above discussion has centered on verbs, we find evidence in nouns for both morpheme-initial C’s which surface only after nasals, as well as an epenthesized /g/ which palatalizes before front vowels. This can be seen in class 11/10 nouns.<sup>17</sup>

<sup>16</sup> In the applied form in (93d), it is likely that historically the root was /g/-initial and this voiced obstruent deleted due to Meinhoff’s Law (which had the effect of deleting the first C in a NCVNC sequence). Meinhoff’s Law cannot be completely general, however as it did not apply in (93b-c). It is possible that this process only deleted velar consonants in Cilungu.

<sup>17</sup> I have found one root which is vowel initial in class 11, but which takes [ng’] in class 10: *ú-lw-áámbò*, *í-ng’áámbò* ‘backbiting’. This may be another case of the velar stop being historically deleted via Meinhoff’s

(97)	<u>Class 11</u>	<u>Class 10</u>	<u>Gloss</u>
a.	ú-lú-òyá	í-m-bó <sup>1</sup> yá	‘bee-sting’
b.	ú-lw-íilí	í-n-j-í <sup>1</sup> lí	‘seashell’
c.	ú-lw-éésò	í-n-j-ésò	‘earthen serving plate’
d.	ú-lw-éémbè	í-n-j-émbè	‘native shaving tool’
e.	ú-lw-ééndò	í-n-j-éndò	‘journey’
f.	ú-lw-á <sup>1</sup> álà	í-n-g-á <sup>1</sup> lá	‘fingernail’
g.	ú-lw-á <sup>1</sup> ákò	í-n-g-á <sup>1</sup> kó	‘cup made of calabash’
h.	ú-lw-á <sup>1</sup> ázò	í-n-g-á <sup>1</sup> zó	‘foot’
i.	ú-lú-úzi	í-n-g-ú <sup>1</sup> zí	‘river’
j.	ú-lw-í <sup>1</sup> imbò	í-ny-ím <sup>1</sup> bó	‘song’
k.	ú-lw-íimbwá	í-ny-íimbwá	‘Livingstone potato’

The root in ‘bee-sting’ both resists gliding/deletion and surfaces with a /b/ when preceded by a nasal. This is exactly the same pattern seen in the verb roots ‘work’ and ‘be wet’ in (93b-c), and thus (97a) is set up with a morpheme-initial /b/. The roots in (97b-i) behave like the verbs in (87) and (88), inducing gliding when preceded by a vowel and, when preceded by a nasal, surfacing with [g] (before a back vowel) or [j] (before a front vowel). In these cases I propose that the /g/ is epenthesized (after which palatalization applies), just as was true for verbs. The forms in (93j,k) do not surface with an obstruent when preceded by the class 9/10 nominal prefix, and the nasal surfaces as a palatal.

Let us now review how can the presence of these voiced obstruents be accounted for. First, it seems desirable to set up the roots in (93b-c) and (97a) as /b/-initial to differentiate them from morphemes exhibiting the g/j ~ ø alternation. We will then need a rule deleting the /b/ in these morphemes when it is intervocalic or word-initial. This rule will need to follow gliding and vowel deletion so that the /b/ blocks these two processes from applying. But this /b/-deletion rule will have to target just these three morphemes since there are a good number of /b/-initial roots where the /b/ never deletes (72). The g/j alternation is accounted for by a rule which changes an underlying /g/ to [j] before a following front vowel when preceded by a heteromorphemic nasal.

I propose that all the verbs but those in (93), and all the noun roots in (97b-k) begin with a vowel underlyingly. This straightforwardly accounts for the fact that they induce gliding or deletion of an immediately preceding vowel. The root in (93a) as well as the OMs in (96), which do not induce gliding, are set up with an initial /g/ which will block such a process. Both /g/ and /b/ in the roots in (93) and (97a) will delete (unless preceded by a nasal) after the rules of gliding and vowel deletion. To account for the forms with a nasal in (87), (88) and (97b-i) there is a rule of /g/ insertion between a nasal and a following stem-initial vowel. The roots in (97j-k) would need to be marked as exceptions to the /g/ insertion rule. One downside to this approach, of course, is that the /g/ insertion rule does not seem especially natural as it creates, rather than resolves, a consonant cluster.<sup>18</sup>

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Law (cf. fn. 16). Also, it should also be noted that there is some variation in (97) in the acceptance of either [j] or [g], particularly before /a/.

<sup>18</sup> Of course, consonant insertion rules which build larger cluster have been proposed elsewhere, e.g. in some dialects of English where /dæns/ ‘dance’ > [dænts], /hæmstər/ ‘hamster’ > [hæmpstər].

The presence of a nasal also triggers a segmental change in a following /w/-initial or /y/-initial root or object marker, as seen below. Let us first look at cases where the macrostem begins with /y/ (or an underlying /i/ which glides to [y]).

(98) y-initial roots

a.	ú-kú-yééngéés-à	‘to glitter’	ú-kúú-n-jééngéés-él-à	‘to glitter for me’
b.	ú-kú-yéénz-à	‘to be red’	n-jéénz-é	‘that I be red’
c.	ú-kú-yáál-à	‘to close’	ú-kúú-n-jáál-íl-à	‘to close for me’
d.	ú-kú-yúúl-à	‘to open’	u-kúú-n-júúl-íl-à	‘to open for me’
e.	ú-kú- <sup>1</sup> yú <sup>1</sup> úvw-á	‘to boast’	ín-júúvw-é	‘that I boast’
f.	ú-kú- <sup>1</sup> yá- <sup>1</sup> fúl-à	‘to wash them’	ín-já-fúl- <sup>1</sup> é	‘that I wash them’

To account for these cases I posit a fortition rule which changes /y/ to /j/ when preceded by a nasal. (It should be recalled that what is written as <ny> in this work, e.g. *ú-kú-mány-á* ‘to know’ represents a unitary sound, i.e. the alveopalatal nasal /ɲ/.)<sup>19</sup>

In the following examples, some /w/-initial roots in their infinitival forms are given in the first column. In the second column the infinitive contains the 1 sg. OM (and in all but one case the applicative suffix as well).<sup>20</sup>

(99)	a.	ú-kú- <sup>1</sup> wá- <sup>1</sup> l-à	‘to shine’	ú-kúú-n-gwál-íl-à	‘to shine for me’
	b.	ú-kú-wáám-b-à	‘to make (drum)’	ú-kúú-n-gwáám-b-íl-à	‘to make (drum) for me’
	c.	ú-kú-wín-à	‘to get rich’	ú-kúú-n-gwín-íl-à	‘to get rich for me’
(100)	a.	ú-kú-wééz-y-á	‘to return’	ú-kú-m-bwééz-y-éz-y-á	‘to return to me’
	b.	ú-kú-wéékézy-á	‘to repeat’	ú-kúú-m-bwéékézy-éz-y-á	‘to repeat for me’
(101)	a.	ú-kú- <sup>1</sup> wá- <sup>1</sup> y-á	‘be painful’	ú-kúú-m-b-áy-à	‘to give me pain’
	b.	ú-kú-wáánz-à	‘get portion of millet’	ú-kúú-m-b-áánz-íl-à	‘to get portion of millet for me’
	c.	ú-kú-wááz-à	‘to carve’	ú-kúú-m-b-ááz-íl-à	‘to carve for me’

That these roots are /w/-initial and not V-initial is clear in the imperative forms where each begins with [w]. (E.g. *wín-á* ‘get rich!’) As can be seen, there is some variability in how /w/-initial roots are realized after a nasal. What is somewhat curious is that one might have predicted that these forms should simply surface as a nasal plus [w] sequence (which is phonotactically well-formed in Cilungu, e.g. *á-ká-nwá* ‘mouth’), but in each case a voiced stop is present. So, how can the forms above be accounted for? One can set up (99) with root-initial /gu/ sequences. The g-deletion rule, independently needed, will then delete the /g/ if it does not follow a nasal. (E.g. /u-ku-guanz-a/ > u-ku-gwaan-z-a > u-ku-waan-z-a.) Analogously, the roots in (100) can be set up with a root-initial /bu/. The post-vocalic /b/ will be deleted by the same rule which deletes the /b/ in the forms in (93b-c). Accounting for the roots in (101) is somewhat problematic. At first glance it seems they cannot be set

<sup>19</sup> An alternative to the y > j rule posited here would be to account for these forms via /g/ insertion, as was done for (87)-(88). E.g. (98c) /u-ku-n-ial-a/ > u-ku-n-g-ial-a (/g/-insertion) > u-ku-n-j-ial-a (palatalization) > u-ku-n-j-yaal-a (gliding & CL) > u-ku-n-j-aal-a (absorption). While (98a-e) could be accounted for thusly, such an analysis does not seem possible for (98f) since the 3 pl. OM must be /ya-/ and not /ia-/ as the resulting [a] is always short.

<sup>20</sup> There is also from variation here, with my consultants feelings that most of the forms in (101) could also be pronounced with [ng] in place of [mb].

up with a root-initial /b/ since there cannot be a general  $b > w$  rule given the number of b-initial roots which surface as [β] (cf. (72)), and even if the forms in (101) were exceptions to that rule, we would then expect the /b/ to fully delete, as it does in (93b-c). Still, since the cases of /b/ deletion in (93b-c) as well as (100) occur before a round vowel, this might be made part of that rule. This rule would not affect the /b/ in the forms in (101) since it is followed by a non-round vowel in each case. Were we to then posit a  $b > w$  rule (applying after /b/ deletion) we would still have to list certain forms (included in the examples in (72)) as exceptions. E.g. *ú-kú-<sup>1</sup>bó's-á* ‘to bark’, *ú-kú-búluúngaán-à* ‘to be round’. The alternative is to set up all the roots in (101) with a /w/. We would then need a rule which inserts a /b/ between a heteromorphemic nasal and a labio-velar glide (so it will not apply in words such as *á-ká-nwá* ‘mouth’).

In class 2 nouns, where the preprefix plus prefix combination generally surfaces as [áá] (e.g. *á-á-lími* ‘farmers’), a vowel-initial root has the effect of deleting the second /a/, but not the first.

(102) a.	<i>á-<sup>1</sup>í'ínà</i>	‘relatives’	/á-ba-ína/	cf. sg. <i>ú-mw-í'ínà</i>
b.	<i>á-í'íkálà</i>	‘dwellers’	/á-ba-ikala/	cf. sg. <i>ú-mw-í'íkálà</i>
c.	<i>á-îiné</i>	‘fat people’	/á-ba-iné/	cf. sg. <i>ú-mw-îiné</i>
d.	<i>á-óónsì</i>	‘men’	/á-ba-onsi/	cf. sg. <i>ú-m-óónsì</i>
e.	<i>á-èènéco</i>	‘owner’	/á-ba-enéco/	cf. sg. <i>ú-mw-èènéco</i>

In order to account for the fact that the root-initial vowel does not cause the deletion of both preceding /a/'s, (as it does in the forms presented above in (10)-(11)) we set up the class 2 prefixes as /a-ba/, where the /b/, before it eventually deletes can block the deletion of the first /a/. (Tonally evidence supporting this will be presented in section 10.5.4.)<sup>21</sup>

Finally, let us consider cases of morpheme-internal vowel hiatus which is unresolved. Cases of [ai] sequences (where we might expect deletion to apply) are given in (103), a case of [iu] (where we might expect gliding to apply) is given in (104), and several cases of [eu] and one case of [eo] are given in (105).

(103) a.	<i>ú-kú-<sup>1</sup>ká.<sup>1</sup>í.lw-á</i>	‘to perspire’
b.	<i>ú-kú-<sup>1</sup>lá.<sup>1</sup>í.k-à</i>	‘to narrate’
c.	<i>ú-kú-<sup>1</sup>tá.<sup>1</sup>í.zy-á</i>	‘to thank’
(104)	<i>ú-kú-<sup>1</sup>pí'í'íul-à</i>	‘to mean’
(105) a.	<i>ú-kw-ééléúzy-á</i>	‘to imitate’
b.	<i>ú-kú-<sup>1</sup>sé'léul-à</i>	‘to turn over’
c.	<i>ú-kú-<sup>1</sup>lé'ul-à</i>	‘to dodge, avoid’
d.	<i>ú-mú-séo</i>	‘road’

I would like to suggest that there are in fact no diphthongs whatsoever in Cilungu. In all the cases of vowel hiatus the two vowels behave phonologically as heterosyllabic. Tonal evidence will be adduced to support this below (cf. §10.6.3). Still, we must account for the fact that neither deletion nor gliding apply in the above cases. One possibility would be to posit a C, e.g. /g/, between each sequence. An alternative would be to formulate vowel deletion so that it only applied in derived environments, predicting its non-application in (103). But this option is not available to account for the lack of gliding in (104) since we have set up morpheme internal

<sup>21</sup> One other obvious case of a morpheme initial /b/ is the 3 sg. possessive root which I set up as /bó/. E.g. *ú-mú-lími w-àà-ó* (< /u-a-bó/).

sequences of [CwVV] as /CuV/ where the long vowel is predicted by compensatory lengthening. The [eu] and [eo] cases in (105) are a little less clear. In section 3.4 below, we will see that the vowel in verb roots posited as /Ce/ deletes before a following vowel. Thus these cases could be accounted for either by positing a /g/ at the hiatus juncture or by specifying that the deletion rule applies only in derived environments.

### 3.4 Mid Vowel Harmony

Like many Bantu languages, Cilungu has a rule of Mid Vowel Harmony which has the effect of lowering a vowel in a verbal extension from high to mid if the (last) vowel of the root is a mid vowel. This is illustrated in the applicative forms shown below:

#### (106) Examples of applicative

- |    |  |                  |
|----|--|------------------|
| a. | ú-kú-láy-á                                 | ‘to promise’     |
| b. | ú-kú-láy-íl-à                              | ‘to promise for’ |
| c. | ú-kú-fúl-à                                 | ‘to wash’        |
| d. | ú-kú-fúl-íl-à                              | ‘to wash for’    |
| e. | ú-kú-zíík-à                                | ‘to bury’        |
| d. | ú-kú-zíík-íl-à                             | ‘to bury for’    |
| g. | ú-kú- <sup>l</sup> lé <sup>l</sup> ét-à    | ‘to bring’       |
| h. | ú-kú- <sup>l</sup> lé <sup>l</sup> ét-él-à | ‘to bring for’   |
| i. | ú-kú-kóm-à                                 | ‘to cut’         |
| j. | ú-kú-kóm-él-à                              | ‘to cut for’     |

As can be seen in the examples above, the applicative sometimes surfaces as [-il] and sometimes as [-el]. I assume that the underlying representation of this affix is /-il/ and that a rule of Mid Vowel Harmony, lowers the vowel to mid if the (final) vowel of the root is mid. This Mid Vowel Harmony is also seen in the Stative /-ik/, the Long Causative /iisi/, and Intensive /-isi/ forms, as seen below:

#### (107) Stative /-ik/

- |    |               |                |
|----|---------------|----------------|
| a. | ú-kú-fúl-à    | ‘to wash’      |
| b. | ú-kú-fúl-ík-à | ‘to be washed’ |
| c. | ú-kú-kóm-à    | ‘to cut’       |
| d. | ú-kú-kóm-ék-à | ‘to be cut’    |

(108) Long Causative /-iisi/

- |    |                                |                     |
|----|--------------------------------|---------------------|
| a. | ú-kú-fúl-à                     | ‘to wash’           |
| b. | ú-kú-fúl-íish-á                | ‘to cause to wash’  |
| c. | ú-kú- <sup>!lá</sup> s-á       | ‘to hit             |
| d. | ú-kú- <sup>!lá</sup> s-íish-á  | ‘to cause to hit’   |
| e. | ú-kú- <sup>!lé</sup> ét-à      | ‘to bring’          |
| f. | ú-kú- <sup>!lé</sup> ét-éesh-á | ‘to cause to bring’ |

(109) Intensive /-isi/

- |    |                               |                  |
|----|-------------------------------|------------------|
| a. | ú-kú-fúl-à                    | ‘to wash’        |
| b. | ú-kú-fúl-ísh-á                | ‘to wash a lot’  |
| c. | ú-kw-í <sup>!íy</sup> -á      | ‘to steal’       |
| d. | ú-kw-í <sup>!íy</sup> -ísh-á  | ‘to steal a lot’ |
| e. | ú-kú- <sup>!lá</sup> s-á      | ‘to hit          |
| f. | ú-kú- <sup>!lá</sup> s-ísh-á  | ‘to hit a lot’   |
| g. | ú-kú- <sup>!lé</sup> ét-à     | ‘to bring’       |
| h. | ú-kú- <sup>!lé</sup> ét-ésh-á | ‘to bring a lot’ |

Let us now consider a root such as /temu-/ ‘to love’

- |          |                                |                      |
|----------|--------------------------------|----------------------|
| (110) a. | ú-kú- <sup>!té</sup> mw-á      | ‘to love’            |
| b.       | ú-kú- <sup>!té</sup> mw-íil-à  | ‘to love for’        |
| c.       | ú-kú- <sup>!té</sup> mw-íish-á | ‘to love a lot’      |
| d.       | ú-kú- <sup>!té</sup> mw-áán-à  | ‘to love each other’ |

As can be seen above, the suffix surfaces with a high vowel. This can be accounted for if we assume the input of this root is /temu-/ and that MVH is triggered by the rightmost vowel in the root. Of course, MVH must occur before gliding.

Additional data below shows that in stems with vowels of mixed heights, it is the vowel immediately preceding the /-iC/ suffix which triggers the harmony.

- |          |                                 |                      |
|----------|---------------------------------|----------------------|
| (111) a. | ú-kw-éélú <sup>!l</sup> l-íl-à  | ‘to sift for’        |
| b.       | ú-kú- <sup>!bé</sup> éndám-íl-à | ‘to incline for’     |
| c.       | ú-kú- <sup>!sé</sup> nám-íl-à   | ‘to lie on back for’ |
| d.       | ú-kú-tóóntékán-íl-à             | ‘to be flexible for’ |

- (112)
- |    |                               |  |
|----|-------------------------------|--|
| a. | ú-kú-lól-án-ísh-à             | ‘to see each other (visit) frequently’ |
| b. | ú-k-óóc-án-íl-à               | ‘to burn each other because of’        |
| c. | ú-k-ó <sup>l</sup> óp-án-íl-à | ‘to fear each other because of’        |
| d. | ú-kú-kóm-án-íl-à              | ‘to cut each other because of’         |

With regard to verb roots with vowels of mixed heights, while, as seen in (111) there are a number of roots which contain a mid vowel followed by a /u/ or /a/, there are almost no cases of roots which contain 1) a mid vowel followed by /i/ or 2) a non-mid vowel followed by a mid vowel.<sup>22</sup> The first point can be accounted for if we assume that MVH is enforced tautomorphemically. The second point seems to indicate that the presence of a mid vowel in the root can only be licensed or permitted under two circumstances: 1) it is found as the very first vowel of the root, or 2) it is found non-root-initially in roots where all preceding stem vowels are mid.

The vowel /u/ is also affected by the process of Mid Vowel Harmony. However, whereas the lowering of /i/ was triggered by both /e/ and /o/, the lowering of /u/ is triggered only by /o/, as seen in the examples below involving the Reversive.

(113) Reversive

- |    |   |                             |
|----|---|-----------------------------|
| a. | ú-kú-zíík-à                                   | ‘to bury, put dirt in hole’ |
| b. | ú-kú-zíík-úl-à                                | ‘to unbury, dig out hole’   |
| c. | ú-kú-fúúng-à                                  | ‘to lock’                   |
| d. | ú-kú-fúúng-úl-à                               | ‘to unlock’                 |
| e. | ú-kú-fyéént-à                                 | ‘to tighten (e.g. belt)’    |
| f. | ú-kú-fyéént-úlúl-à                            | ‘to loosen (intr)’          |
| g. | ú-kú- <sup>l</sup> pó <sup>l</sup> ómb-à      | ‘to tangle’                 |
| h. | ú-kú- <sup>l</sup> pó <sup>l</sup> ómb-ólól-à | ‘to untangle’               |
| i. | ú-kú- <sup>l</sup> pó- <sup>l</sup> t-á       | ‘to twist’                  |
| j. | ú-kú- <sup>l</sup> pó <sup>l</sup> t-ólól-à   | ‘to untwist’                |

The same harmony pattern can be seen in the intransitizing suffix /-uk/.

<sup>22</sup> An anonymous reviewer correctly points out that one verb root is an exception to this: *ú-kú-vúúngóól-à* ‘to mash’.

- (114)
- |    |   |                      |
|----|---|----------------------|
| a. | ú-kú-páánd-úl-à                             | ‘to split’           |
| b. | ú-kú-páánd-úk-à                             | ‘to become split’    |
| c. | ú-kú- <sup>1</sup> zy-ú <sup>1</sup> úl-à   | ‘to awaken’          |
| d. | ú-kú- <sup>1</sup> zy-ú <sup>1</sup> úk-à   | ‘to wake up’         |
| e. | ú-kó-ólól-à                                 | ‘to straighten’      |
| f. | ú-kó-ólól-ók-à                              | ‘to become straight’ |
| g. | ú-kú- <sup>1</sup> kó <sup>1</sup> ónt-ól-à | ‘to snap’            |
| h. | ú-kú- <sup>1</sup> kó <sup>1</sup> ónt-ók-à | ‘to be snapped’      |

There are a number of /CV/ verb stems where, in the infinitive, no full vowel is found before the Final Vowel (as what precedes the FV is a consonant—often a glide). The question then arises as to whether these roots will trigger mid vowel harmony in –VC extensions or not. The infinitives of these forms along with applicatives and passives (where they exist) are given below.

(115) Roots not triggering Mid Vowel Harmony

Root+FV	Applicative	Passive	
a. ú-kú-sh-á	ú-kú-sí-íl-à	ú-kú-sí-íw-á	‘to grind’
b. ú-kú-lw-á	ú-kú-lw-ííl-à	ú-kú-lw-ííw-á	‘to fight’
c. ú-kú-zw-á	ú-kú-zw-ííl-à	ú-kú-zw-ííw-á	‘to leak, bleed’
d. ú-kú-y-á	ú-kú-y-ííl-à		‘to go’
e. ú-kú-w-á	ú-kú-w-ííl-à		‘to fall’
f. ú-kú-ly-à	ú-kú- <sup>1</sup> lí- <sup>1</sup> íl-à	ú-kú- <sup>1</sup> lí- <sup>1</sup> íw-á	‘to eat’
g. ú-kú-sh-à	ú-kú- <sup>1</sup> sí- <sup>1</sup> íl-à	ú-kú- <sup>1</sup> sí- <sup>1</sup> íw-á	‘to leave’
h. ú-kú-zw-à	ú-kú- <sup>1</sup> zw-í <sup>1</sup> íl-à	ú-kú- <sup>1</sup> zw-í <sup>1</sup> íw-á	‘to make porridge’
i. ú-kú-py-à	ú-kú- <sup>1</sup> pí- <sup>1</sup> íl-à		‘to be burnt’
j. ú-kú-fw-à	ú-kú- <sup>1</sup> fw-í <sup>1</sup> íl-à		‘to die’

(116) Roots triggering Mid Vowel Harmony

Root+FV	Applicative	Passive	
a. ú-kú-ñ-á	ú-kú-ñé-él-à		‘to defecate’
b. ú-kú-mw-à	ú-kú- <sup>1</sup> mw-é <sup>1</sup> él-à	ú-kú- <sup>1</sup> mw-é <sup>1</sup> éw-á	‘to drink’
c. ú-kú-ng’w-à	ú-kú- <sup>1</sup> ng’w-é <sup>1</sup> él-à	ú-kú- <sup>1</sup> ng’w-é <sup>1</sup> éw-á	‘to drink’
d. ú-kú-c-à	ú-kú- <sup>1</sup> cé- <sup>1</sup> él-à		‘to dawn, be ripe’
e. ú-kú-t-à	ú-kú- <sup>1</sup> té- <sup>1</sup> él-à		‘to stop, lay egg’
f. ú-kú-p-à	ú-kú- <sup>1</sup> pé- <sup>1</sup> él-à	ú-kú- <sup>1</sup> pé- <sup>1</sup> éw-á	‘to give’

As far as the underlying forms of these verb roots is concerned, I assume that all are of the shape /CV/ underlyingly. Were we to set up some as /C/ or some as /Cw/ or /Cy/ we would not have an account for the fact that 1) when a /-VC/ extension (e.g. the applicative /-il/) follows, the vowel following the C or CG of the root is long, and not short, and 2) that certain CG roots trigger Mid Vowel Harmony while others do not. The long V can be immediately accounted for under standard assumptions about compensatory lengthening after gliding



and deletion as described above. The URs of the roots in (115) can be set up as /Cu/ or /Ci/, where the high vowel glides before the FV /-a/. This will correctly predict that these roots will not trigger Mid Vowel Harmony, i.e. they surface with the [-il] allomorph of the Applicative and not [-el], and the [-iw] allomorph of the long Passive and not [-ew], something which follows directly if they have a high (or low) vowel in the root.

As seen in (116), there are five CV roots which do trigger Mid Vowel Harmony. For the ‘drink’ verbs, this could be accounted for by assuming that the underlying round vowel of the root is mid, rather than High, i.e. /mó/ ‘drink’, /ng’ó/ ‘drink’. We could then assume that the mid vowel /o/ (in addition to /u/) also glides before another V. The remaining four verbs, ‘dawn, be ripe’, ‘stop, lay egg’, ‘defecate’ and ‘give’ can be set up with the front mid vowel, i.e. as /ce/, /te/, /ñe/, and /pe/ respectively. In the extended forms, they will trigger mid vowel harmony and concatenate with those suffixes to produce long /e/’s. In the forms without any extensions, we must assume that /e/ either glides or deletes before /a/. A gliding analysis does not seem possible though since /pe-a/ must not become [pya] as that would neutralize this verb with ‘to be burnt’. I therefore assuming that /e/ will delete in these cases. (Given the deletion analysis, the root for ‘defecate’ should be set up as /ñe/, and not e.g. /ne-/.) If gliding targets the high as well as the round vowels, then the rule of deletion can be quite general where the first V of any remaining sequence deletes.

### 3.5 Consonant Mutation

In section 2.2.2 above, we presented the Short Causative /-i/ extension. A few examples are given below.

- (117)
- |    |  |                             |
|----|--|-----------------------------|
| a. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-á     | ‘to be hard/strong’         |
| b. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-y-á   | ‘to harden, make strong’    |
| c. | ú-kú-kóm-à                                 | ‘to cut’                    |
| d. | ú-kú-kóm-y-á                               | ‘to make something get cut’ |
| e. | ú-kú- <sup>1</sup> fú <sup>1</sup> lúm-à   | ‘to boil over (intr.)’      |
| f. | ú-kú- <sup>1</sup> fú <sup>1</sup> lúm-y-á | ‘to cause to boil over’     |
| g. | ú-kú- <sup>1</sup> úm-à                    | ‘to dry (intr.)’            |
| h. | ú-kú- <sup>1</sup> úm-y-á                  | ‘to make dry’               |
| i. | ú-kú- <sup>1</sup> zí <sup>1</sup> m-á     | ‘to become extinguished’    |
| j. | ú-kú- <sup>1</sup> zí <sup>1</sup> m-y-á   | ‘to extinguish’             |

While this is not the case in the above forms, it turns out that this extension often has a phonological effect on the preceding consonant. Some examples are shown below.

- (118)
- |    |   |  |
|----|---|--|
| a. | ú-kó- <sup>1</sup> óp-à                     | ‘to fear’  |
| b. | ú-kó- <sup>1</sup> óf-y-á                   | ‘to frighten’  |
| c. | ú-kú- <sup>1</sup> tá <sup>1</sup> límp-à   | ‘to become long or tall (for a person)’                  |
| d. | ú-kú- <sup>1</sup> tá <sup>1</sup> límf-y-á | ‘to lengthen or to make long (e.g. poles for a mud hut)’ |
| e. | ú-kú-télép-à                                | ‘to be slippery’   |
| f. | ú-kú-téléf-y-á                              | ‘to make or cause to become slippery’                    |

g.	ú-kú- <sup>1</sup> tú <sup>1</sup> úmp-à	‘to be stupid’
h.	ú-kú- <sup>1</sup> tú <sup>1</sup> úmf-y-á	‘to ridicule’
i.	ú-kú-óómb-à	‘to get wet’
j.	ú-kú-óómv-y-á	‘to make wet’
k.	ú-kó- <sup>1</sup> ónd-à	‘be thin’
l.	ú-kó- <sup>1</sup> ónz-y-á	‘to make thin’
m.	ú-kú-lííl-à	‘to cry’
n.	ú-kú-lííz-y-á	‘to make cry’
o.	ú-kw-í <sup>1</sup> íngíl-à	‘to enter’
p.	ú-kw-í <sup>1</sup> íngíz-y-á	‘to make enter, score (in soccer)’
q.	ú-kú- <sup>1</sup> kú <sup>1</sup> l-á	‘to grow up’
r.	ú-kú- <sup>1</sup> kú <sup>1</sup> z-y-á	‘to raise’
s.	ú-kú-kál-à	‘to buy’
t.	ú-kú-káz-y-á	‘to sell’
u.	ú-kú-póóng-à	‘to get lost or to err’
v.	ú-kú-póónz-y-á	‘to lose or to misdirect’

In the cases above, the addition of the Causative /-i/ has induced a mutation (generally lenition) of the preceding consonant. Additionally, it glides to [y] since it precedes a vowel. Let us now consider what happens to roots which end in /t/ or /k/.

- (119) a. ú-kú-<sup>1</sup>pí<sup>1</sup>t-á                   ‘to go’  
b. ú-kú-<sup>1</sup>pí<sup>1</sup>sh-á                   ‘to drive’
- c. ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóónt-à           ‘to hammer’  
d. ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóónsh-á          ‘to knock’
- e. ú-kú-byáát-à                   ‘to flash’  
f. ú-kú-byáásh-á                  ‘to cause to flash’
- (120) a. ú-k-ó<sup>1</sup>ónk-à                   ‘to drink breast milk’  
b. ú-k-ó<sup>1</sup>ónsh-á                   ‘to suckle/give breast milk’
- c. ú-kw-áák-à                   ‘to be lit’  
d. ú-kw-áásh-á                  ‘to light’
- e. ú-kú-zúúk-à                   ‘to cool down’  
f. ú-kú-zúúsh-á                  ‘to make cool’

- g. ú-kú-zúúngúk-à                    ‘to be surprised’  
h. ú-kú-zúúngúsh-á                    ‘to surprise’
- i. ú-kú-kátúk-à                    ‘to stand up’  
j. ú-kú-kátúsh-á                    ‘to lift’

In the two cases above, the word-final /t/ or /k/ mutates to [s] before the Causative /-i/ which then glides before another vowel. Then, as described in section 3.3 above, the [y] will induce a palatalization of a preceding /s/, rendering it [sh] which then (optionally) induces the absorption of [y]. This is shown in the derivation below.

(121)	u-ku-pit-i-a	u-ku-zuuk-i-a	Input
	u-ku-pis-i-a	u-ku-zuus-i-a	Consonant Mutation
	u-ku-pis-y-a	u-ku-zuus-y-a	Gliding
	u-ku-pish-y-a	u-ku-zuush-y-a	Palatalization
	u-ku-pish-a	u-ku-zuush-a	y- absorption

I note here that given these rules, we can set up the Long Causative and Intensive extensions as /-iisi/ and /-isi/ respectively. This predicts that they should surface as [iish] and [ish] respectively unless they are followed by /-i/ or a consonant, in which case the underlying /s/ will surface.<sup>23</sup> That this is true can be seen in (122).

- (122) ú-kú-fúl-ísi-w-á                    ‘to be washed a lot’    /ú-ku-ful-isi-u-a/

Next let us consider causatives involving roots ending in /n/. Some examples are given below.<sup>24</sup> (The reader should recall that the alveopalatal nasal [ɲ] is being transcribed throughout as <ny>)

- (123) a. ú-kú-<sup>1</sup>pó<sup>1</sup>n-á                    ‘to fall’  
b. ú-kú-<sup>1</sup>pó<sup>1</sup>ny-á                    ‘to drop’
- c. ú-kú-<sup>1</sup>tí<sup>1</sup>ín-à                    ‘to be frightened’  
d. ú-kú-<sup>1</sup>tí<sup>1</sup>íny-á                    ‘to frighten’
- e. ú-kw-á<sup>1</sup>ánkán-à                    ‘to share’  
f. ú-kw-á<sup>1</sup>ánkány-á                    ‘to divide’

<sup>23</sup> Of course, as Hyman (1994) noted for Bemba, it would also be possible to set up these suffixes with a /t/ or /k/ in place of the /s/ as all three neutralize to [s] upon undergoing mutation.

<sup>24</sup> There are some pairs which look very much causally related, but where for unknown reasons the vowel length in the root is different. E.g. ú-kú-<sup>1</sup>tón-<sup>1</sup>á ‘to drip’, ú-kú-<sup>1</sup>tó<sup>1</sup>óny-á ‘to rain’.

g.	ú-kú- <sup>1</sup> pá <sup>1</sup> sán-à	‘to differ’
h.	ú-kú- <sup>1</sup> pá <sup>1</sup> sány-á	‘to distinguish/compare’
i.	ú-kú- <sup>1</sup> ká <sup>1</sup> án-à	‘to refuse’
j.	ú-kú- <sup>1</sup> ká <sup>1</sup> ány-á	‘to deny’
k.	ú-kú- <sup>1</sup> kó <sup>1</sup> lán-à	‘to resemble’
l.	ú-kú- <sup>1</sup> kó <sup>1</sup> lány-á	‘to compare’

I assume the form in (123b) is derived as follows:

(124)	u-ku-pon-i-a	Input
	u-ku-pony-i-a	Consonant Mutation
	u-ku-pony-y-a	Gliding
	u-ku-pony-a	y-deletion/absorption

It turns out that this Consonant Mutation (CM) is induced by three specific suffixes in Cilungu: the Causative /-i/, as illustrated above, the deverbal nominative /-i/, and the tense/aspect suffix /-il/. Several deverbal nominatives (cf. §2.1.5) are given in (125).

(125)	a.	ú-mú- <sup>1</sup> lú <sup>1</sup> únz-ì	‘hunter’	(cf. ú-kú- <sup>1</sup> lú <sup>1</sup> úng-à ‘to hunt’)
	b.	ú-mú- <sup>1</sup> ó <sup>1</sup> ómv-ì	‘worker’	(cf. ú-kú- <sup>1</sup> ó <sup>1</sup> ómb-à ‘to work’)
	c.	ú-mú-vyááz-ì	‘parent’	(cf. ú-kú-vyáál-à ‘bear child’)
	d.	á-má- <sup>1</sup> tú <sup>1</sup> únz-ì	‘urine’	(cf. ú-kú- <sup>1</sup> tú <sup>1</sup> únd-à ‘to urinate’)
	e.	í-cí-súz-ì	‘flatulence’	(cf. ú-kú-súl-à ‘to flatulate’)
	f.	í-cí- <sup>1</sup> lú <sup>1</sup> m-í	‘bedbug’	(cf. ú-kú- <sup>1</sup> lú <sup>1</sup> m-á ‘to bite’)

As mentioned above, the third suffix which induces Consonant Mutation is the tense/aspect suffix /-il/. While the tense/aspects which require /-il/ will not be discussed until section 5.2.2, we can summarize the phonological effects of this suffix here. Below is a table which lists examples in the Yesterday Past tense (which requires the suffix /-il/ followed by the FV /-e/) of roots ending in all each of the various consonants in the Cilungu inventory.<sup>25</sup>

<sup>25</sup> Words ending in /b/, as represented in the last two rows of the table, will be discussed in more detail immediately below.

Cons	Mutated C	Example-root	Gloss	Example-Yest. Past
p	f	/óp/	fear	tó-óf-í'l-é
mp	mf	/tump/	dip	tw-áá-túumf-il-é
/b/ > [y]	v	/lab/	promise	tw-áá-láv-il-é
/b/ > [w]	v	/lob/	go extinct	tw-áá-lóv-il-é
mb	mv	/omb/	work	tw-áá- <sup>1</sup> óómv-il-é
t	s	/léet/	bring	tw-áá-léés-il-é
nt	ns	/tint/	pull	tw-áá-tíins-il-é
nd	nz	/send/	carry	tw-áá-séènz-il-é
c	s	/oc/	burn	tó-ós-í'l-é
k	s	/ziik/	bury	tw-áá-zíis-il-é
nk	ns	/ónk/	suckle	tó-óns-í'l-é
ng	nz	/eng/	smelt	tw-éénz-í'l-é
f	f	/seef/	sift	tw-áá-séèf-il-é
v	v	/chov/	pedal	tw-áá-chóv-il-é
s	s	/chiis/	iron	tw-áá-cíis-il-é
z	z	/iz/	come	tw-í-íz-í'l-é
nz	nz	/konz/	fold	tw-áá-kóónz-il-é
m	m	/kom/	cut	tw-áá-kóm-il-é
n	ny	/pón/	fall	tw-áá-póny-í'l-é
ny	ny	/many/	know	tw-áá-mány-il-é
ng'	ng'	/néng'/	spin steadily	lw-áá-néng'-í'l-é
l	z	/ful/	wash	tw-áá-fúz-il-é

Table 1: Consonant Mutation before /-il/

Before trying to account for the individual changes which comprise the process labeled here as Consonant Mutation, it should be pointed out that, at least diachronically, many consonants which clearly seem part of the Cilungu underlying inventory undoubtedly arose as a result of CM as well as other erstwhile processes of lenition and spirantization. This seems to be true, e.g. of most of the outputs of CM which are (non-vacuous) modifications of the input, viz. /f/, /v/, /z/ and probably /ny/. But as each of these phones is found synchronically not only in morpheme-final position (where it could plausibly be the result of CM), but in morpheme-initial position as well, they must be analyzed as underlying and contrastive sounds in the language, even though in many cases they have a restricted distribution. These restrictions are summarized below.<sup>26</sup>

<sup>26</sup> The summary in (126) is based on a search of approximately 2000 Cilungu words in a database containing the entries in Kagaya's (1987a) Cilungu dictionary as well as additional words gathered by the author. What is indicated in the table seems consistent with a historical scenario whereby voiced obstruent plosives become fricatives before the historically "super-closed" vowels \*j and \*u.

(126) <u>Sound</u>	<u>Amplly attested</u>	<u>Rarely attested</u>	<u>Unattested</u>
/f/	fí, fu	fo	*fa, *fe
/v/	ví, vu	vo	*va, *ve
/z/	zi, zu, za	ze, zo	
/ny/	nyi, nye, nya	nyu, nyo	

It should be noted that almost every verb is potentially affected by this process as there are only a handful of roots which end a vowel. The first group of forms which end in a vowel are the CV roots discussed above (115)-(116). The Yesterday Past of several of these are given below.

(127) a.	yá-á-pí-íl-è	‘they burned’	/pí/
b.	yá-á-lí-íl-è	‘they ate’	/lí/
c.	yá-á-t-ííl-è	‘they stopped’	/té/
d.	vy-áá-c-ííl-è	‘they (C8) ripened’	/cé/

As can be seen, the vowel in the root protects the preceding consonant from undergoing mutation. The correct forms are derived as long as Consonant Mutation applies before vowel deletion and compensatory lengthening.

The /CV/ roots in (115)-(116) above can be usefully contrasted with /CVG/ roots where the morpheme-final glide is homorganic with the previous vowel.

(128) a.	ú-kú- <sup>!</sup> tí <sup>!</sup> y-á	‘to celebrate wedding’	/ú-ku-tíy-a +H/
b.	ú-kú- <sup>!</sup> tí- <sup>!</sup> íl-à	‘to celebrate wedding for’	/tú-ku-tíy-il-a +H/
c.	tw-áá-tí-íl-é	‘we celebrated a wedding (Far Past)’	/tú-a-tíy-il-e +H/
(129) a.	ú-kú- <sup>!</sup> tí <sup>!</sup> íy-à	‘to gather (firewood)’	/ú-ku-tíiy-a +H/
b.	ú-kú- <sup>!</sup> tí <sup>!</sup> í-íl-à	‘to gather for’	/ú-ku-tíiy-il-a +H/
(130) a.	ú-kú- <sup>!</sup> fí <sup>!</sup> y-á	‘to paddle’	/ú-ku-fíy-a +H/
b.	ú-kú- <sup>!</sup> fí- <sup>!</sup> íl-à	‘to paddle for’	/ú-ku-fíy-il-a +H/
(131) a.	ú-kú-fúw-à	‘to skin’	/ú-ku-fuw-a/
b.	ú-kú-fúw-án-à	‘to skin each other’	/ú-ku-fuw-an-a/
c.	yá-á-fúw-il-é	‘we skinned’	/yá-á-fuw-il-é/
(132) a.	ú-kú-vúw-à	‘to fish with a net’	/ú-ku-vuw-a/
b.	yá-á-vúw-il-é	‘they fished with a net’	/yá-á-vuw-il-é/

These roots need to be set up with a root-final /y/ or /w/ (which as can be seen in (131b-c) and (132b) does not induce compensatory lengthening). These, then, are added to the few cases noted above in section 3.2 which justify setting up glides as phonemes in Cilungu. (They cannot be set up as CV roots with glide insertion given the CV roots presented in (115)-(116) which exhibit no such glide insertion.) We note that the root-final glide in the verbs in (128)-(130) actually prevents the /i/ on either side of it from merging into a single syllable. (This is signaled in the phonetic representations given above by the period between the vowels. This process is discussed further in §10.4.5.) Based on the forms in (128)-(132), then, there is no evidence that a root-final glide has been mutated in any way.

With regard to their realization in the Yesterday Past, the forms in (128)-(132) contrast with the following stems ending in [ya] or [wa] where that consonant mutates to [v] as seen below:

(133) Stems which end in [aya]

a.	ú-kú- <sup>1</sup> ká'y-á	‘to become hot’	/ú-ku-káb-a +H/
b.	yá-á-káv-í <sup>1</sup> l-é	‘they became hot’	/yá-á-káb-il-é/
c.	ú-kú- <sup>1</sup> káv- <sup>1</sup> y-á	‘to warm’	/ú-ku-káb-i-a +H/
d.	ú-kú- <sup>1</sup> wá'y-á	‘to be painful’	/ú-ku-wáb-a +H/
e.	c-á'á-wáv-í <sup>1</sup> l-é	‘it was painful’	/cí-á-wáb-il-é/
f.	ú-kú- <sup>1</sup> wáv- <sup>1</sup> y-á	‘to cause pain’	/ú-ku-wáb-i-a +H/
g.	ú-kú-láy-à	‘to say goodbye, promise’	/ú-ku-lab-a/
h.	ú-kú-lá-íl-à	‘to say goodbye, promise for’	/ú-ku-lab-il-a/
i.	yá-á-láv-il-é	‘they said goodbye, promised’	/yá-á-lab-il-e/
j.	ú-kú-lááy-à	‘to set off early’	/ú-ku-laab-a/
k.	yá-á-láav-il-é	‘they set off early’	/yá-á-laab-il-é/

(134) Stems which end in [iya]

a.	ú-kw-í <sup>1</sup> iy-à	‘to steal’	/ú-ku-íb-a/
b.	ú-kw-í <sup>1</sup> í-íl-à	‘to steal for’	/ú-ku-íb-il-a/
c.	í-ív-í <sup>1</sup> l-é	‘they stole’	/yá-íb-il-é/
d.	tw-íív-íil-é	‘we stole for’	/tú-íb-il-il-é/

(135) Stems which end in [owa]

a.	ú-k-ó <sup>1</sup> ów-à	‘to swim, bathe’	/ú-ku-ób-a/
b.	ú-k-ó <sup>1</sup> ów-él-à	‘to swim, bathe for’	/ú-ku-ób-il-a/
c.	y-óóv-í <sup>1</sup> l-é	‘they swam, bathed’	/yá-ób-il-é/
d.	t-óów-íil-é	‘we swam, bathed for’	/tú-ób-il-il-é/
e.	ú-kú-ków-à	‘to pull, cling to’	/ú-ku-kob-a/
f.	ú-kú-ków-él-à	‘to pull, cling to for’	/ú-ku-kob-il-a/
g.	yá-á-kóv-il-é ~ yá-á-ków-il-é	‘they pulled, clung to’	/yá-á-kob-il-e/
h.	tw-áá-ków-íil-é	‘they pulled for’	/tú-á-kob-il-il-é/
i.	ú-kú-kóv-y-á	‘to interlock’	/ú-ku-kob-i-a/

To account for the presence of [v] at the end of the root in the past forms of the above verbs, I propose setting up all the roots above with a root-final /b/. Consonant Mutation would then change /b/ to /v/ which is independently attested in the change from /mb/ to /mv/ (cf. Table 1). But how, then are the non-mutated forms derived? Since [y] and [w] are in complementary distribution in these data, with [w] following a round vowel and [y] following a non-round vowel, I propose a rule which changes /b/ to [w] after a round vowel and to [y]

elsewhere. (A subsequent, and independently motivated rule (22) would delete [y] before [i] and [w] before a round vowel.) At this point, let us recall two things. First, there are a number of forms in the language where intervocalic /b/ surfaces as [β], and not [w]. But as seen in the list of such forms in (72), the /b/ in these forms is always root-initial, whereas the /b/ in (133)-(135) is root-final—something that can distinguish the two groups. Second we must remember that there are certain /b/-initial roots where the /b/ always deletes between two vowels regardless of the shape of the first one.

- |       |    |  |                         |                       |
|-------|----|--|-------------------------|-----------------------|
| (136) | a. | ú-kú-óómb-à                                  | ‘to get wet’            | /ú-ku-bomb-a/         |
|       | b. | ú-kú- <sup>1</sup> ví- <sup>1</sup> óómv-y-á | ‘to make them (C8) wet’ | /ú-ku-ví-bomb-i-a +H/ |
|       | c. | ú-kú- <sup>1</sup> yá- <sup>1</sup> óómv-y-á | ‘to make them (C2) wet’ | /ú-ku-yá-bomb-i-a +H/ |
|       |    |  |                         |                       |
| (137) | a. | ú-kú- <sup>1</sup> óómb-à                    | ‘to work’               | /ú-ku-bómb-a +H/      |
|       | b. | ú-kú- <sup>1</sup> ví- <sup>1</sup> óómv-y-á | ‘to use them (C8)’      | /ú-ku-ví-bomb-i-a +H/ |
|       | c. | ú-kú- <sup>1</sup> yá- <sup>1</sup> óómv-y-á | ‘to use them (C2)’      | /ú-ku-yá-bomb-i-a +H/ |

One possible analysis, then, would be as follows. There would be four rules which affect /b/ (all of which will be illustrated in the derivation below in (138)). The first would delete a morpheme-initial /b/ which precedes a round vowel. This would delete the /b/ in the forms in (136)-(137), (100a-b), and (97a). (The forms in (72h-i) would be listed as exceptions.) The second rule would change root-final /b/ > w if the preceding vowel is round. The third rule would change any remaining root-final /b/ > y. And the fourth rule would change any /b/’s still remaining (which would all be morpheme-initial) to [β]. The downside of this analysis, of course, is the lack of naturalness in the third rule which changes /b/ to [y], an odd rule indeed, though it should be noted that it seems that this is exactly what has happened diachronically, as ‘to become hot’ and ‘to be painful’ are set up (by Guthrie) in PB as \*káb and \*báb respectively.<sup>27</sup> Note that it does not seem possible to set up the forms in (133)-(134) as ending in /g/ (the other C which deletes when not preceded by a nasal), even though a /g/ to [y] change is more natural. The problem with this account is that roots ending in /ng/ mutate to /nz/, showing that the mutated result of /g/ is [z], not [y].

I present derivations below illustrating the various rules which affect /b/.

- |       |        |       |         |       |         |         |          |
|-------|--------|-------|---------|-------|---------|---------|----------|
| (138) | i-beli | kab-a | kab-ile | vub-a | vub-ile | boomb-a | U.R.     |
|       |        |       | kavile  |       | vuvile  |         | Cons Mut |
|       |        |       |         |       |         | oomba   | b > ø    |
|       |        |       |         | vuwa  |         |         | b > w    |
|       |        | kaya  |         |       |         |         | b > y    |
|       | i-βeli |       |         |       |         |         | b > β    |

Let us now attempt to analyze the entire picture of consonant mutation. What are the relevant generalizations? First, the mutation of a given consonant is the same whether it is post-vocalic or post-nasal.

<sup>27</sup> Of course even the historical account is not completely straightforward as ‘to promise’ is set up a \*dàg.



Second, mutation never affects the voicing of a consonant. Third, mutation changes all consonants (except the nasals) into fricatives. And finally, changes in place of articulation are small and structure-preserving. E.g. the voiceless labial changes to a labio-dental, but that follows from the fact that given that the mutated consonant will be a fricative and the language does not have a voiceless bilabial fricative phoneme, but does have a labio-dental one.<sup>28</sup> The velars become alveolars, but again, that is due to the fact that the language has no velar fricatives. The phonological changes can be summarized in (139). (Any segment not characterized below will remain the same.)

- (139) a. The alveolar nasal /n/ mutates to [ɲ]  
 b. The labials (/p/, /b/) become labio-dental fricatives  
 c. The remaining obstruents, i.e. the alveolars (/t/, /d/) and the velars (/k/, /g/) become alveolar fricatives.

We noted above that that it is very uncommon for a stem to end in an affricate, i.e. /c/ or /j/. We might now ask how each of the two discussed above behaves with respect to mutation. The relevant forms are given below.

- |          |                                 |                           |                     |
|----------|---------------------------------|---------------------------|---------------------|
| (140) a. | ú-k-óóc-à                       | ‘to burn’                 | /ú-ku-oc-a/         |
| b.       | ú-k-óóc-án-à                    | ‘to burn each other’      | /ú-ku-oc-an-a/      |
| c.       | ú-k-óóc-él-à                    | ‘to burn for’             | /ú-ku-oc-el-a/      |
| d.       | tó-ós-í <sup>1</sup> l-é        | ‘we burned’               | /tú-á-oc-il-é/      |
| (141) a. | ú-kú- <sup>1</sup> cíinj-á      | ‘to change, slaughter’    | /ú-ku-cínji-a/      |
| b.       | ú-kú- <sup>1</sup> cíinj-áán-à  | ‘to slaughter each other’ | /ú-ku-cínji-an-a/   |
| c.       | ú-kú- <sup>1</sup> cíinj-íz-y-á | ‘to slaughter for’        | /ú-ku-cínji-il-i-a/ |
| d.       | tw-áá-cíinj-íz-y-é              | ‘we changed, slaughtered’ | /tú-á-cínji-il-e/   |

As can be seen the two roots are different in terms of their behavior before /-il-e/ in two respects. The voiceless affricate becomes a voiceless fricative, which is quite consistent with the rest of the mutation pattern (i.e. an obstruent becoming a fricative of the same voicing at the closest of either the labial or alveolar place of articulation). The voiced affricate, however, does not change its manner of articulation. We might have expected it to mutate to /z/, but it does not. Second, the vowel of the Perfect suffix /-il/ is long in ‘change’ but short in ‘burn’. One way to account for these facts, and the approach I will adopt here, is to set up ‘to burn’ as /oc/, and ‘to change/slaughter’ as /cínji/. As was the case with the CV roots discussed above, the root-final vowel in /cínji/ will protect the preceding consonant from undergoing mutation. The root-final vowel at the end of ‘change’ also accounts for the long penult in (141b,d).

Let us now address how to best formally analyze Consonant Mutation. Obviously CM is not simply caused by any occurrence of the front high vowel /-i/ since the /i/-initial extensions such as /-il/, /-ik/ /-isi/ and /-iisi/ (cf. §2.2.2) do not induce CM. In order to account for this, then, either the rule of CM itself must be annotated to be triggered only by certain suffixes (viz. the short causative /-i/ , the nominalizer /-i/ and the TAM suffix /-il/), or there must be some difference in the representation of the CM inducing /i/s and the non-CM inducing /i/s. What might weigh in favor or against these approaches? Let us consider setting up two different kinds of /i/. In this approach, one might propose to alter the actual features of the two /i/s. For instance, one might be [+tense] and the other [-tense]. This would enlarge the vowel inventory by one, making it unbalanced in two ways. First,

<sup>28</sup> While the language does have a voiced bilabial fricative [β] phonetically, this derives from /b/. In any case CM must map both labial stops onto the labio-dental fricatives.

there is no synchronic evidence for an analogous distinction in the high back vowel (or in either of the two mid vowels). Second while there is a length contrast for every other vowel, there is no evidence for a length contrast in two high front vowels. Before forming an analysis here we must consider one additional fact. It turns out that there are actually two phonological properties which distinguish these two /i/'s. The first, already noted is that one induces CM while the other does not. It turns out that the one which induces CM also resists Mid Vowel Harmony (cf. §3.4). This can be seen in the forms below.

- (142) a. ú-kú-télép-à 'to be slippery'  
b. ú-kú-téléf-y-á 'to make or cause to become slippery'  
c. ú-kú-téléf-í-w-á 'to be made slippery'
- (143) a. ú-kú-wéél-à 'to return (intr.)'  
b. ú-kú-wééz-y-á 'to return (tr.)'  
c. ú-kú-wééz-í-w-á 'to be returned'
- (144) a. ú-kú-<sup>1</sup>kó<sup>1</sup>m-á 'to be hard or strong'  
b. ú-kú-<sup>1</sup>kó<sup>1</sup>m-y-á 'to harden'  
c. ú-kú-<sup>1</sup>kó<sup>1</sup>m-í-w-á 'to be hardened'
- (145) a. ú-kú-<sup>1</sup>ó<sup>1</sup>ómb-à 'to work'  
b. ú-kú-<sup>1</sup>ó<sup>1</sup>ómv-y-á 'to make work, use'  
c. ú-kú-<sup>1</sup>ó<sup>1</sup>ómv-í-w-á 'to be used'
- (146) a. ú-k-ó<sup>1</sup>óp-à 'to fear'  
b. ú-k-ó<sup>1</sup>óf-y-á 'to frighten'  
c. ú-k-ó<sup>1</sup>óf-í-w-á 'to be frightened'
- (147) a. ú-kú-óómb-à 'to get wet'  
b. ú-kú-óómv-y-á 'to make wet'  
c. ú-kú-óómv-í-w-á 'to be made wet'
- (148) a. ú-kú-sóóngól-à 'to be sharp'  
b. ú-kú-sóóngóz-y-á 'to sharpen (make sharp)'  
c. ú-kú-sóóngóz-í-w-á 'to be sharpened (make sharp)'

It should be noted that this resistance to undergoing Mid Vowel Harmony exhibited by the mutation-inducing /i/ is not found in the “long” passive, which is used with CV roots, as seen below.<sup>29</sup>

<sup>29</sup> The /g/ in the long passive /-igu/ will always delete via the rule which deletes both /b/ and /g/ intervocalically, motivated in §3.3. The presence of the /g/ insures that the following /u/ will glide before a following vowel. Were the long passive posited as /-iu/ then the direction of gliding (e.g. right to left) would have to be specified to make sure the /i/ did not first glide before /u/.

(149) a.	ú-kú-ly-à	‘to eat’	/ú-ku-lí-a +H/
b.	ú-kú- <sup>l</sup> lí- <sup>l</sup> íw-á	‘to be eaten’	/ú-ku-lí-igu-a +H/
c.	ú-kú-lw-á	‘to fight’	/ú-ku-lu-a/
d.	ú-kú-lw-ííw-á	‘to be fought’	/ú-ku-lu-igu-a/
e.	ú-kú-mw-à	‘to drink’	/ú-ku-mó-a +H/
f.	ú-kú- <sup>l</sup> mw-é <sup>l</sup> éw-á	‘to be drunk’	/ú-ku-mó-igu-a +H/
g.	ú-kú-p-à	‘to give’	/ú-ku-pé-a +H/
h.	ú-kú-p-é <sup>l</sup> éw-á	‘to be given’	/ú-ku-pé-igu-a +H/

As can be seen in (142)-(148), the causative /-i/, which induces mutation of a previous consonant, does not undergo Mid Vowel Harmony. If we account for the CM and MVH facts in terms of an annotation on each rule, then it is purely coincidental that the morphemes listed as triggering CM (viz. the causative /-i/, Perfective /-il-e/ and nominalizing /-i/) are the very morphemes that must be listed as exceptions to MVH. Given this, it seems prudent to posit the /-i/ which induces CM and resists MVH as underlyingly distinct from the more widespread /i/ which does not. I must leave open the question as to what exactly this phonological distinction is.<sup>30</sup> Orthographically, I will continue to simply use <i> for both in the phonetic representations (as they are indeed identical in every respect on the surface), but as an aid to the reader I will underline (i.e. /i/) the one which induces CM when it is found in underlying representations.

When a verb takes the causative /-i/ extension and contains at least one other extension as well, this /-i/ can show up in the form more than once. This can be seen in forms with both the Causative and Reciprocal.

(150) a.	ú-k-ó <sup>l</sup> óp-à	‘to fear’	/ú-ku-óp-a/
b.	ú-k-ó <sup>l</sup> óf-y-á	‘to frighten’	/ú-ku-óp- <u>i</u> -a/
c.	ú-k-ó <sup>l</sup> óf-y-áán-y-á	‘to frighten each other (e.o.)’	/ú-ku-óp- <u>i</u> -an- <u>i</u> -a/
(151) a.	ú-kú-wéél-à	‘to return (intr.)’	/ú-ku-weel-a/
b.	ú-kú-wééz-y-á	‘to return (tr.)’	/ú-ku-weel- <u>i</u> -a/
c.	ú-kú-wééz-y-áán-y-á	‘to return e.o.’	/ú-ku-weel- <u>i</u> -an- <u>i</u> -a/
(152) a.	ú-k-ó <sup>l</sup> ónd-à	‘to be thin’	/ú-ku-ónd-a/
b.	ú-k-ó <sup>l</sup> ónz-y-á	‘to make thin’	/ú-ku-ónd- <u>i</u> -a/
c.	ú-k-ó <sup>l</sup> ónz-y-áán-y-á	‘to make e.o. thin’	/ú-ku-ónd- <u>i</u> -an- <u>i</u> -a/
(153) a.	ú-kw-í <sup>l</sup> íngíl-à	‘to enter’	/ú-ku-íngil-a/
b.	ú-kw-í <sup>l</sup> íngíz-y-á	‘to make enter, score (e.g. in soccer)’	/ú-ku-íngil- <u>i</u> -a/
c.	ú-kw-í <sup>l</sup> íngíz-y-áán-y-á	‘to make each other enter’	/ú-ku-íngil- <u>i</u> -an- <u>i</u> -a/
(154) a.	ú-kú- <sup>l</sup> úm-à	‘to be dry’	/ú-ku-úm-a/
b.	ú-kú- <sup>l</sup> úm-y-á	‘to make dry’	/ú-ku-úm- <u>i</u> -a/
c.	ú-kú- <sup>l</sup> úm-y-áán-y-á	‘to make e.o. dry’	/ú-ku-úm- <u>i</u> -an- <u>i</u> -a/

<sup>30</sup> The CM-inducing /-i/ is a reflex of the most closed front vowel of the Proto Bantu 7 vowel system—often referred to (as mentioned in footnote 25) as a “super-closed” vowel, usually transcribed as \*i.

- (155) a. ú-kú-<sup>1</sup>ó<sup>1</sup>ómb-à ‘to work’ /ú-ku-ómb-a +H/  
 b. ú-kú-<sup>1</sup>ó<sup>1</sup>ómv-y-á ‘to make work’ /ú-ku-ómb-i-a +H/  
 c. ú-kú-<sup>1</sup>ó<sup>1</sup>ómv-y-áán-y-à ‘to make e.o. work’ /ú-ku-ómb-i-an-i-a +H/
- (156) a. ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóont-à ‘to hammer’ /ú-ku-kónkont-a +H/  
 b. ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóónsh-á ‘to knock’ /ú-ku-kónkont-i-a +H/  
 c. ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóónsh-áán-y-á ‘to knock each other’ /ú-ku-kónkont-i-an-i-a +H/
- (157) a. ú-kw-áák-à ‘to be lit’ /ú-ku-ak-a/  
 b. ú-kw-áásh-á ‘to light’ /ú-ku-ak-i-a/  
 c. ú-kw-áásh-áán-y-á ‘to light e.o.’ /ú-ku-ak-i-an-i-a/

As can be seen in the above forms, the /-i/ shows up both immediately after the root as well as after the reciprocal extension /-an/. Additionally, we see that it has induced a lengthening of the penult, which is expected via compensatory lengthening if it is underlyingly moraic (i.e. /i/) and then glides before a vowel.

I note here that it cannot just be the presence of Cy (or [sh]) before the reciprocal /-an/ which then triggers another insertion of the short causative. When that Cy (or [sh]) does not contain the short causative, no additional /-i/ is found after the reciprocal.

- (158) a. ú-kú-sh-áán-à ‘to grind each other’ /ú-ku-si-an-a/  
 b. ú-kú-<sup>1</sup>sh-á<sup>1</sup>án-à ‘to leave each other’ /ú-ku-sí-an-a +H/  
 c. ú-kú-<sup>1</sup>ly-á<sup>1</sup>án-à ‘to eat each other’ /ú-ku-lí-an-a +H/

When the root ends in /n/ two interesting things happen when the short causative is added. First, the /a/ of the reciprocal /-an/ surfaces as short and not long. And second, /-i/ does not show up after the reciprocal. Both of these facts are in contrast to what we saw in (150)-(157).

- (159) a. ú-kú-<sup>1</sup>tí<sup>1</sup>ín-à ‘to be frightened’ /ú-ku-tiin-a +H/  
 b. ú-kú-<sup>1</sup>tí<sup>1</sup>iny-á ‘to frighten’ /ú-ku-tiin-i-a +H/  
 c. ú-kú-<sup>1</sup>tí<sup>1</sup>iny-án-à ‘to frighten each other’ /ú-ku-tiin-i-an-a +H/
- (160) a. ú-kú-<sup>1</sup>pó<sup>1</sup>n-á ‘to fall’ /ú-ku-pón-a +H/  
 b. ú-kú-<sup>1</sup>pó<sup>1</sup>ny-á ‘to drop’ /ú-ku-pón-i-a +H/  
 c. ú-kú-<sup>1</sup>pó<sup>1</sup>ny-án-à ‘to drop each other’ /ú-ku-pón-i-an-a +H/
- (161) a. ú-kú-<sup>1</sup>kó<sup>1</sup>lán-à ‘to resemble’ /ú-ku-kólan-a +H/  
 b. ú-kú-<sup>1</sup>kó<sup>1</sup>lány-à ‘to compare’ /ú-ku-kólan-i-a +H/  
 c. ú-kú-<sup>1</sup>kó<sup>1</sup>lány-án-à ‘to compare each other’ /ú-ku-kólan-i-an-a +H/

It seems quite clear that a verb such as ‘to frighten’ in (159b) is derived from ‘to be frightened’ by the addition of the short causative /-i/ after the root. However, it must be noted that roots that end in /n/ are unique in that their (non-identical) mutated output is in itself a unitary underlying segment (i.e. the alveopalatal /ñ/, transcribed here as <ny>) (cf. §3.2). I.e. phonetic [nyV] actually has two possible sources, /niV/ or simply /ñV/. What seems to be happening here is that in order for a V to surface as long after gliding, the vowel must be unambiguously preceded on the surface by a glide. (The only apparent exception to this is that /siV/ will create

[shVV], but the voiceless alveopalatal fricative [sh] is simply a low level derivative and dialectal variant of [sy].) It was suggested above that the deletion of [y] before the /i/ of the applicative might cause that vowel to surface as short. The deletion of the [y] (< /-i/) after the root-final mutated [ñ] could have the same effect here. As seen below, when a root ends in /ñ/, the reciprocal suffix is not affected.

- |       |    |                |                               |                 |
|-------|----|----------------|-------------------------------|-----------------|
| (162) | a. | ú-kú-fúny-á    | ‘to scratch                   | /ú-ku-fuñ-a/    |
|       | b. | ú-kú-fúny-án-à | ‘to scratch each other’       | /ú-ku-fuñ-an-a/ |
|       | c. | ú-kú-mány-á    | ‘to know’                     | /ú-ku-mañ-a/    |
|       | d. | ú-kú-mány-án-à | ‘to know each other’          | /ú-ku-mañ-an-a/ |
|       | e. | ú-kú-tóny-á    | ‘to feel by touch’            | /ú-ku-toñ-a/    |
|       | f. | ú-kú-tóny-án-à | ‘to feel each other by touch’ | /ú-ku-toñ-an-a/ |

With regard to why the reciprocal forms in (159)-(161) end in [ana] and not [anya], ultimately it seems the lack of direct phonetic evidence for the /-i/ after the verb root (consistent with the short V in the reciprocal) must be related to the lack of /-i/ after the reciprocal. I.e. there are many attestations of [C-an-a] and Cy-aan-y-a], but none of [C(y)-an-y-a]. Ultimately it may just be that the short vowel in the reciprocals as well as the lack of mutation of the [n] in (159)-(161) is simply due to an analogy with the forms in (162).

When the Causative /-i/ is present with the applicative /-il/, the /-i/ also follows the applicative, mutating the /l/ to the expected [z], as seen in the forms below.

- |       |    |   |                                    |                         |
|-------|----|---|------------------------------------|-------------------------|
| (163) | a. | ú-kú-pít-à                                    | ‘to go’                            | /ú-ku-pit-a/            |
|       | b. | ú-kú-písh-á                                   | ‘to drive’                         | /ú-ku-pit-i-a/          |
|       | c. | ú-kú-pís-íz-y-á                               | ‘to drive for’                     | /ú-ku-pit-i-il-i-a/     |
| (164) | a. | ú-kw-áák-à                                    | ‘to be lit’                        | /ú-ku-ak-a/             |
|       | b. | ú-kw-áásh-á                                   | ‘to light’                         | /ú-ku-ak-i-a/           |
|       | c. | ú-kw-áás-íz-y-á                               | ‘to light for’                     | /ú-ku-ak-i-il-i-a/      |
| (165) | a. | ú-kú-zúúk-à                                   | ‘to cool down’                     | /ú-ku-zuuk-a/           |
|       | b. | ú-kú-zúúsh-á                                  | ‘to make cool’                     | /ú-ku-zuuk-i-a/         |
|       | c. | ú-kú-zúús-íz-y-á                              | ‘to make cool for’                 | /ú-ku-zuuk-i-il-i-a/    |
| (166) | a. | ú-kú- <sup>1</sup> tí <sup>1</sup> ín-à       | ‘to fear’                          | /ú-ku-tiin-a +H/        |
|       | b. | ú-kú- <sup>1</sup> tí <sup>1</sup> ín-y-á     | ‘to frighten’                      | /ú-ku-tiin-i-a +H/      |
|       | c. | ú-kú- <sup>1</sup> tí <sup>1</sup> íny-íz-y-á | ‘to frighten for’                  | /ú-ku-tiin-i-il-i-a +H/ |
| (167) | a. | ú-kw-á <sup>1</sup> ánkán-à                   | ‘to share’                         | /ú-ku-ánkan-a/          |
|       | b. | ú-kw-á <sup>1</sup> ánkán-y-á                 | ‘to divide’                        | /ú-ku-ánkan-i-a/        |
|       | c. | ú-kw-á <sup>1</sup> ánkány-íz-y-á             | ‘to divide for’                    | /ú-ku-ánkan-i-il-i-a/   |
| (168) | a. | ú-kw-í <sup>1</sup> íngíl-à                   | ‘to enter’                         | /ú-ku-íngil-a/          |
|       | b. | ú-kw-í <sup>1</sup> íngíz-y-á                 | ‘to make enter, score (in soccer)’ | /ú-ku-íngil-i-a/        |
|       | c. | ú-kw-í <sup>1</sup> íngíz-íz-y-á              | ‘to make enter, score for’         | /ú-ku-íngil-i-il-i-a/   |

(169)	a. ú-kú- <sup>1</sup> úm-à	‘to be dry’	/ú-ku-úm-a/
	b. ú-kú- <sup>1</sup> úm-y-á	‘to make dry’	/ú-ku-úm- <u>i</u> -a/
	c. ú-kú- <sup>1</sup> úm-íz-y-á	‘to make dry for’	/ú-ku-úm- <u>i</u> -il- <u>i</u> -a/
(170)	a. ú-k-ó <sup>1</sup> óp-à	‘to fear’	/ú-ku-óp-a/
	b. ú-k-ó <sup>1</sup> óf-y-á	‘to frighten’	/ú-ku-óp- <u>i</u> -a/
	c. ú-k-ó <sup>1</sup> óf-éz-y-á	‘to frighten for’	/ú-ku-óp- <u>i</u> -il- <u>i</u> -a/
(171)	a. ú-kú-óómb-à	‘to get wet’	/ú-ku-bomb-a/
	b. ú-kú-óómv-y-á	‘to make wet’	/ú-ku-bomb- <u>i</u> -a/
	c. ú-kú-óómv-éz-y-á	‘to make wet for’	/ú-ku-bomb- <u>i</u> -il- <u>i</u> -a/
(172)	a. ú-kú- <sup>1</sup> kó <sup>1</sup> m-á	‘to be hard’	/ú-ku-kóm-a +H/
	b. ú-kú- <sup>1</sup> kó <sup>1</sup> m-y-á	‘to make hard’	/ú-ku-kóm- <u>i</u> -a +H/
	c. ú-kú- <sup>1</sup> kóm- <sup>1</sup> éz-y-á	‘to make hard for’	/ú-ku-kóm- <u>i</u> -il- <u>i</u> -a +H/
(173)	a. ú-kú-sókón-à	‘to shake, wobble (intr.)’	/ú-ku-sokon-a/
	b. ú-kú-sókón-y-á	‘to cause to shake, wobble (tr.)’	/ú-ku-sokon- <u>i</u> -a/
	c. ú-kú-sókóny-éz-y-á	‘to cause to shake for’	/ú-ku-sokon- <u>i</u> -il- <u>i</u> -a/
(174)	a. ú-kú-wéél-à	‘to return (intr.)’	/ú-ku-weel-a/
	b. ú-kú-wééz-y-á	‘to return (tr.)’	/ú-ku-weel- <u>i</u> -a/
	c. ú-kú-wééz-éz-y-á	‘to return (tr) for’	/ú-ku-weel- <u>i</u> -il- <u>i</u> -a/
(175)	a. ú-k-ó <sup>1</sup> ónd-à	‘to be thin’	/ú-ku-ónd-a/
	b. ú-k-ó <sup>1</sup> ónz-y-á	‘to make thin’	/ú-ku-ónd- <u>i</u> -a/
	c. ú-k-ó <sup>1</sup> ónz-éz-y-á	‘to make thin’	/ú-ku-ónd- <u>i</u> -il- <u>i</u> -a/
(176)	a. ú-kú- <sup>1</sup> kó <sup>1</sup> ónkóont-à	‘to hammer’	/ú-ku-kónkont-a +H/
	b. ú-kú- <sup>1</sup> kó <sup>1</sup> ónkóonsh-á	‘to knock’	/ú-ku-kónkont- <u>i</u> -a +H/
	c. ú-kú- <sup>1</sup> kó <sup>1</sup> ónkóons-éz-y-á	‘to knock for’	/ú-ku-kónkont- <u>i</u> -il- <u>i</u> -a +H/

In the above forms we note that the [y] which followed the roots in the simple causative forms is missing in the applicative causative forms (i.e. the forms which contain both the causative and the applicative extensions). While we have seen above that there is an independently motivated rule which deletes [y] before [i], [y] is not expected to delete before [e], as we have seen many other cases of phonetic [Cye] (25)). One might wonder whether these facts can be accounted for by assuming that the rule of y-deletion before /i/ applies before Mid Vowel Harmony. This analysis will successfully delete [y] after the root, yet will not account for the fact that the vowel after the root is short and not long. For this we would need to assume some special rule of vowel shortening to account for this. To more clearly see when shortening is necessary, we present below derivations of the stems in *ú-k-ó<sup>1</sup>óf-éz-y-á* (170c) and *ú-k-ó<sup>1</sup>óf-y-áán-y-á* (150c):

(177) a.	op- <u>i</u> -il- <u>i</u> -a	b. op- <u>i</u> -an- <u>i</u> -a	Input
	of- <u>i</u> -iz- <u>i</u> -a	of- <u>i</u> -any- <u>i</u> -a	Consonant Mutation
	of-y-iiz-y-a	of-y-aany-y-a	Gliding & CL
	of-iiz-y-a	n/a	y > ø / __ i
	n/a	of-y-aany-a	y-absorption
	of-eez-y-a	n/a	Mid Vowel Harmony
	of-ez-y-a	n/a	Shortening

Before considering what this shortening rule might look like, let us consider another approach. To account for a similar set of facts in Bemba (Hyman 1994) proposed a cyclic account involving “interfixation”. In this account, the short causative /-i/ is first added to the root inducing mutation of the root-final C. The applicative is then added, but not to the right of the causative /-i/, but before it, again inducing mutation, this time of the applicative final /l/. This analysis is shown in the derivation below for *ú-k-ó'óf-éz-y-á* (170c) and can be contrasted with (177a).

(178)	op- <u>i</u> -a	Input with Causative
	of-i-a	Consonant Mutation
	of-il-i-a	Interfixation of applicative
	of-iz-i-a	Consonant Mutation
	of-iz-y-a	Gliding
	of-ez-y-a	Mid Vowel Harmony

As can be seen, this analysis directly accounts for the short vowel in the applicative without resort to any special subsequent rule. Of course, under this approach, it becomes necessary to designate which affixes are interfixed and which are not. For example, the reciprocal /-an/ is not interfixed, as this would generate incorrect forms as shown (cf. (177b)).

(179)	op- <u>i</u> -a	Input with Causative
	of-i-a	Consonant Mutation
	of-an-i-a	Addition of applicative
	*of-an-y-a	Gliding

The above derivation of the causative reciprocal would not account for the fact that Causative /-i/ follows both the root as well as the reciprocal in a form like *ú-kó-<sup>l</sup>óf-y-áán-y-á*. Under Hyman's approach, then, certain affixes are marked as being interfixed and others are not.

Let us return to the first account not involving interfixation (illustrated in (177)), where the morphology simply requires the causative /-i/ to occur twice; once after the root and again after the extension. (Note that this double marking of the causative is also required in the interfixation account, as seen in the forms with reciprocals.) There are two salient differences between the causative forms with an applicative extension ((162)-(176)) and those with a reciprocal extension (150)-(157)). The first difference, and the one we are currently trying to account for, is the length of the vowel in the -VC extension, which is long in the reciprocal suffix, but short in the applicative one. The other difference, though, is that there is a glide present before the reciprocal extension but not before the applicative one. One cannot help but wonder whether it is the presence of this glide which helps to determine whether the following vowel is long. It is certainly true that there is a connection between a glide and a following vowel. While a long vowel does not require a preceding glide, a glide almost always means that a following vowel will be long. (There were only a handful of exceptions, given in section 3.2, where [y] or [w] was followed by a short vowel, and no cases where [Cw] or [Cy] was followed by a short vowel.) It was suggested above that the reason the reciprocal suffix surfaces as short in the forms in (159)-(161) was that the phonetic [ny] preceding this suffix was somehow reanalyzed by speakers as a single segment (i.e. /ñ/ and not as the sequence /n+y/. With regard to the shortening rule needed in the non-interfixation account, the idea would be that when the glide [y] deletes in these cases (independently motivated whenever the following vowel is underlyingly /i/) there is a concomitant shortening of the following vowel. Under this approach, we would assume that other cases we have seen of a /i/-final prefix being added to a /i/-initial root (e.g. *ú-kú-<sup>l</sup>ví-ík-à* 'to put them') constitute a simple coalescence of like vowels and not the gliding of the first followed by compensatory lengthening followed by [y] deletion before /i/. This would not obviate the need for a [y] deletion rule though as such is independently necessary for cases like */yá-iz-é/ > y-íiz-è > íiz-è* 'that they come'. This form also shows that concomitant shortening would only apply after [y] deletes after a C (or perhaps word-internally, as there is no such shortening after y-deletion in word-initial position).

But under this non-interfixation approach, why wouldn't the two adjacent /i/'s in /op-i-il-i-a/ also simply coalesce? There are two possible lines of response. The first would be morphological. One could state that coalescence occurs with prefixes, but not with suffixes. We will see however that this is contradicted by some imbrication facts to be presented in chapter 4. It might be possible to say that this is relevant only at the juncture between a root and a VC suffix, i.e. that a morpho-phonological constraint has arisen which essentially insists that a long vowel in a VC extension is licensed only when a glide precedes. This seems problematic since the vowel in the Causative /-iisi/ is always long. The second justification would be purely phonological. We note that in the case of the causative applicative forms the first of the two /-i/s is the causative /-i/ which has different phonological properties than other /i/'s, e.g. in causing mutation. We concluded above that these CM inducing /i/s are set up as phonologically distinct from other /i/s. Given this we could simply say that a CM-inducing /i/ will glide before a non-CM-inducing /i/, while all like vowels coalesce.<sup>31</sup> Assuming that the CM-inducing /i/ was "higher" than the other one—something proposed for PB, where this was referred to as more "closed"—then the generalization is simply that the vowels /u/, /i/ and CM-inducing /i/ will glide before a following vowel of a lower height. This would account for */of-i-il-i-a/ > of-y-iiz-y-a*, but */yá-ku-ví-ík-a/ > yá-kú-<sup>l</sup>ví-ík-à* 'they are putting them (C8)'. A purely phonological rule could then be introduced to shorten a vowel concomitantly with [y]-deletion.

<sup>31</sup> We will see in the section on imbrication that the final version of gliding adopted must also insure that a non-CM-inducing /i/ does not glide before a CM-inducing /i/



Given these two accounts, it might well seem that the interfixation one is simpler. There is one additional piece of evidence, however that seems to weigh in favor of the non-interfixation approach. To see this, let us turn to forms containing the causative /-i/ and the intensive /-isi/.

Let us next consider the phonology of cases where both the Causative /-i/ and the intensive /-isi/ are present.

- |       |    |  |                                    |                         |
|-------|----|--|------------------------------------|-------------------------|
| (180) | a. | ú-k-ó <sup>1</sup> óp-à                      | ‘to fear’                          | /ú-ku-óp-a +H/          |
|       | b. | ú-k-ó <sup>1</sup> óf-y-á                    | ‘to frighten’                      | /ú-ku-óp-i-a +H/        |
|       | c. | ú-k-ó <sup>1</sup> óf-ésh-á                  | ‘to frighten a lot’                | /ú-ku-óp-i-isi-a +H/    |
| (181) | a. | ú-kú- <sup>1</sup> pí <sup>1</sup> t-á       | ‘to go’                            | /ú-ku-pít-a +H/         |
|       | b. | ú-kú- <sup>1</sup> pí <sup>1</sup> sh-á      | ‘to drive’                         | /ú-ku-pít-i-a +H/       |
|       | c. | ú-kú- <sup>1</sup> pí <sup>1</sup> s-ísh-á   | ‘to drive fast’                    | /ú-ku-pít-i-isi-a +H/   |
| (182) | a. | ú-kw-í <sup>1</sup> íngíl-à                  | ‘to enter’                         | /ú-ku-íngil-a +H/       |
|       | b. | ú-kw-í <sup>1</sup> íngíz-y-á                | ‘to make enter, score (in soccer)’ | /ú-ku-íngil-i-a +H/     |
|       | c. | ú-kw-í <sup>1</sup> íngíz-ísh-á              | ‘to score a lot’                   | /ú-ku-íngil-i-isi-a +H/ |
| (183) | a. | ú-kú-óómb-à                                  | ‘to get wet’                       | /ú-ku-bomb-a/           |
|       | b. | ú-kú-óómv-y-á                                | ‘to make wet’                      | /ú-ku-bomb-i-a/         |
|       | c. | ú-kú-óómv-ésh-á                              | ‘to make wet a lot’                | /ú-ku-bómb-i-isi-a/     |
| (184) | a. | ú-kú- <sup>1</sup> pón <sup>1</sup> -á       | ‘to fall’                          | /ú-ku-pón-a +H/         |
|       | b. | ú-kú- <sup>1</sup> pó <sup>1</sup> ny-á      | ‘to drop’                          | /ú-ku-pón-i-a +H/       |
|       | c. | ú-kú- <sup>1</sup> pó <sup>1</sup> ny-ésh-á  | ‘to drop a lot’                    | /ú-ku-pón-i-isi-a +H/   |
| (185) | a. | ú-kú- <sup>1</sup> tí <sup>1</sup> ín-à      | ‘to be frightened’                 | /ú-ku-tiin-a +H/        |
|       | b. | ú-kú- <sup>1</sup> tí <sup>1</sup> íny-á     | ‘to frighten’                      | /ú-ku-tiin-i-a +H/      |
|       | c. | ú-kú- <sup>1</sup> tí <sup>1</sup> íny-ísh-á | ‘to frighten a lot’                | /ú-ku-tiin-i-isi-a +H/  |

As can be seen in the above forms, the Intensive suffix /-isi/ seems to behave exactly parallel to that of /-il/. Under the interfixation account, it would be designated as one of the interfixes, causing mutation of the root-final consonant, but not surfacing after it as a glide—true of all these forms. But before we conclude that these two extensions (i.e. the applicative and intensive) behave identically, let us consider the following data:

- |       |    |  |                                  |
|-------|----|--|----------------------------------|
| (186) | a. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-à       | ‘to be hard’                     |
|       | b. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-y-á     | ‘to harden’                      |
|       | c. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-ésh-á   | ‘to be very hard’                |
|       | d. | ú-kú- <sup>1</sup> kó <sup>1</sup> m-y-ésh-á | ‘to harden a lot’                |
| (187) | a. | ú-kú-cóóm-à                                  | ‘to sizzle’                      |
|       | b. | ú-kú-cóóm-y-á                                | ‘to make something sizzle’       |
|       | c. | ú-kú-cóóm-ésh-á                              | ‘to sizzle a lot’                |
|       | d. | ú-kú-cóóm-y-ésh-á                            | ‘to make something sizzle a lot’ |

- (188) a. *ú-kú-fótóm-à* ‘to make a fermenting noise’  
 b. *ú-kú-fótóm-y-á* ‘to cause to make a fermenting noise’  
 c. *ú-kú-fótóm-ésh-á* ‘to make a fermenting noise a lot’  
 d. *ú-kú-fótóm-y-ésh-á* ‘to cause to make a fermenting noise a lot’
- (189) a. *ú-kú-nyóóm-à* ‘to be weighty’  
 b. *ú-kú-nyóóm-y-á* ‘to make something weighty’  
 c. *ú-kú-nyóóm-ésh-á* ‘to be very weighty’  
 d. *ú-kú-nyóóm-y-ésh-á* ‘to make something weighty a lot’
- (190) a. *ú-kú-lém-à* ‘to hold, grab’  
 b. *ú-kú-lém-y-á* ‘to cause to be caught in a trap’  
 c. *ú-kú-lém-ésh-á* ‘to hold or grab a lot’  
 d. *ú-kú-lém-y-ésh-á* ‘to cause to be caught in a trap a lot’

As can be clearly seen in the forms above, an overt reflex of the causative /-i/ appears as a glide immediately after the root—the very location where it had been missing in all applicative forms ((162)-(176)) and many other intensive forms ((180)-(185)). Why would this be? First, it should be noted that it is not possible to account for the forms in (186)-(190) by claiming that the causative /-i/ mutates the plain /m/ into a unitary palatalized /mʲ/, in the same way that it mutates a plain /n/ into an alveo-palatal [ɲ]. While the perfective /-il-e/ mutates /n/ to [ny] (e.g. /pon-il-e/ > ponyile) it does not actually alter /m/ (e.g. /kom-il-e/ > [kom-il-e], \*komyile).

How then can we account for the difference in the intensive forms in (180)-(185) versus those in (186)-(190)? It turns out that there is a very interesting distinction between them. I would like to suggest that the reason the [y] surfaces in the forms in the (d) forms of (186)-(190) is that if it did not, those causative intensive forms would be ambiguous/homophonous with the plain intensive forms listed in (c). The phonological rule of [y] deletion, then, seems to be constrained or inhibited by the threat of homonym creation in this case. (Of course this is not to imply that phonological rules—both tonal and segmental—do not create homonyms elsewhere in the language, as they very often do.) It should be noted, however, that the fact that the extension vowel in *ú-kú-<sup>1</sup>kóm-y-ésh-á* is short is, in fact, not directly accounted for under this non-interfixation approach since we would expect the usual compensatory lengthening after the gliding of the /-i/. This might be attributable to a paradigm uniformity effect since in all cases where the root is not m-final, the long causative suffix is short. It might also be possible to somehow view the y-deletion and shortening as a parallel (as opposed to “feeding”) process where only the y-deletion portion gets blocked, as that alone will be sufficient to avoid the creation of the homonyms.

I note here, however, that this y-deletion and concomitant shortening to avoid homonym creation cannot in fact be blocked when the extension vowel surfaces as [i] and not [e] (i.e. when MVH has not applied) since this would create a \*yi sequence which is strictly forbidden in the language.

- (191) a. *ú-kú<sup>1</sup>-úm-à* ‘to be dry’ /ú-ku-úm-a +H/  
 b. *ú-kú<sup>1</sup>-úm-y-á* ‘to dry off’ /ú-ku-úm-*i*-a +H/  
 c. *ú-kú<sup>1</sup>-úm-ísh-á* ‘to be very dry’ /ú-ku-úm-*isi*-a +H/  
 d. *ú-kú<sup>1</sup>-úm-ísh-á* ‘to dry off a lot’ /ú-ku-úm-*i*-*isi*-a +H/

- (192) a. ú-kú<sup>1</sup>-fúm-<sup>1</sup>á 'to come out' /ú-ku-fúm-a +H/  
 b. ú-kú<sup>1</sup>-fú<sup>1</sup>m-y-á 'to take out' /ú-ku-fúm-i-a +H/  
 c. ú-kú<sup>1</sup>-fú<sup>1</sup>m-ísh-á 'to come out a lot' /ú-ku-fúm-is<sub>i</sub>-a +H/  
 d. ú-kú<sup>1</sup>-fú<sup>1</sup>m-ísh-á 'to take out lot' /ú-ku-fúm-i-is<sub>i</sub>-a +H/

What seems to be happening, then, is that the language will block a certain phonological rule from applying in order to avoid the creation of a homonym, but only if blocking that rule results in a phonotactically licit structure (of which [ye] is one). If it does not, then the rule is not blocked and homonyms are created.

With regard to why the [y] does not ever appear in the causative applicatives ((162)-(176)), this is simply due to the fact that no matter which verb root is involved, the applicative of a causative will always be phonologically distinct from the applicative of a non-causative due to the fact that the applicative will always surface as [izy] (or [ezy]) in the former but [il] (or ez) in the latter.

- (193) a. ú-kú-<sup>1</sup>kó<sup>1</sup>m-á 'to be hard' /ú-ku-kóm-a +H/  
 b. ú-kú-<sup>1</sup>kó<sup>1</sup>m-él-à 'to be hard for' /ú-ku-kóm-il-a +H/  
 c. ú-kú-<sup>1</sup>kó<sup>1</sup>m-y-á 'to harden' /ú-ku-kóm-i-a +H/  
 d. ú-kú-<sup>1</sup>kó<sup>1</sup>m-éz-y-á 'to harden for' /ú-ku-kóm-i-il-i-a +H/

In the non-interfixation analysis explored here, (193d) at a certain point in the derivation becomes *ukukomyíizya*. Since the rule of y-deletion and concomitant shortening can apply to this form, however, without rendering it identical to the non-causative applicative, it will apply.

Finally, let us consider a form containing both the short and long causatives.

- (194) a. ú-k-ó<sup>1</sup>óf-éesh-á 'to cause to frighten' /óp-i-is<sub>i</sub>-a +H/  
 b. ú-kú-<sup>1</sup>úm-íish-á 'to cause to make dry' /úm-i-is<sub>i</sub>-a +H/  
 c. ú-kú-<sup>1</sup>pí<sup>1</sup>s-íish-á 'to cause to drive' /pít-i-is<sub>i</sub>-a +H/  
 d. ú-kú-<sup>1</sup>tí<sup>1</sup>iny-íish-á 'to cause to frighten' /tín-i-is<sub>i</sub>-a +H/  
 e. ú-kú-<sup>1</sup>kó<sup>1</sup>m-y-éesh-á 'to cause to harden' /kóm-i-is<sub>i</sub>-a +H/

The derivation of the bases of the forms in (194a,b,e) are given below:

- |          |                                   |    |                                   |    |                                    |                         |
|----------|-----------------------------------|----|-----------------------------------|----|------------------------------------|-------------------------|
| (195) a. | op- <u>i</u> -iis <sub>i</sub> -a | b. | um- <u>i</u> -iis <sub>i</sub> -a | c. | kom- <u>i</u> -iis <sub>i</sub> -a | Input                   |
|          | of- <u>i</u> -iis <sub>i</sub> -a |    | n/a                               |    | n/a                                | CM                      |
|          | of-y-iiis <sub>y</sub> -a         |    | um-y-iiis <sub>y</sub> -a         |    | kom-y-iiis <sub>y</sub> -a         | Gliding & CL            |
|          | of-iis <sub>y</sub> -a            |    | um-iis <sub>y</sub> -a            |    | ??                                 | y-deletion & shortening |
|          | of-eesh-a                         |    | um-iish-a                         |    | kom-y-eesh-a                       | MVH & Palatalization    |

As can be seen, the rule of y-deletion & shortening affects both (195a-b). The rule has not applied, however, to (195c). It does not seem possible to argue that y-deletion is blocked in the latter case to avoid homonym creation, since the [y] could delete and this form (ú-kú-<sup>1</sup>kóm-éesh-á) would still be distinct from the other two phonologically similar forms ú-kú-<sup>1</sup>kó<sup>1</sup>m-ésh-á 'to be very hard', and ú-kú-<sup>1</sup>kó<sup>1</sup>m-y-ésh-á 'to harden a lot'. This seems like a paradigm uniformity effect—i.e. the blocking of y-deletion in the form where the short causative is

followed by the intensive (to avoid homonym creation) is carried over to other cases involving the root plus the short causative, including this one where the long causative is also present.

In summary, while it may have to be left as an ongoing matter of research how to best analyze the facts discussed above, it is not entirely obvious how the facts in (186d)-(190d) would be incorporated into the interfixation analysis. After interfixation, there would have to be some process whereby if the result of the extended causative form were found to be identical to the extended non-causative form, an extra causative /-i/ was placed after the root (but which somehow did not cause CL after gliding). Alternatively, two parallel derivations of the intensive of the causatives could be performed—one interfixation and one non-interfixation, and only if the interfixation form were found to be homophonous with another form would the non-interfixation candidate be selected.<sup>32</sup>

One final point should be addressed here. We must ask whether an instantiation of the causative /-i/ should be placed after the intensive extension which is underlyingly /-isi/. For example, in *ú-k-ó'óf-éésh-á* ‘to cause to frighten’ in (195a) above, this would create the following at the end of the verb: /isi-i-a/. To know what should happen next to this form, it is important to know whether the second /i/ of the intensive suffix is a CM-inducing /i/ or “plain” non-CM-inducing /i/. The fact that it follows /s/ is of no real help to us, since it is consistent with being followed by either a non-CM inducing /i/ (in which case it is /-isi/) or a CM-inducing /i/ (in which case the [s] could result from underlying /s/, /c/, /t/, or /k/). The following forms show, however, that this vowel does not undergo Mid Vowel Harmony, and therefore is, in fact, the CM-inducing /i/.

- |       |    |  |                       |                        |
|-------|----|--|-----------------------|------------------------|
| (196) | a. | <i>ú-kú-fúl-ísí-w-á</i>                          | ‘to be washed a lot’  | /ú-ku-ful-isi-u-a/     |
|       | b. | <i>ú-kú-<sup>1</sup>lé<sup>1</sup>ét-ésí-w-á</i> | ‘to be brought a lot’ | /ú-ku-léet-isi-u-a +H/ |
|       | c. | <i>ú-kú-pél-ésí-w-á</i>                          | ‘to be shaved a lot’  | /ú-ku-pel-isi-u-a/     |

We note that this is also true of the Long Causative /-iisi/, as seen below.

- |       |    |   |                              |                         |
|-------|----|---|------------------------------|-------------------------|
| (197) | a. | <i>ú-kú-<sup>1</sup>lé<sup>1</sup>ét-éésí-w-á</i>   | ‘to be caused to be brought’ | /ú-ku-léet-iisi-u-a +H/ |
|       | b. | <i>ú-kú-<sup>1</sup>kú<sup>1</sup>úmbw-íisi-w-á</i> | ‘to be caused to be admired’ | /ú-ku-kúmb-iisi-u-a +H/ |
|       | c. | <i>ú-kú-<sup>1</sup>té<sup>1</sup>mw-íísi-w-á</i>   | ‘to be caused to be loved’   | /ú-ku-tému-iisi-u-a +H/ |

Given the fact that the second /i/ of Intensive /-isi/ and long causative /-iisi/ is the same exact vowel as the short causative /-i/, we predict they should coalesce in the Intensive yielding intermediate /ofisiia/. It is unclear whether any phonological process can further modify this to the desired [ofisha]. It seems then that we do not in fact want the morphology to place the causative /-i/ after the Intensive /-isi/ or long causative /-iisi/. We might be able to account for this fact by assuming that this Intensive (and long causative) suffix is actually two morphemes, e.g. /is-i/ (or /ik-i/ or /it-i/). (Cf. Hyman 1994.) If we then considered the second part of this morpheme to be an instantiation of the causative /-i/ (though it is unclear how it would combine semantically with /-is/, /-it/ or /-ik/ to yield the intensive meaning) then we could rely on Menn and MacWhinney’s (1984) “Repeated Morph Constraint” (invoked in Hyman’s (1994) analysis of Bemba) to prohibit the causative /-i/ from being added to /is-i/. This would also apply to any attempt to put a causative /-i/ after the causative /-iisi/, which may also potentially be broken down into /-iis-i/. (While I think there may be good reason, then, to assume that both the Intensive /-isi/ and the Causative /-iisi/ are bimorphemic, for simplicity’s sake I will continue to write them as monomorphemic.)

<sup>32</sup> Additionally, I present some evidence from Perfective forms in §4.4 which I argue weigh in favor of the non-interfixation account in Cilungu.

It should be noted that in the forms above in (197) the scope of the passive is outside that of the causative. E.g. *ú-kú-<sup>1</sup>lé<sup>1</sup>ét-és-éésy-á* ‘to be caused to be brought’. But let us consider how the reverse might be expressed, i.e. ‘to cause to be brought’ where the passive takes narrow scope and the causative takes the wider scope. One might think that the UR of such a form would be /u-ku-leet-u-iisi-a/, but indeed *\*ukuleetwiisha* is ungrammatical. In fact, it is an unrelenting requirement in Cilungu that if the passive is present, it be realized just before the final morpheme of the verb. What the language seems to do in this case is to substitute in the Stative /-ik/, which has similar, though not identical properties to the passive, and place it where it has narrow scope. This is seen below.

- (198)
- |    |   |                          |                           |
|----|---|--------------------------|---------------------------|
| a. | <i>ú-kú-<sup>1</sup>lé<sup>1</sup>ét-és-éésy-á</i>    | ‘to cause to be brought’ | /ú-ku-léet-ik-iisi-a +H/  |
| b. | <i>ú-kú-<sup>1</sup>fúl-ís-íísy-á</i>                 | ‘to cause to be washed’  | /ú-ku-ful-ik-iisi-a/      |
| c. | <i>ú-kú-<sup>1</sup>zíík-ís-íísh-á</i>                | ‘to cause to be buried’  | /ú-ku-ziik-ik-iisi-a/     |
| d. | <i>ú-kú-<sup>1</sup>té<sup>1</sup>mw-íís-íísh-á</i>   | ‘to cause to be loved’   | /ú-ku-temu-ik-iisi-a +H/  |
| e. | <i>ú-kú-<sup>1</sup>kú<sup>1</sup>úmbw-íís-íísh-á</i> | ‘to cause to be admired’ | /ú-ku-kumbu-ik-iisi-a +H/ |

In each case above the /k/ of the stative predictably mutates to [s].

Returning to the effects of the presence of the CM-inducing /-i/, given the fact, as just established, that the second vowel in the Intensive /-isi/ is the mutation-inducing /i/, one could ask if its presence will trigger another [-i] after a subsequent suffix. That it does can be seen in the examples below.

- (199)
- |    |                             |  |                       |
|----|-----------------------------|--|-----------------------|
| a. | <i>ú-kú-lól-ésh-áán-y-á</i> | ‘to look at (lit. see a lot) each other’ | /ú-ku-lol-isi-an-i-a/ |
| b. | <i>ú-kú-úm-ísh-áán-y-á</i>  | ‘to beat each other severely’            | /ú-ku-um-isi-an-i-a/  |
- (200)
- |    |                          |  |                     |
|----|--------------------------|--|---------------------|
| a. | <i>ú-kú-lól-án-ísh-á</i> | ‘to see each other (visit) frequently’ | /ú-ku-lol-an-isi-a/ |
| b. | <i>ú-kú-úm-án-ísh-á</i>  | ‘to beat each other frequently’        | /ú-ku-um-an-isi-a/  |
| c. | <i>ú-kú-pél-án-ísh-á</i> | ‘to shave each other frequently’       | /ú-ku-pel-an-isi-a/ |

The examples in (199a-b) clearly show that the additional /-i/ is inserted after the reciprocal in forms where the Intensive /-isi/ is found after the verb root. The forms in (200) show that inserting /-i/ after each extension only takes place when triggered by something on the left. I.e. for extra /-i/ insertion to take place, it is not simply enough to have a mutation-inducing /-i/ somewhere in the form. One might wonder if the additional /-i/ would also appear after an Applicative /-il/ which follows an Intensive (or Causative) /-isi/. Unfortunately, as shown in section 2.2.2.10 above, this combination of morphemes is not permissible in Cilungu, as the meaning ‘to cause to verb for’ or ‘to verb a lot for’ must be expressed phrasally.

The forms below contain the Causative /-i/ followed by both the applicative and the reciprocal.

- (201)
- |    |  |                              |                                 |
|----|--|------------------------------|---------------------------------|
| a. | <i>ú-kú-<sup>1</sup>pí<sup>1</sup>s-íz-y-áán-y-á</i>       | ‘to drive for each other’    | /ú-ku-pít-i-il-i-an-i-a +H/     |
| b. | <i>ú-kú-<sup>1</sup>ó<sup>1</sup>ómv-éz-y-áán-y-á</i>      | ‘to use for each other’      | /ú-ku-bómb-i-il-i-an-i-a +H/    |
| c. | <i>ú-kw-í<sup>1</sup>íngíz-íz-y-áán-y-á</i>                | ‘to score for each other’    | /ú-ku-íngil-i-il-i-an-i-a +H/   |
| d. | <i>ú-kú-<sup>1</sup>tí<sup>1</sup>iny-íz-y-áán-y-á</i>     | ‘to frighten for each other’ | /ú-ku-tiin-i-il-i-an-i-a +H/    |
| e. | <i>ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóóns-éz-y-áán-y-á</i> | ‘to knock for each other’    | /ú-ku-kónkont-i-il-i-an-i-a +H/ |

These forms show that there is evidence that the causative /-i/ appears after the root and both following extensions. This is illustrated below.

(202)	ingil- <u>i</u> -il- <u>i</u> -an- <u>i</u> -a	Input
	ingiz- <u>i</u> -iz- <u>i</u> -any- <u>i</u> -a	CM
	ingiz-y-iiz-y-aany-y-a	Gliding & CL (& word-final shortening)
	ingiz-iz-y-aany-y-a	y-deletion before /i/ with shortening
	ingiz-iz-y-aany-a	y absorption after palatal

When the order of the reciprocal and applicative is reversed (i.e. when the reciprocal is closest to the root), the short causative found after the root is not found after the following reciprocal suffix, though it is found after the applicative one.

(203)	a. ú-kú- <sup>!</sup> pi <sup>!</sup> sh-áán-íz-y-á	‘to drive each other for’	/ú-ku-pít- <u>i</u> -an-il- <u>i</u> -a/
	b. ú-k-ó <sup>!</sup> óf-y-áán-íz-y-á	‘to frighten each other for’	/ú-ku-óp- <u>i</u> -an-il- <u>i</u> -a/

As a generalization, the only time the short causative is placed after the reciprocal suffix in Cilingu is when the latter immediately precedes the FV.

We saw above that the causative /-i/ immediately following a verb root, as well as the morpheme-final /i/ in the Intensive and Long Causative, in addition to inducing CM, did not undergo Mid Vowel Harmony. We have seen that the extra /-i/ which is added after subsequent extensions causes mutation. That it too does not undergo MVH can be seen in the final two examples below.

(204)	a. ú-kw-áás-íz-í-w-á	‘to be lit for’	/ú-ku-ak- <u>i</u> -il- <u>i</u> -u-a/
	b. ú-kú- <sup>!</sup> pi <sup>!</sup> s-íz-í-w-á	‘to be driven for’	/ú-ku-pít- <u>i</u> -il- <u>i</u> -u-a +H/
	c. ú-k-óóm <sup>v</sup> -éz-í-w-á	‘to be made wet for’	/ú-ku-bomb- <u>i</u> -il- <u>i</u> -u-a/
	d. ú-k-ó <sup>!</sup> óf-éz-í-w-á	‘to be frightened for’	/ú-ku-óp- <u>i</u> -il- <u>i</u> -u-a +H/

Let us now consider forms which contain both the long causative as well as the reciprocal.<sup>33</sup>

(205)	a. ú-kú-pél-án-ísh-áán-y-á	‘to cause each other to shave’	/ú-ku-pel-an-iis <sub>i</sub> -an- <u>i</u> -a/
	b. ú-kú-cís-án-ísh-áán-y-á	‘to cause each other to injure’	/ú-ku-cis-an-iis <sub>i</sub> -an- <u>i</u> -a/
	c. ú-kú-swéél-án-ísh-áán-y-á	‘to cause each other to brew’	/ú-ku-suel-an-iis <sub>i</sub> -an- <u>i</u> -a/

The striking thing about these forms is that the reciprocal extension occurs not once, but twice. Hyman (1994) analyzes similar forms in Bemba and I refer the reader to that work for a cyclic account of these facts. To summarize his analysis, he states that “is-i causes a cyclic respelling of -an.” In other words the sequence /an-is-i/ (where Hyman is representing the long causative heteromorphemically whereas I am not) cyclically becomes /an-is-i-an/. He also states that “-an causes cyclic respelling of -i.” which means that /i-an/ becomes /i-an-i/. This latter fact changes /an-is-i-an/ to the desired /an-is-i-an-i/, which, after CM, gliding and compensatory lengthening will correctly derive the forms above.

<sup>33</sup> In some cases the semantics of ‘to cause each other to verb’ is expressed by /il-i-an-i-a/ instead of /an-is<sub>i</sub>-an-i-a/. E.g. ú-kú-lúk-íz-y-áán-y-á ‘to cause each other to weave’, ú-kw-í<sup>!</sup>imb(-il)-íz-y-áán-y-á ‘to cause each other to sing’.

It must be noted here, though, that even though the semantics indicate the use of the long causative /-iisi/ and not the Intensive /-isi/, the initial vowel of this morpheme surfaces as short and not long. I am not sure how to best account for this, other than by positing a rule which shortens the /i/ in this morphological context. (No extra /-i/ is placed after the reciprocal since, as noted above, this only occurs when /-an/ immediately precedes the FV.)

This evokes an interesting difference between Cilungu and Bemba in this regard. In Bemba, both the Intensive and long Causative are realized homophonously as /-isi/, and I believe Hyman's respelling rules above would apply to both in Bemba. We saw earlier in (200) however that in Cilungu the /-an/ is not in fact doubled when it precedes the intensive.

- (206) a. ú-kú-lól-án-ísh-á 'to see each other (visit) frequently' /ú-ku-lol-an-isi-a/  
 b. ú-kú-úm-án-ísh-á 'to beat each other frequently' /ú-ku-um-an-isi-a/  
 c. ú-kú-pél-án-ísh-á 'to shave each other frequently' /ú-ku-pel-an-isi-a/

If the root is followed by a causative /-i/ as well as the reciprocal and the intensive, then while the short causative is not found again after the first /-an/, its presence after the second one (which immediately precedes the FV) is somewhat variable, occurring in some forms but not others, as seen below.

- (207) a. ú-k-ó'óf-y-áán-ísh-áán-à 'to frighten each other a lot' /ú-ku-óp-i-an-isi-an-a +H/  
 b. ú-kú-úm-y-áán-ísh-áán-à 'to dry each other a lot' /ú-ku-um-i-an-isi-an-a +H/  
 (208) a. ú-k-ó'ónz-y-áán-ísh-áán-y-á 'to make each other thin a lot' /ú-ku-ond-i-an-isi-an-i-a +H/  
 b. ú-kú-tí'iny-án-ísh-áán-y-á 'to frighten each other a lot' /ú-ku-tiin-i-an-isi-an-i-a +H/

There are certain roots which trigger the addition of extra /-i/ suffixes after following extensions in the pattern noted above, but which do not have a non-causative counterpart.<sup>34</sup>

- (209) a. ú-kw-é'ézy-á 'to try/test' /ú-ku-éli-a/  
 b. ú-kw-é'éz-ézy-á 'to try/test for' /ú-ku-éli-il-i-a/  
 c. ú-kw-é'éz-y-áány-á 'to test each other' /ú-ku-éli-an-i-a/  
 (210) a. ú-kú-pá'kásh-á 'to bid farewell' /ú-ku-pákási-a +H/  
 b. ú-kú-pá'kás-íz-y-á 'to bid farewell for' /ú-ku-pákási-il-i-a +H/  
 c. ú-kú-pá'kásh-áány-á 'to bid each other farewell' /ú-ku-pákási-an-i-a +H/  
 (211) a. ú-kú-ló'ósh-á 'to mourn' /ú-ku-lóosi-a/  
 b. ú-kú-ló'ósh-éz-y-á 'to mourn on behalf of' /ú-ku-lóosi-il-i-a/  
 c. ú-kú-ló'ósh-áány-á 'to mourn each other' /ú-ku-lóosi-an-i-a/

<sup>34</sup> The verb in (209) could be phonologically produced as a causative of /él/, and such a root does exist in Cilungu, but it means 'to fish'. With regard to (211), Guthrie (1967) sets up both /lóót/ and /lóóti/ (where the /i/ is the super-closed vowel which can cause CM) as meaning 'dream'. Cilungu has ú-kú-ló'ót-à 'to dream' as a direct reflex of the former. It seems quite possible that Cilungu ú-kú-ló'ósh-á 'to mourn' is historically a reflex of the latter though the semantics have drifted far enough to make it questionable as to whether 'dream' and 'mourn' are related synchronically.

- (212) a. ú-kú-<sup>1</sup>úzy-á ‘to ask’ /ú-ku-úli-a/  
 b. ú-kú-<sup>1</sup>úz-ízy-á ‘to ask for’ /ú-ku-úli-il-i-a/  
 c. ú-kú-<sup>1</sup>úzy-áány-á ‘to ask each other’ /ú-ku-úli-an-i-a/
- (213) a. ú-kú-téfy-á ‘to cry unnecessarily’ /ú-ku-tepi-a/  
 b. ú-kú-téf-ézy-á ‘to cry unnecessarily for’ /ú-ku-tepi-il-i-a/
- (214) a. ú-kú-<sup>1</sup>tá<sup>1</sup>ízy-á ‘to thank’ /ú-ku-táili-a/  
 b. ú-kú-<sup>1</sup>tá<sup>1</sup>íz-íz-y-á ‘to thank for’ /ú-ku-táili-il-i-a/  
 c. ú-kú-<sup>1</sup>tá<sup>1</sup>ízy-ány-á ‘to thank each other’ /ú-ku-táili-an-i-a/

How should these forms be analyzed? Answering this question forces us to carefully evaluate whether the process which inserts additional /-i/ suffixes is, as we have proposed above, really morphological, or whether it might be construed to be phonological, i.e. some sort of palatalization harmony across suffixes. We consider two accounts for the forms in (209)-(214)—the first morphological and the second phonological. First, one could set up the roots above as consonant-final, obligatorily subcategorizing for an /-i/ suffix, which would trigger an /-i/ suffix after any extensions, exactly like the short causative does. (That the final vowel of the bases in these forms is the /-i/ and not /-i/ can be seen in the fact that the passive does not undergo Mid Vowel Harmony. E.g. *ú-kw-é<sup>1</sup>ézi-w-á* ‘to be tried/tested’, *ú-kú-<sup>1</sup>ló<sup>1</sup>ósi-w-á* ‘to be mourned’.) This would be a semantically empty suffix (homophonous to the short causative /-i/) as it seems it would be difficult to alter the semantics of the root such that the glosses above result when such root was made causative.

The other possible approach would be to somehow condition the insertion of additional /-i/ suffixes phonologically, instead of morphologically. One possibility would be that when the (non-extended) root form of the verb ends in a Cy cluster (including /si/ > sy >[sh]), that the end of subsequent extensions must also be palatalized, via the addition of /-i/, creating a kind of palatalization harmony across suffixes. If this analysis is pursued one must be careful not to formalize the harmony process as being triggered by any kind of palatal. As we have seen an underlying alveopalatal nasal does not trigger subsequent palatalization (as seen in (215)-(218)); neither is it triggered by an alveopalatal affricate ((219)-(220)) or a palatal glide ((221)-(222)).

- (215) a. ú-kú-mány-á ‘to know’ /ú-ku-mañ-a/  
 b. ú-kú-mány-il-à ‘to know for’ /ú-ku-mañ-il-a/  
 c. ú-kú-mány-án-à ‘to know each other’ /ú-ku-mañ-an-a/
- (216) a. ú-kú-kóny-á ‘to wink (at)’ /ú-ku-koñ-a/  
 b. ú-kú-kóny-él-à ‘to wink for’ /ú-ku-koñ-il-a/  
 c. ú-kú-kóny-án-à ‘to wink at each other’ /ú-ku-koñ-an-a/
- (217) a. ú-kú-fúny-á ‘to scratch’ /ú-ku-fuñ-a/  
 b. ú-kú-fúny-il-à ‘to scratch for’ /ú-ku-fuñ-il-a/  
 c. ú-kú-fúny-án-à ‘to scratch each other’ /ú-ku-fuñ-an-a/
- (218) a. ú-kú-tóny-á ‘to feel by touch’ /ú-ku-toñ-a/  
 b. ú-kú-tóny-él-à ‘to feel by touch for’ /ú-ku-toñ-il-a/  
 c. ú-kú-tóny-án-à ‘to feel each other by touch’ /ú-ku-toñ-an-a/



- (219) a. ú-k-óóc-à ‘to burn’ /ú-ku-oc-a/  
 b. ú-k-óóc-él-à ‘to burn for’ /ú-ku-oc-il-a/  
 c. ú-k-óóc-án-à ‘to burn each other’ /ú-ku-oc-an-a/
- (220) a. ú-kú-c-à ‘to dawn, be ripe’ /ú-ku-cé-a/  
 b. ú-kú-<sup>1</sup>cé-él-à ‘to dawn, be ripe for’ /ú-ku-cé-il-a/
- (221) a. ú-kú-láy-à ‘to say goodbye, to promise’ /ú-ku-lab-a/  
 b. ú-kú-láy-il-à ‘to say goodbye, to promise for’ /ú-ku-lab-il-a/
- (222) a. ú-kú-<sup>1</sup>fí-y-á ‘to paddle’ /ú-ku-fiy-a/  
 b. ú-kú-<sup>1</sup>fí-il-à ‘to paddle for’ /ú-ku-fiy-il-a/

I conclude, then, that if this process is phonologically conditioned, then it must be triggered when the last C of the verb root is followed by /i/, whether this /i/ is arguably part of the verb root (e.g. (209)-(214)) or not.

I note here that there are a few verb roots which show a mixed behavior with regard to the appearance of /-i/ after extensions. As can be seen in the following words, the roots below trigger the appearance of /-i/ after the applicative (as well as the applicative reciprocal) but not after the reciprocal. (There do not appear to be any roots where the opposite is the case—i.e. where /-i/ appears after a reciprocal but not after an applicative.)

- (223) a. ú-kú-<sup>1</sup>cí<sup>1</sup>inj-á ‘to slaughter (or change)’ /ú-ku-cínji-a/  
 b. ú-kú-<sup>1</sup>cí<sup>1</sup>inj-íz-y-á ‘to slaughter for’<sup>35</sup> /ú-ku-cínji-il-i-a/  
 c. ú-kú-<sup>1</sup>cí<sup>1</sup>inj-áán-à ‘to slaughter each other’ /ú-ku-cínji-an-a/  
 d. ú-kú-<sup>1</sup>cí<sup>1</sup>inj-íz-y-áán-y-á ‘to slaughter for each other’ /ú-ku-cínji-il-i-an-i-a/
- (224) a. ú-kú-<sup>1</sup>té<sup>1</sup>yány-á ‘to prepare’ /ú-ku-téyañ-a/  
 b. ú-kú-<sup>1</sup>té<sup>1</sup>yány-íz-y-á ‘to prepare for’ /ú-ku-téyañ-il-i-a/  
 c. ú-kú-<sup>1</sup>té<sup>1</sup>yány-án-à ‘to prepare each other’ /ú-ku-téyañ-an-a/  
 d. ú-kú-<sup>1</sup>té<sup>1</sup>yány-íz-y-án-y-á ‘to prepare for each other’ /ú-ku-téyañ-il-i-an-i-a/

I assume that these roots must simply be lexically marked such that /-i/ appears when the applicative is present, but not when just the reciprocal is present.

A causative /-i/ can trigger an extra [-i] on elements other than verbal extensions as well. As seen below, when such forms appear in the Yesterday Past, which takes a past tense /-il/ suffix, an additional [-i], placed after the /l/, will cause a mutation in that suffix as well.

- (225) a. tw-áá-óòm-v-ìiz-y-é ‘we made wet’ /tú-á -bomb-i-il-i-é/  
 b. tw-áá-pís-ìiz-y-é ‘we drove’ /tú-á-pít-i-il-i-é/  
 c. tw-á-ásí-ìiz-y-é ‘we lit’ /tú-á-ak-i-il-i-é/  
 d. tw-áá-cíim-v-ìiz-y-é ‘we won’ /tú-á-címb-i-il-i-é/  
 e. t-óóf-ìiz-y-é ‘we frightened’ /tú-á-óp-i-il-i-é/  
 f. tw-áá-tálimf-ìiz-y-é ‘we elongated’ /tú-a-tálimp-i-il-i-é/

<sup>35</sup> I note here that while my consultant uses the [-izya] ending for both ‘slaughter for’ and ‘scratch for’ he states that he has heard some variation here, with [-ila] being attested from some speakers.

The morphology and phonology of forms taking the /-il/ TAM suffix is quite interesting and complex and will be presented and discussed in detail below in chapter 4. We note here, however, that in the forms in (225) the penult is long and not preceded by a glide. Both of these facts are accounted for by assuming that the short causative /-i/ which immediately follows the root fuses with the immediately following /i/ of the /ile/ suffix, as seen below.<sup>36</sup>

(226)	tu-a-pit-i-il-i-e	Input
	tu-a-pis-i-il-i-e	Consonant Mutation
	tw-aa-pis-i-iz-y-e	Gliding

Finally, we note that the presence of the Causative /-i/ has no effect on the only other tense/aspect suffix /-ang/.

(227)	a. tw-áá-óómv-y-ààng-á	‘we were using’	(*tw-áá-óómv-y-àànz-y-á)
	b. tw-áá-kóm-y-ààng-á	‘we were hardening’	(*tw-áá-kóm-y-àànz-y-á)

### 3.6 Long and Short Passives

As noted earlier in section 2.2.2.4, there are two morphological manifestations of the passive. One results in [w] while the other results in [-iw]. While the underlyingly representation of the short passive seems clearly to be /-u/ (cf. §2.2.2.4, §10.1.3), that of the latter is somewhat less obvious. The three most likely candidates are /-iu/ and /-ibu/ and /-igu/, where the intervocalic /b/ and /g/ would delete. Cross-linguistic evidence (e.g. the UR of the long passive assumed by Hyman (1995) for Bemba) favors /-igu/ and that is the UR I assume here (though /-ibu/ would certainly also be phonologically possible in Cilungu).

We have already noted (in §2.2.2.4) that /-igu/ is used after a CV root (e.g. *ú-kú-sí-íw-a* ‘to be ground’ </ú-ku-si-igu-a/), but its distribution is, in fact, much wider than that. To begin, the long form /-igu/ is used after any root ending in a round vowel. Representative examples of roots other than /CV/ ones are given below:<sup>37</sup>

<sup>36</sup> Under Hyman’s account, the perfective /-il/ could not be treated as an interfix as that would incorrectly predict a short [i] after the root. Therefore, just as it was proposed that –an causes a cyclic respelling of /-i/, the perfective /-il/ would induce a similar respelling of /-i/.

<sup>37</sup> With regard to Mid Vowel Harmony, my consultant says that while preferring its non application in a form such as (228f), the form *ú-kú-<sup>l</sup>témw-ééw-á*, where it does apply, is also attested.

- (228)
- |    |  |                          |                    |
|----|--|--------------------------|--------------------|
| a. | ú-kú- <sup>1</sup> kú <sup>1</sup> úmbw-á    | ‘to admire’              | /ú-ku-kúmbu-a/     |
| b. | ú-kú- <sup>1</sup> kú <sup>1</sup> úmbw-íw-á | ‘to be admired’          | /ú-ku-kúmbu-igu-a/ |
| c. | ú-kw-á <sup>1</sup> ázw-á                    | ‘to help                 | /ú-ku-ázu-a/       |
| d. | ú-kw-á <sup>1</sup> ázw-íw-á                 | ‘to be helped’           | /ú-ku-ázu-igu-a/   |
| e. | ú-kú- <sup>1</sup> té <sup>1</sup> mw-á      | ‘to love’                | /ú-ku-tému-a/      |
| f. | ú-kú- <sup>1</sup> té <sup>1</sup> mw-íw-á   | ‘to be loved’            | /ú-ku-tému-igu-a/  |
| g. | ú-kú- <sup>1</sup> úvw-á                     | ‘to hear understand’     | /ú-ku-úvu-a/       |
| h. | ú-kú- <sup>1</sup> úvw-íw-á                  | ‘to be hear, understood’ | /ú-ku-úvu-igu-a/   |

If the short causative /i/ follows the root, as the forms below demonstrate, then /-u/, and not /-igu/ (which would incorrectly lengthen the penult) is added.

- (229)
- |    |  |                        |                                |
|----|--|------------------------|--------------------------------|
| a. | ú-kw-í <sup>1</sup> íngíl-à                  | ‘to enter’             | /ú-ku-íngil-a +H/              |
| b. | ú-kw-í <sup>1</sup> íngíz-y-á                | ‘to make enter, score’ | /ú-ku-íngil- <u>i</u> -a +H/   |
| c. | ú-kw-í <sup>1</sup> íngíz-i-w-á              | ‘to be scored’         | /ú-ku-íngil- <u>i</u> -u-a +H/ |
| d. | ú-kú-wéél-à                                  | ‘to return (intr.)’    | /ú-ku-uel-a/                   |
| e. | ú-kú-wééz-y-á                                | ‘to return (tr.)’      | /ú-ku-uel- <u>i</u> -a/        |
| f. | ú-kú-wééz-í-w-á                              | ‘to be returned’       | /ú-ku-uel- <u>i</u> -u-a/      |
| g. | ú-kú- <sup>1</sup> tí <sup>1</sup> ín-à      | ‘to be frightened’     | /ú-ku-tiin-a +H/               |
| h. | ú-kú- <sup>1</sup> tí <sup>1</sup> ín-y-á    | ‘to frighten’          | /ú-ku-tiin- <u>i</u> -a +H/    |
| i. | ú-kú- <sup>1</sup> tí <sup>1</sup> íny-í-w-á | ‘to be frightened’     | /ú-ku-tiin- <u>i</u> -u-a +H/  |

The long form of the passive is also used after verbs ending in a palatal.

- (230)
- |    |                |                   |                  |
|----|----------------|-------------------|------------------|
| a. | ú-k-óóc-á      | ‘to burn’         | /ú-ku-oc-a/      |
| b. | ú-k-óóc-éw-á   | ‘to be burned’    | /ú-ku-oc-igu-a/  |
| c. | ú-kú-mány-á    | ‘to know’         | /ú-ku-mañ-a/     |
| d. | ú-kú-mány-íw-á | ‘to be known’     | /ú-ku-mañ-igu-a/ |
| e. | ú-kú-fúny-á    | ‘to scratch       | /ú-ku-fuñ-a/     |
| f. | ú-kú-fúny-íw-á | ‘to be scratched’ | /ú-ku-fuñ-igu-a/ |

Phonotactically, neither [cw] nor [nyw] are attested in Cilungu.

The long form of the passive is also used after the verb roots discussed in (128)-(135) which were ultimately set up with root-final /w/ or /b/.

(231) a.	ú-kú-fúw-à	‘to skin’	/ú-ku-fuw-a/
b.	ú-kú-fúw-íw-á	‘to be skinned’	/ú-ku-fuw-igu-a/
c.	ú-kú-vúw-á	‘to fish with a net’	/ú-ku-vub-a/
d.	ú-kú-vúw-íw-á	‘to be fished with a net’	/ú-ku-vub-igu-a/
e.	ú-kú-láy-á	‘to promise’	/ú-ku-lab-a/
f.	ú-kú-láy-íw-á	‘to be promised’	/ú-ku-lab-igu-a/
g.	ú-kú- <sup>l</sup> té <sup>l</sup> y-á	‘to play or set trap’	/ú-ku-téb-a +H/
h.	ú-kú- <sup>l</sup> té <sup>l</sup> y-íw-á	‘to be played or set’	/ú-ku-téb-igu-a +H/

The short form cannot be used in the above cases as it would generate an illicit [ww] sequence in the first two and an illicit [yw] sequence in the latter two.

Finally, for most roots (not already discussed) either the short or the long passive may be used, though it seems that the short one is somewhat preferred.<sup>38</sup>

(232) a.	ú-kó- <sup>l</sup> óp-à	‘to fear’
b.	ú-kó- <sup>l</sup> óp-w-á ~ -éw-á	‘to be feared’
c.	ú-kú-túúmp-à	‘dip’
d.	ú-kú-túúmp-w-á ~ -íw-á	‘to be dipped’
e.	ú-kú-cís-à	‘to injure’
f.	ú-kú-cís-w-á ~ -íw-á	‘to be injured’
g.	ú-kú-wááz-à	‘to carve’
h.	ú-ku-waaz-w-a ~ -íw-á	‘to be carved’
i.	ú-kú- <sup>l</sup> tí <sup>l</sup> ínt-à	‘to pull’
j.	u-ku- <sup>l</sup> tí <sup>l</sup> ínt-w-á ~ íw-á	‘to be pulled’
k.	ú-kú-séf-a	‘to sift’
l.	u-ku-séf-w-á ~ íw-á	‘to be sifted’
m.	ú-kú-cóv-à	‘to cycle’
n.	ú-kú-cóv-w-á ~ íw-á	‘to be peddled’

### 3.7 Segmental realization of 1 sg. and 3 sg. subject markers

Let us conclude this chapter by describing and then accounting for the differing phonological realizations of the 1 sg. and 3 sg. subject prefixes.

<sup>38</sup> As noted in fn. 35 for example (228f), there seems to be some variability in the application of MVH to the vowel in the long passive.

Let us first address how the 1 sg. SM /n-/ is actually realized in various TAMs. When it immediately precedes a vowel it is realized as [n] and contributes a mora to the syllable.

(233) a.	n-áá-mú-fúl-à	‘and then I started to wash him’	/ń-aa-mu-ful-a/
b.	n-áá-fúz-il-é	‘I washed him’ (YP)	/ń-á-ful-il-é/
c.	n-áá-fúl-il-á	‘I have just washed for’	/ń-a-ful-il-a/
d.	n-áá-zíis-il-é	‘I buried’ (FP)	/ń-a-ziik-il-e +H/
e.	n-áá-fùl-à	‘let me start to wash’	/ń-áa-ful-a/
f.	n-éél-è	‘that I fish’	/ń-él-é/
g.	n-ééz-il-é	‘I have fished’	/ń-él-il-e +H/
h.	n-íimv-il-é	‘I have sung’	/ń-imb-il-e +H/
i.	n-éél-á	‘and then I fished’	/ń-él-a +H/

When the 1 sg. SM immediately precedes a non-nasal consonant, it is realized as either [n] or [ín] where the nasal is homorganic to the following consonant.<sup>39</sup>

(234) a.	(i)n-kú-fúl-à	‘I am washing’	/ń-ku-ful-a/
b.	(i)n-káà-fùl-à	‘I wash’	/ń-káa-ful-a/
c.	(i)n-cí-lii-fùl-à	‘I still wash’	/ń-cí-li-ful-a/
d.	ín-dáá-fúl-à	‘I will be washing’	/ń-la-áa-ful-a/
	~ n-dá <sup>1</sup> á-fúl-à		
e.	ín-káá-fùl-à	‘I will continue to wash’	/ń-ka-áa-ful-a/
	~ n-ká <sup>1</sup> á-fùl-à		
f.	(i)n-déés-ilé	‘I have brought’	/ń-lees-ile +H/
g.	(i)n-kál-á	‘and then I bought’	/ń-kal-a +H/
h.	(i)m-fú <sup>1</sup> lé	‘that I wash’	/ń-ful-é/
i.	(i)n-dá-fùl-á	‘I will wash’	/ń-la-ful-a +H/

In these cases the 1 sg. prefix /n-/ is moraic, though this mora will be set afloat by the process of nasal demorification. That stray mora will then optionally delete. If it does not delete, it will be realized as the default vowel /i/.

Let us now turn to the realization of the 1 sg. SM before a nasal. When the 1 sg. prefix occurs before a nasal-initial macrostem (i.e. either before an OM or root which begins with a nasal), it surfaces obligatorily as [i], as illustrated below.

(235) a.	í-mí <sup>1</sup> l-é	‘that I swallow’	/ń-mil-é/
c.	í-nyé <sup>1</sup> p-é	‘that I tie a knot’	/ń-nyép-é/
b.	í-mú-zíik-il-é	‘that I bury for him/her’	/ń-mu-ziik-il-e +H/
f.	í-mí <sup>1</sup> z-ilé	‘I have swallowed’	/ń-mil-il-e +H/
h.	ì-mil-á	‘and then I swallowed’	/n-mil-a +H/
j.	ì-mw-á	‘and then I drank’	/n-mo-a +H/

<sup>39</sup> The tonal effects of the presence or absence of the word-initial [i] are discussed in §5.1.1.5

As we saw above in example (36), the 1 sg. /n-/ will undergo demorification. The stranded mora is then realized as the default vowel /i/ and the resulting geminate nasal is reduced to a singleton. One can conjecture that the reason the deletion of the stranded mora is not optional in these cases is due to some kind of constraint that a morpheme (in this case the 1 sg. prefix) must be realized phonologically in some way.

Before the TAM prefix /ngá-/ the 1 sg. SM surfaces as [nii]. In this case the nasal of the /ngá-/ prefix will undergo demorification. The mora of the 1 sg. nasal prefix then combines with it to yield the long default vowel /i/ as seen in the examples below.

- (236) a. *nii-ngáá-fúl-à* ‘I can keep on washing’ /*ń-ngáa-ful-a/*  
 b. *nii-ngá-fú<sup>l</sup>-á* ‘I can wash’ /*ń-ngá-ful-a +H/*

The only other TAM prefixes which begin with a nasal are the Near Future /máa-/ and the Contrastive Habitual /ma-áa-/. In these cases the 1 sg. surfaces as [ná].

- (237) a. *ná-máa-sùkìl-il-à* ‘I will now accompany’ /*ń-máa-sukil-il-a/*  
 b. *ná-màá-súkìl-íl-à* ‘these days I accompany’ /*ń-ma-áa-sukil-il-a/*  
 c. *tú-máa-sùkìl-il-à* ‘we will now accompany’ /*tú-máa-sukil-il-a/*  
 d. *tú-màá-súk-íl-íl-à* ‘these days we accompany’ /*tú-ma-áa-sukil-il-a/*

That the /a/ cannot be part of the TAM prefix sequence can be seen by the fact that it is completely absent after any other SM, as illustrated by the examples in (237c-d). I assume that this is a lexical allomorph of the 1 sg. marker conditioned by these two TAM markers.

When /n-/ is used as an object marker word-initially, it is always realized as [n] and never [in].

- (238) a. *n-swèèl-él-é* ‘brew for me’ /*n-suel-il-e +H/*  
 b. *n-sh-èè* ‘grind me’ /*n-si-e +H/*  
 c. *n-sh-é* ‘leave me’ /*n-sí-e +H/*  
 d. *n-t-é* ‘stop me’ /*n-tá-e +H/*  
 e. *n-swéél-él-é* ‘fish for me’ /*n-súel-il-e +H/*  
 f. *n-j-imb-é* ‘dig me out’ /*n-imb-e +H/*  
 g. *n-j-él-él-é* ‘fish for me’ /*n-él-el-e +H/*

When the root begins with a nasal, the OM /n-/ simply elides as the language does not tolerate geminate consonants.

- (239) a. *nyèmúl-é* ‘lift me!’ /*n-nyemul-e +H/*  
 b. *màny-é* ‘know me!’ /*n-many-e +H/*

With regard to these forms, it should be noted that while it is true that the 1 sg. OM leaves no phonological trace at the beginning of the word (contra the constraint suggested below the examples in (235)), these forms are in fact distinct from the analogous imperative forms with no object, since (as detailed in section 5.3.10) imperatives with no OM take the Final Vowel /-a/ (cf. *nyèmúl-á* ‘lift!’, *màny-á* ‘know!’).

Let us now turn to the realization of the 3 sg. subject marker. We briefly consider its segmental realization here, while its tonal realization is examined and accounted for in section 10.7.1. Segmentally, the 3 sg. is

generally realized as /a-/ if immediately followed by a consonant (whether this is TAM prefix, negative prefix, OM or root).

- |       |    |                             |                                  |                     |
|-------|----|-----------------------------|----------------------------------|---------------------|
| (240) | a. | à-máà-fùl-à                 | ‘he will now wash’               | /á-maa-ful-a/       |
|       | b. | à-má- <sup>1</sup> á-fùl-à  | ‘these days he washes’           | /á-ma-áa-ful-a/     |
|       | c. | à-ká- <sup>1</sup> á-fùl-à  | ‘he will continue to wash’       | /á-ka-áa-ful-a/     |
|       | d. | à-lá- <sup>1</sup> á-fùl-à  | ‘he will be washing’             | /á-la-áa-ful-a/     |
|       | e. | à-kú-fùl-à                  | ‘he is washing’                  | /á-ku-ful-a/        |
|       | f. | àà-ngá-fù <sup>1</sup> l-á  | ‘he can wash’                    | /a-ngá-ful-á/       |
|       | g. | àà-ngá-á-fùl-à              | ‘he can keep on washing’         | /a-ngá-aa-ful-a/    |
|       | h. | à-là-fùl-á                  | ‘he will wash’                   | /a-la-ful-a +H/     |
|       | i. | à-káà-fùl-à                 | ‘he washes’                      | /a-káa-ful-a/       |
|       | j. | à-cí-líi-fùl-à              | ‘he is still washing’            | /a-cí-líi-ful-a/    |
| (241) | a. | à-táa-kù-fùl-à              | ‘he/she is not washing’          | /a-táa-ku-ful-a/    |
|       | b. | à-tá-á-fùz-il-é             | ‘he/she didn’t wash’ (YP)        | /a-tá-á-ful-il-é/   |
|       | c. | à-tá-á-fùz-íl-é             | ‘he/she didn’t wash’ (FP)        | /a-tá-a-ful-ile +H/ |
| (242) | a. | à-mù-fùl-á                  | ‘and then he/she washed him/her’ | /a-mu-ful-a +H/     |
|       | b. | à-yá-fù <sup>1</sup> z-il-é | ‘he/she has washed them’         | /a-yá-ful-ile +H/   |
| (243) | a. | à-fùz-il-é                  | ‘he has washed’                  | /a-ful-ile +H/      |
|       | b. | à-fùl-á                     | ‘and then he washed’             | /a-ful-a +H/        |
|       | c. | á-fù <sup>1</sup> l-é       | ‘that he wash’                   | /á-ful-é/           |

This is true even when the consonant immediately following the SM deletes.

- |       |    |           |                        |                  |
|-------|----|-----------|------------------------|------------------|
| (244) | a. | á-í-lás-é | ‘that he hit it (C9)’  | /á-gí-lás-e +H/  |
|       | b. | á-ú-lás-é | ‘that he hit it (C14)’ | /á-gú-lás-e +H / |

The 3 sg. is realized as /u-/ if it is immediately followed by a monomoraic vowel.

- |       |    |                                |                         |                      |
|-------|----|--------------------------------|-------------------------|----------------------|
| (245) | a. | w-àà-fùz-il- <sup>1</sup> é    | ‘he washed (YP)’        | /u-á-ful-il-é/       |
|       | b. | w-àà-fùl-àng-à                 | ‘he was washing (YP)’   | /u-á-ful-ang-á/      |
|       | c. | w-àà-fùl-à                     | ‘he has just washed’    | /u-á-ful-á/          |
|       | d. | w-àà-cí-fùz-il-é               | ‘he recently washed’    | /u-á-cí-ful-il-é/    |
|       | e. | w-àà-fùl-á                     | ‘he has already washed’ | /u-a-ful-a +H/       |
|       | f. | w-àà-fùz-il-é                  | ‘he washed (FP)’        | /u-a-ful-il-e +H/    |
|       | g. | w-àà-cí-fù <sup>1</sup> z-il-é | ‘he had just washed’    | /u-a-cí-ful-il-e +H/ |

If, however, the 3 sg. is followed by a long V, then it is realized as /a-/. This is true whether the V is underlyingly long (e.g. the Past Inceptive /aa-/ (§5.1.2) or the Hortative /áa-/ (§5.1.6)) or it is underlyingly short but is lengthened by rule (cf. §10.7.3).<sup>40</sup>

- |       |    |                         |                               |                |
|-------|----|-------------------------|-------------------------------|----------------|
| (246) | a. | á-á-fúl-à               | ‘and then he started to wash’ | /á-aa-ful-a/   |
|       | b. | á-à-fùl-à               | ‘let him start washing’       | /á-áa-ful-a/   |
| (247) | a. | à-íís-í <sup>l</sup> lé | ‘he/she has come down’        | /a-ik-il-e +H/ |
|       | b. | à-íík-à                 | ‘and then he/she came down’   | /a-ik-a +H/    |
|       | c. | á-éél-è                 | ‘that he winnow’              | /á-el-é/       |

---

<sup>40</sup> It might be thought that the appearance of /a-/ here could be accounted for by setting up these TAM prefixes with an initial /b/ or /g/. The problem with this is that this would incorrectly predict that a preceding high V would not glide, yet it does. E.g. *tw-áà-fùl-à* ‘let us start washing’ (< /tú-áa-ful-a/).



## CHAPTER 4: IMBRICATION

### 4.1 Imbrication illustrated and defined

Cilungu, like many other Bantu languages exhibits an interesting and cross-linguistically unusual process, called *imbrication*, which is essentially an inter-leaving of morphological elements (Bastin 1983). This is perhaps best illustrated through the presentation of examples. Let us begin with the forms in (1)-(2).

- (1) a. ú-kú-zíik-à                      ‘to bury’  
b. ú-kú-zíik-án-à                    ‘to bury each other’
- (2) yá- á- zíis- il -é  
3pl-Pst-bury-Perf-FV  
‘they buried’ (Yesterday Past)

The form in (1a) is the simple infinitive of ‘to bury.’ The form in (1b) is the infinitival form with the Reciprocal extension added, and the form in (2) is the Yesterday Past form (with no extensions). Suppose, now, however, that we want a form where the elements in (1b) and (2) are simultaneously present, i.e. the Yesterday Past form of ‘bury’ with the reciprocal extension ‘they buried each other (YP)’. One might reasonably conjecture that the result would be something like (with tones omitted) *ya-a-zíik-an-il-e* (or maybe *ya-a-zíik-il-an-e*), but neither of these is grammatical. Rather, the result is the form listed below: <sup>1</sup>

- (3) yá-á-zíik-iin-é                      ‘they buried each other’

As can be seen the actual form is unusual in two respects. First, the post-root realization of the morphology is not \*anile (or \*ilane), but instead [iine], and second, the root-final consonant has not undergone consonant mutation, as it did in the Yesterday Past form with no extensions (2). The goal of this section will be to try to describe when imbrication takes place, and how exactly it works.

We begin with a description and analysis of imbrication which is triggered by the TAM verbal suffixes /-il-e/. While the exact semantics of /-il-e/ is not perfectly clear (and discussed again below), for the sake of discussion I will refer to this combination of suffixes as contributing a “Perfective” meaning. It is found in a variety of TAMs including the Yesterday Past (§5.2.2), the Recent Past (§5.2.4), the Far Past (§5.3.1), and the Perfect (§5.3.7).

The first thing that should be noted is that imbrication does not take place when a (C)VC root is directly followed by the /-il-e/ suffix. In such cases, /-il-e/ surfaces intact and simply causes a mutation of a preceding consonant. Whenever a (C)VC root is followed by a VC extension, however, imbrication will take place. This can clearly be seen in (4) below, which contain examples involving the most productive extensions (§2.2.2). (The corresponding extended infinitive forms are shown to the right.) <sup>2</sup>

---

<sup>1</sup> It is not in fact obvious where to mark the morphological boundaries in imbricated forms. We take up this issue again below. Cf. fn. 3

<sup>2</sup> Unless otherwise noted, all forms presented in this chapter with a Perfective gloss (always containing the TAM prefix /á-/ , the TAM suffix /-il/ and the FV /-é/) will be in the Yesterday Past (cf. § 5.2.2) (and not the Far Past (cf. § 5.3.1)).

- |     |    |                   |                               |                       |
|-----|----|-------------------|-------------------------------|-----------------------|
| (4) | a. | yá-á-fúz-il-é     | ‘they washed (YP)’            | (cf. ú-kú-fúl-à)      |
|     | b. | yá-á-fúl-iil-é    | ‘they washed for (YP)’        | (cf. ú-kú-fúl-il-à)   |
|     | c. | yá-á-fúl-iin-é    | ‘they washed each other (YP)’ | (cf. ú-kú-fúl-án-à)   |
|     | d. | yá-á-fúl-iish-é   | ‘they washed a lot (YP)’      | (cf. ú-kú-fúl-ish-à)  |
|     | e. | yá-á-fúl-iish-é   | ‘they caused to wash (YP)’    | (cf. ú-kú-fúl-íish-à) |
|     | f. | yá-á-fúl-iik-é    | ‘they were washed (YP)’       | (cf. ú-kú-fúl-ik-à)   |
|     | g. | yá-á-fúung-wiil-é | ‘they unlocked (YP)’          | (cf. ú-kú-fúung-úl-à) |

A descriptive schematic characterization of imbrication in many Bantu languages, and one that would correctly describe Cilungu, is given in (5a), assuming an input representation where the root is followed by a VC extension which in turn is followed by the Perfective /-il-e/. The form in ((4g) above is derived in (5b).

- (5) a. /...C-VC-il-e/ > CViCe  
 b. /yá-á-fung-ul-il-é/ > yá-á-fúung-ùil-é (Imbrication) > yá-á-fúung-wiil-é (Gliding & CL)

In other words, all of the segments of the extension as well as the tense/aspect suffix survive the imbrication process, except the /l/ of /-il-e/ which does not. Additionally, assuming the input shown in (5a) certain elements have metathesized. There are several ways to think about what could be happening here. One is to posit a metathesis of the final C of the extension with the following vowel. From /C-VC-il-e/, this would yield CViCle. Since a consonant cluster other than NC is not allowed in Cilungu the resulting Cl cluster then gets resolved to C.

In Hyman’s (1995) approach involving prosodic circumscription, he assumes that while /-il-e/ is the input structure of this tense/aspect suffix after a monosyllabic root, the allomorph of this suffix after a larger root (e.g. one with a following extension—something to be made more precise below) is /-i-e/, where /-e/ is a Final Vowel suffix and /-i/ is an infix that gets slotted before the final consonant of the stem. In this case, from /C-VC-i-e/, we get CViCe more directly, there being no C deletion process involved.

It should be noted that for some of these approaches (though perhaps not all) the Perfective ending must be analyzed as bi-morphemic, i.e. /-il-e/ and not /-ile/. (Certainly in Hyman’s approach /-i-e/ must be two morphemes for the reasons outlined above.) Let us briefly consider arguments for and against this for Cilungu.

One argument for considering [ile] to be derived from two morphemes /-il-e/ can be seen in passive forms of tenses which employ the Perfective ending.

- (6) yá-á-fúz-il-w-é                      ‘they were washed’

As one can see, the passive marker surfaces between the [il] and the [e], something which would not require any infixation if these are separate morphemes. Of course, it is possible that the Passive suffix is positioned on prosodic, rather than morphological grounds, such that it always occurs after final consonant or before the final vowel or morpheme. We will return to this question in further detail below.

Another potential argument for dividing the Perfective ending into two morphemes is that it regularizes the potential shapes of the tense/aspect suffixes and the final vowels. It will be seen below that, putting aside the Perfective cases, Cilungu only permits two vowels in verb-final position: /-a/ which we have seen in most TAMs presented thus far, and /-e/, the subjunctive FV to be presented in detail in section 5.3.9. The bimorphemic analysis would then allow us to state that the FV is always of the shape –V, viz. neutral /-a/, subjunctive /-e/ and Perfective /-e/. Additionally, the only other tense/aspect suffix in the language is the progressive /-ang/ (cf. §5.2.3, §5.2.5, §5.3.3). The bimorphemic analysis allows us to generalize that the only tense/aspect suffixes are of the shape /-V(N)C/. This would entail a co-occurrence requirement, of course,

between the Past /-e/ and the Perfective suffix /-il/. This does not seem unreasonable as there seem to be other co-occurrence restrictions, e.g. the /-ang/ must be marked to not occur with subjunctive /-e/ (as there certainly doesn't appear to be any semantic reason for this). The one argument against the bi-morphemic approach is that it does not seem to have any semantic motivation as it does not seem possible to attach separate meanings to /-il/ and /-e/. In sum, I feel the evidence seems to weigh somewhat in favor of analyzing the Perfective as bimorphemic, and therefore I will represent it as such here. In all input representations, then, the Perfective ending will be represented as /-il-e/

Returning to Cilungu, any of the imbrication approaches outlined above will ultimately generate the following structures for the forms presented below.<sup>3</sup>

- |     |    |  |                              |
|-----|----|--|------------------------------|
| (7) | a. | /yá-á-léet-il- <u>il</u> -é / > yá-á-léét-ìil-é                      | ‘they brought for’           |
|     | b. | /yá-á-ful-ik- <u>il</u> -é / > yá-á-fúl-ìik-é                        | ‘they were washed (stative)’ |
|     | c. | /yá-á-ful-isi- <u>il</u> -é / > yá-á-fúl-ìish-é                      | ‘they washed a lot’          |
|     | d. | /yá-á-ful-iisi- <u>il</u> -é / > yá-á-fúl-ìish-é                     | ‘they caused to wash’        |
|     | e. | /yá-á-ful-an- <u>il</u> -é / > yá-á-fúl-àìn-é > yá-á-fúl-ìn-é        | ‘they washed each other’     |
|     | f. | /yá-á-fung-ul- <u>il</u> -é / > yá-á-fúúng-ùil-é > yá-á-fúúng-wìil-é | ‘they unlocked’              |

The forms in (7a-d) are derived straightforwardly. In each case the /i/ of the Perfective /-il/ is placed before the final consonant of the base. While this means that the penult in (7d) becomes trimoraic at that point in the derivation, the rule of Trimoraic Pruning (§3.1.5) will remove one mora and that form surfaces identically to (7c). For (7e) a /a-i/ sequence has been created and as we saw in section 3.1.1, the /a/ will delete in such sequences with a compensatory lengthening of the following /i/. This yields the correct output *yá-á-fúl-ìn-é*. For (7f) a /u-i/ sequence has been created. This, according to the gliding rules formulated in section 3.1.2 along with compensatory lengthening will generate the correct output *yá-á-fúúng-wìil-é*.

Imbrication creates a post-radical vowel which does not induce consonant mutation. Neither does it undergo Mid Vowel Harmony (as seen in (7a)). In a form such as (7a), the first mora of the long penult is the reflex of the vowel in the applicative /il/, while the second mora is the reflex of the vowel in the Perfective /-il/. The fact that CM does not occur, then, is predicted from the fact that the potential triggering vowel, the /-i/ of the Perfective /-il/, is positioned after the last stem vowel, and therefore the required consonant-plus-vowel contact does not occur. All other things being equal, however, we would predict that the final two syllables in (7a) should surface as [eile] as the first vowel (from the Applicative) should undergo MVH, while the second vowel should not. The /e/ then deletes before the following higher vowel (followed by compensatory lengthening), as predicted by our vowel deletion rules motivated in section 3.1.1.

We note then, that in many cases of imbrication with the applicative, there will actually be two phonetic cues which distinguish the plain perfective and the applicative perfective. As seen in the example below, in the applicative past, where imbrication takes place, the consonant does not mutate and the penult is long.<sup>4</sup> (Of course, the latter has the potential to affect the tonal pattern of the word as well.)

<sup>3</sup> As a heuristic for the reader, the CM-inducing /i/ will be continue to be underlined in input representations. While all morpheme boundaries will be represented in input representations, they will be omitted in output representations within the material from the end of the root to the TBU preceding the word-final /e/, as including such (e.g. *yá-á-ful-ì-ì-k-é*) is unwieldy and seems unnecessary.

<sup>4</sup> Key (2006) argues within an OT framework that metrical pressure for the penult to be long plays a role in triggering imbrication.

- (8)
- |    |                             |                  |                              |
|----|-----------------------------|------------------|------------------------------|
| a. | tw-áá-zíis-il-é             | ‘we buried’      | /tú-á-ziik- <u>il</u> -é/    |
| b. | tw-áá-zíik- <u>il</u> -il-é | ‘we buried for’  | /tú-á-ziik-il- <u>il</u> -e/ |
| c. | tw-áá-léés-il-é             | ‘we brought’     | /tú-á-léet- <u>il</u> -é/    |
| d. | tw-áá-léét- <u>il</u> -il-é | ‘we brought for’ | /tú-á-léet-il- <u>il</u> -e/ |
| e. | tw-íímv-il-é                | ‘we dug’         | /tú-á-imb- <u>il</u> -é/     |
| f. | tw-íímb- <u>il</u> -il-é    | ‘we dug for’     | /tú-á-imb-il- <u>il</u> -é/  |

Of course, this will not always be the case. When a root ends in a vacuously-mutating consonant, then vowel length becomes the only cue distinguishing the plain and the applicative.

- (9)
- |    |   |                    |                                |
|----|---|--------------------|--------------------------------|
| a. | tw-áá-mú- <sup>1</sup> lúm-í <sup>1</sup> l-é | we bit him/her     | /tú-á-mu-lúm- <u>il</u> -é/    |
| b. | tw-áá-mú- <sup>1</sup> lúm- <u>il</u> -il-é   | we bit for him/her | /tú-á-mu-lúm-il- <u>il</u> -é/ |
| c. | tw-áá-cíis-il-é                               | ‘we ironed’        | /tú-á-ciis-il-é/               |
| d. | tw-áá-cíis- <u>il</u> -il-é                   | ‘we ironed for’    | /tú-á-ciis-il- <u>il</u> -é/   |
| e. | yá-á-cóv-il-é                                 | ‘they pedaled’     | /tú-á-cov-il-é/                |
| f. | yá-á-cóv- <u>il</u> -il-é                     | ‘they pedaled for’ | /tú-á-cov-il- <u>il</u> -é/    |

In section 2.2.2.9 we noted that in addition to the extensions just examined, which are the most productive ones in the language, there are other, less productive extensions as well. Will these also trigger imbrication? That they do, as exemplified by /-am/, /-al/, and /-uk/ can be seen below.

- (10)
- |    |                           |                |                             |
|----|---------------------------|----------------|-----------------------------|
| a. | ú-kú-pét-à                | ‘to fold (tr)’ | /ú-ku-pet-a/                |
| b. | ú-kú-pét-ám-à             | ‘to be bent’   | /ú-ku-pet-am-a/             |
| c. | tw-áá-pét- <u>il</u> im-é | ‘we were bent’ | /tú-á-pet-am- <u>il</u> -é/ |
- (11)
- |    |                             |                                     |                              |
|----|-----------------------------|-------------------------------------|------------------------------|
| a. | ú-kú-víimb-à                | ‘to cover/thatch’                   | /ú-ku-vimb-a/                |
| b. | ú-kú-víimb-ál-à             | ‘to cover oneself’                  | /ú-ku-vimb-al-a/             |
| c. | tw-áá-víimb- <u>il</u> il-é | ‘we covered ourselves’ <sup>5</sup> | /tú-á-vimb-al- <u>il</u> -é/ |
- (12)
- |    |                |                      |                              |
|----|----------------|----------------------|------------------------------|
| a. | ú-k-óólól-à    | ‘to straighten’      | /ú-ku-olol-a/                |
| b. | ú-k-óólól-ók-à | ‘to become straight’ | /ú-ku-olol-uk-a/             |
| c. | t-óólól-wíik-é | ‘we became straight’ | /tú-á-olol-uk- <u>il</u> -é/ |

Next, let us turn to cases where the form to be imbricated has multiple extensions. In these cases, the /-i/ portion of the Perfective /-il-e/ surfaces before the final consonant of the base, which is defined as the root plus all extensions, and therefore only the rightmost extension is phonologically affected.

<sup>5</sup> It should be noted with respect to (11c), *tw-áá-víimb-il-é* can also mean ‘we covered for’ as it is also the phonetic output of the perfective applicative (</tú-á-vimb-il-il-é/).

- |      |    |  |                                   |                        |
|------|----|--|-----------------------------------|------------------------|
| (13) | a. | y-úúm-án-ìish-é                                | ‘they beat each other frequently’ | /yá-á-um-an-isi-ìl-é/  |
|      | b. | yá-á-fúl-àl-ìil-é                              | ‘they bathed for’                 | /yá-á-ful-al-ìl-é/     |
|      | c. | yá-á-fúl-il-ìin-é                              | ‘they washed for each other’      | /yá-á-ful-il-an-ìl-é/  |
|      | d. | yá-á-pé-él-ìin-é                               | ‘they gave each other’            | /yá-á-pé-il-an-ìl-é/   |
| (14) | a. | ú-kú-fyéént-à                                  | ‘to tighten (e.g. belt)’          | /ú-ku-fient-a/         |
|      | b. | ú-kú-fyéént-úl-úl-à                            | ‘to loosen (intr)’                | /ú-ku-fient-ul-ul-a/   |
|      | c. | vy-áá-fyéènt-ùl-wiil-é                         | ‘they loosened’                   | ví-á-fient-ul-ul-ìl-é/ |
| (15) | a. | ú-kú- <sup>1</sup> pó <sup>1</sup> ómb-à       | ‘to tangle’                       | /ú-ku-pómb-a +H/       |
|      | b. | ú-kú- <sup>1</sup> pó <sup>1</sup> ómb-ól-ól-à | ‘to untangle’                     | /ú-ku-pómb-ul-ul-a +H/ |
|      | c. | tw-áá-póómb-ól-wiil-é                          | ‘we untangled’                    | /tú-á-pómb-ul-ul-ìl-é/ |

#### 4.2 Requirements for Imbrication to be triggered

Now that we have seen how imbrication works in a variety of forms, we must answer the question: what types of bases will trigger imbrication. Monosyllabic bases of the type (C)V(:)(N)C, where these segments are all tautomorphic, will not trigger imbrication, as seen below: <sup>6</sup>

- |      |    |                  |                |                  |
|------|----|------------------|----------------|------------------|
| (16) | a. | tw-áá-sí-ìl-é    | ‘we ground’    | /tú-á-si-ìl-é/   |
|      | b. | tw-áá-fúz-ìl-é   | ‘we washed’    | /tú-á-ful-ìl-é/  |
|      | c. | tw-í-ís-ìl-é     | ‘we went down’ | /tú-á-ik-ìl-é/   |
|      | d. | tw-í-ímv-ìl-é    | ‘we dug’       | /tú-á-imb-ìl-é/  |
|      | e. | tw-áá-zíis-ìl-é  | ‘we buried’    | /tú-á-ziik-ìl-é/ |
|      | f. | tw-áá-víimv-ìl-é | ‘we covered’   | /tú-á-vimb-ìl-é/ |

One hypothesis, then, would be to generalize that any base containing two syllables (or nuclei) will imbricate. This correctly predicts that all CVC roots with a VC extension will imbricate which is correct. But this also predicts that imbrication will apply to bases of more than one syllable even where there is no synchronic evidence that they contain an extension. That this is correct can be seen below, where in each case the verb minus the final VC portion does not exist as a semantically related independently attested verb.

- |      |    |                     |                       |                       |
|------|----|---------------------|-----------------------|-----------------------|
| (17) | a. | tw-áá-páápáat-ìik-é | ‘we flattened’        | /tú-á-páapaatik-ìl-é/ |
|      | b. | tw-áá-lámw-ìik-é    | ‘we greeted’          | /tú-á-lamuk-ìl-é/     |
|      | c. | tw-áá-kátw-ìik-é    | ‘we stood up’         | /tú-á-katuk-ìl-é/     |
|      | d. | tw-áá-sópólw-ìil-é  | ‘we untied’           | /tú-á-sópolol-ìl-é/   |
|      | e. | tw-áá-pútw-ìil-é    | ‘we sliced, cut’      | /tú-á-pútul-ìl-é/     |
|      | f. | tw-áá-sálw-ìil-é    | ‘we fried’            | /tú-á-salul-ìl-é/     |
|      | g. | tw-áá-nyémw-ìil-é   | ‘we lifted’           | /tú-á-ñemul-ìl-é/     |
|      | h. | tw-áá-kútúm-ìil-é   | ‘we kept quiet’       | /tú-á-kútumal-ìl-é/   |
|      | i. | tw-áá-sén-ìim-é     | ‘we lay on our back’  | /tú-á-sénam-ìl-é/     |
|      | j. | yá-á-pál-ìim-é      | ‘they approached’     | /yá-á-pálam-ìl-é/     |
|      | k. | yá-á-béénd-ìim-é    | ‘they inclined’       | /yá-á-béndam-ìl-é/    |
|      | l. | yá-á-cíind-ìim-é    | ‘they were important’ | /yá-á-cindam-ìl-é/    |

<sup>6</sup> The question as to what happens to CVVC bases containing two morphemes is taken up below.

m. yá-á-fúp-ìim-é	‘they lied on their face’	/yá-á-fupam-ìl-é/
n. yá-á-lùng-ìim-é	‘they were correct’	/yá-á-lungam-ìl-é/

Our generalization also predicts that a /CVVC/ base will in fact undergo imbrication if it is syllabified as /CV.VC/, something true of all stem-internal heterogeneous VV sequences, as the language does not allow diphthongs (cf. §10.6.3). This prediction is borne out as well, as seen below.

(18) tw-áá-lá-ìik-é	‘we narrated’	/tú-á-láik-ìl-é/
---------------------	---------------	------------------

The forms in (17) all have bases which end in a sequence which is phonologically isomorphic to a –VC extension (e.g. [ik, ol, an, uk, ul, am]), but in each case the semantically related base without this –VC does not exist. But if the generalization is correct that all multi-syllabic bases imbricate, then this should be true of bases where the final VC does not resemble any (productive synchronic) extension. This is true as well, as illustrated by the forms below.

(19) a. tw-á-áz-ìim-é	‘we borrowed’	/tú-á-ázim-ìl-é/
b. tw-áá-zák-ìiz-é	‘we shivered’	/tú-á-zakaz-ìl-é/
c. tw-áá-ták-ìis-é	‘we made smooth’	/tú-á-takaas-ìl-é/
d. tw-áá-tóotw-ìish-é	‘we whispered’	/tú-á-tóotoosi-ìl-é/
e. tw-áá-tótw-ìiz-é	‘we whispered’	/tú-á-tótooz-ìl-é/
f. tw-áá-pék-ìiny-é	‘we prepared’	/tú-á-pekañ-ìl-é/
g. c-áá-tél-ìip-é	‘it was slippery’	/cí-á-telep-ìl-é/
h. yá-á-pék-ìit-é	‘they inspected’	/yá-á-pekēt-ìl-é/
i. yá-á-séeng-ìiz-é	‘they remained on surface of water’	/yá-á-sengeez-ìl-é/
j. yá-á-yéeng-ìis-é	‘they glittered’	/yá-á-yengees-ìl-é/
k. yá-á-sík-ìis-é	‘they become scorched’	/yá-á-sikis-ìl-é/

Several phonological points should be made here. First, the forms in (19d-e) (‘whisper’) seem to support the analysis of some of the CV roots analyzed in section 3.4 where it was postulated that both /u/ as well as /o/ will glide before a non-identical vowel. Of course these two roots could be set up with an /o/ in the first syllable and a /u/ in the second which, if it did not glide, would lower by the Mid Vowel Harmony Rule.<sup>7</sup> Second, the phonology of long vowels appears to be somewhat different in suffixes than it is in prefixes. We saw above in section 3.1, based on the behavior of prefixes, that long vowels neither glided nor deleted before another vowel. However, we see in (19d-e) that a long vowel will glide before the /-i/ of the imbrication affix, and (19i-j) show that a long vowel will delete before this affix. These forms would not constitute evidence of differing behavior, of course, if the bases were analyzed as ending in a heteromorphemically long vowel, i.e. /V-VC/, rather than as /VVC/ though there does not seem to be any independent evidence for doing so since /-es/ and /-ez/ are not independently attested suffixes in Cilungu.

I would like to emphasize here that there is actually a fair bit of variability in the application of imbrication in certain cases. For instance, there are certain multi-syllabic roots, not synchronically containing a –VC extension, where imbrication is optional, and I assume that such roots must be underlyingly annotated thusly.

<sup>7</sup> Similarly, the forms in (19g-j) could be set up with /i/, as opposed to /e/ as the final vowel of the stem without posing any problems to the process of imbrication.

- (20) a. tw-áá-kálif-il-é ~ tw-áá-káliip-é ‘we were angry’ /tú-a-kálip-il-é/  
 b. vy-áá-vúvum-il-é ~ vy-áá-vúvw-ìim-é ‘they (C8) became musty’ /ví-á-vuvum-il-é/  
 c. yá-á-síisìis-il-é ~ yá-á-síisìit-é ‘they were stupid’ /yá-á-síisiit-il-é/

Let us now consider what happens when an extension is added to the roots discussed above in (17) and (19). In many cases, imbrication applies straightforwardly and will modify the right-most extension.

- (21) a. yá-á-tóontèkàn-íil-é ‘they were flexible for’ /yá-á-tontekan-il-ìl-é/  
 b. yá-á-túkúmàl-ìil-é ‘they kept quiet for’ /yá-á-kútumal-il-ìl-é/  
 c. yá-á-sénám-ìil-é ‘they lied on their back for’ /yá-á-<sup>1</sup>senam-il-ìl-é/  
 d. yá-á-nyémùl-ìil-é ‘they lifted for’ /yá-á-ñemul-il-ìl-é/  
 e. yá-á-tákaàs-ìil-é ‘they made smooth for’ /yá-á-takaas-il-ìl-é/
- (22) a. yá-á-páápáàtik-ìish-é ‘they flattened a lot’ /yá-á-páapaatik-isi-ìl-é/  
 b. yá-á-pálám-ìish-é ‘they approached a lot’ /yá-á-pálam-isi-ìl-é/  
 c. yá-á-pékèt-ìish-é ‘they inspected a lot’ /yá-á-pekèt-isi-ìl-é/  
 d. yá-á-tákaàs-ìish-é ‘they made smooth a lot’ /yá-á-takaas-isi-ìl-é/
- (23) a. yá-á-pékèt-ìin-é ‘they inspected each other’ /yá-á-pekèt-an-ìl-é/  
 b. yá-á-tákaàs-ìin-é ‘they made each other smooth’ /yá-á-takaas-an-ìl-é/
- (24) a. yá-á-páápáàtik-il-ìin-é ‘they flattened for each other’ /yá-á-páapaatik-il-an-ìl-é/  
 b. yá-á-pékèt-èl-ìin-é ‘they inspected for each other’ /yá-á-pekèt-il-an-ìl-é/  
 c. yá-á-pálám-is-ìiny-é ‘they caused each other to approach’ /yá-á-pálam-iisi-an-i-ìl-é/  
 d. yá-á-pékèt-is-ìiny-é ‘they caused each other to inspect’ /yá-á-pekèt-iisi-an-i-ìl-é/

In a few cases of imbricated applicatives, the reduplicated /-ilil/ applicative is used in the perfective instead of or in addition to the simple /-il/ one. (The corresponding infinitive is given at the right in parentheses for comparative purposes.)

- (25) a. yá-á-pékàny-iz-ìiz-y-é<sup>8</sup> ‘they prepared for’ (cf. ú-kú-pékány-iz-y-á)  
 b. c-áá-télèp-il-ìil-é ‘it was slippery for’ (cf. ú-kú-télép-él-à)  
 c. yá-á-pálám-il-ìil-é ‘they approached for’ (cf. ú-kú-<sup>1</sup>pá<sup>1</sup>lám-íl-à)
- (26) a. yá-á-pékèt-èl-ìil-é ~ yá-á-pékèt-ìil-é ‘they inspected for’ (cf. ú-kú-pékèt-él-à)  
 b. yá-á-síkìs-il-ìil-é ~ yá-á-síkìs-ìil-é ‘they were scorched for’ (cf. ú-kú-síkìs-íl-à)

In certain cases the application of imbrication is optional.

- (27) a. yá-ázim-il-il-é ~ yá-ázim-ìil-é ‘they borrowed for’ /yá-á-ázim-il-ìl-é/  
 b. yá-ázákàz-il-il-é ~ yá-ázákàz-ìil-é ‘they shivered for’ /yá-á-zakaz-il-ìl-é/  
 c. yá-átótóóz-il-il-é ~ yá-átótóóz-ìil-é ‘they whispered for’ /yá-á-tótooz-il-ìl-é/

<sup>8</sup> The form in (25a) shows that the causative /-i/ is placed after each part of the reduplicated applicative.

With regard to where the /-i/ of the Perfective /-i/ appears, the generalization seems to be that it appears before the last C of the base. Thus, when the final segment of the base is a consonant, the /-i/ appears before that C (e.g. (17), (21)). But even when the final segment of the base is a vowel, the /-i/ still appears before the last consonant (e.g. (19d), (22)).

It turns out that there are some additional constraints on what can imbricate. Hyman (1995) shows for Bemba that even if a base has two or more syllables, imbrication will not take place if the final consonant of the base is NC. That this is true for Cilungu as well is illustrated by the examples below.

- |      |    |                      |                |                             |                |
|------|----|----------------------|----------------|-----------------------------|----------------|
| (28) | a. | tw-áá-bélèenz-il-é   | ‘we read’      | /tú-á-beleng- <u>i</u> -é/  | *twaabeliinge  |
|      | b. | tw-áá-sáánsááns-il-é | ‘we scattered’ | /tú-á-sánsant- <u>i</u> -é/ | *twaasansiinte |
|      | c. | tw-áá-kázìinz-il-é   | ‘we fried’     | /tú-á-kazing- <u>i</u> -é/  | *twaakaziinge  |

Given this phonological restriction on base-final consonants, we might ask here whether there could be other phonological restrictions. I therefore note that base-final consonants attested in imbricated forms include: /l, n, t, k, m, z, s, ñ, p/. Imbricated forms have not been found containing the following base-final consonants: /b, j, c, v, f, y, w/, though this seems directly attributable to the fact that I simply have not found any multi-syllabic verb roots which ends in one of these consonants.

Returning to the requirement that the base be multi-syllabic, let us more closely examine bases of the shape CVVC. Let us begin by examining CVVC roots which seem to be clearly monomorphemic, as they end in a VC which is not homophonous to any VC extension (productive or unproductive). As can be seen below, none of these CVVC roots triggers imbrication.

- |      |    |                 |                            |                          |
|------|----|-----------------|----------------------------|--------------------------|
| (29) | a. | tw-áá-léés-il-é | ‘we brought’               | /tú-á-léet- <u>i</u> -é/ |
|      | b. | tw-áá-ciis-il-é | ‘we ironed’                | /tú-á-ciis- <u>i</u> -é/ |
|      | c. | tw-áá-láàv-il-é | ‘they set off early’       | /tú-á-laab- <u>i</u> -é/ |
|      | d. | yá-á-tíiv-il-é  | ‘they gathered (firewood)’ | /yá-á-tíib- <u>i</u> -é/ |
|      | e. | tw-áá-púùz-il-é | ‘we rested’                | /tú-á-puuz- <u>i</u> -é/ |

Next let us examine CVVC roots, which do end in a VC which is homophonous to an extension, but which could still be argued to be synchronically monomorphemic since the corresponding CV counterparts (without the final VC) are not attested.<sup>9</sup> As can be seen below, these do not trigger imbrication either.

<sup>9</sup> Of course, it is very likely that most if not all of these forms are in fact derived historically from CV roots plus a VC extension. In some cases the original CV root may have been lost; in other cases the VC extension may no longer be productive and therefore is not recognized as an extension (e.g. /-at/); while in other cases the meaning of the form has drifted enough semantically that it is difficult to related the CVVC form to the existing CV form semantically. Perhaps this latter cause is relevant for: *ú-kú-zúúk-à* ‘to get cold’ and *ú-kú-zúúl-à* ‘to take out from water’ which historically may have been related to *ú-kú-zw-á* ‘to leak, bleed’. Perhaps *ú-kú-fúúk-à* ‘to be humble’ is historically related to *ú-kú-fw-à* ‘to die’



(30)	a.	tw-áá-fúús-ìl-é	‘we were humbled’	/tú-á-fúuk-ìl-é/
	b.	tw-áá-cúúz-ìl-é	‘we suffered’	/tú-á-cúul-ìl-é/
	c.	c-áá-fúúz-ìl-é	‘it caused boredom’	/cí-á-fúul-ìl-é/
	d.	tw-áá-kúúz-ìl-é	‘we built’	/tú-á-kuul-ìl-é/
	e.	tw-áá-túúz-ìl-é	‘we sacrificed’	/tú-á-túul-ìl-é/
	f.	tw-áá-pyáány-ìl-é	‘we inherited’	/tú-á-pían-ìl-é/
	g.	tw-áá-zúús-ìl-é	‘we got cold’	/tú-á-zuuk-ìl-é/
	h.	tw-áá-zúúz-ìl-é	‘we took out from water’	/tú-á-zuul-ìl-é/
	i.	tw-áá-byáàs-ìl-é	‘we flashed’	/tú-á-biat-ìl-é/
	j.	tw-áá-lyáàs-ìl-é	‘we ran over, stepped on’	/tú-á-liat-ìl-é/

There are, however, a few CVVC bases, also arguably monomorphemic synchronically as the corresponding CV counterparts are not attested, which do imbricate, as seen below.<sup>10</sup>

(31)	a.	tw-áá-lwííl-è	‘we got sick’	/tú-á-lúal-ìl-é/
	b.	tw-áá-vííl-è	‘we bore a child’	/tú-á-víal-ìl-é/

It seems, as Hyman (1995) noted in closely-related Bemba, that imbrication must somehow be formalized to be triggered by CVVC stems ending in /al/.<sup>11</sup> I note again, however, that for these forms there is no independent evidence that this /al/ is an extension. First, semantically, /-al/ is used most productively to add a reflexive meaning, though as shown above in section 2.2.2, in a very few cases it just adds an intransitive meaning which would be consistent with these forms. Second, as noted above, corresponding forms without the /-al/ are not attested in the language.

Next, let us consider bases of the same shape which are bimorphemic, i.e. /CV-VC/. Some such bases do imbricate as seen in (32).

(32)	a.	yá-á-sí-ín-è	‘they left each other’	/yá-á-sí-an-ìl-é/
	b.	yá-á-sí-ìn-é	‘they ground each other’	/yá-á-si-an-ìl-é/
	c.	yá-á-p-íín-è	‘they gave each other’	/yá-á-pé-an-ìl-é/
	d.	yá-á-lí-ín-è	‘they ate each other’	/yá-á-lí-an-ìl-é/

There are also bimorphemic bases which do not imbricate, as seen in (33).

(33)	a.	tw-áá-zy-úús-ìl-é	‘we woke up (intr)’	/tú-á-zí-uk-ìl-é/
	b.	tw-áá-zy-úúz-ìl-é	‘we woke up (trans)’	/tú-á-zí-ul-ìl-é/
	c.	tw-áá-zú-úz-ìl-é	‘we undressed (tr.)’	/tú-á-zú-ul-ìl-é/
	d.	tw-áá-yá-àz-ìl-é	‘we closed’	/tú-á-ya-al-ìl-é/
	e.	tw-áá-y-úúz-ìl-é	‘we opened’	/tú-á-ya-ul-ìl-é/

And in a couple of cases, imbrication applies optionally.

<sup>10</sup> There seems to be one CVVC case where imbrication is optional, i.e. *ú-kú-<sup>l</sup>káán-à* ‘to refuse’: *tw-áá-káány-ìl-é* ~ *tw-áá-k-íí’né* ‘we refused’.

<sup>11</sup> Though, there are some cases of CVal stems, as shown below, which either do not undergo imbrication or only do so optionally.

- (34) a. tw-áá-sh-ááz-il-é ~ tw-áá-sí-il-è ‘we remained’ /tú-á-sí-al-il-é/  
 b. tw-áá-zw-íís-il-é ~ tw-áá-zw-íík-è ‘we dressed’ /tú-á-zú-ik-il-é/

One difference between the forms in (32) and (33) is that, while the bases in (33) are surely bimorphemic in that they exhibit the usual semantics of /-uk/ and /-ul/, there is no extensionless form \**ú-kú-zy-à*, and while *ú-kú-zw-à* ‘make porridge’ and *ú-kú-y-à* ‘to go’ do exist, they do not seem semantically related to the forms above. Next, we note that while the base in the verb in (33d) *ú-kú-yá-ál-à* ‘to close’ is arguably bi-morphemic, given the related verb *ú-kú-y-úúl-à* ‘to open’ with the reversive extension /-ul/, the former must be listed as an exception to the generalization noted above that CVVC verbs ending in /al/ trigger imbrication. Additionally, we see that another verb ending in /al/, *ú-kú-<sup>l</sup>sh-á<sup>l</sup>ál-à* ‘to remain’, surely related to *ú-kú-sh-à* ‘to leave’ (i.e. ‘leave’ (tr.) + intransitive /-al/ yields ‘to be left’ or ‘remain’), must somehow be marked as optionally triggering imbrication. This is also true for ‘to dress’ in (34b). In summary, then, bases of the shape CVVC will, in general, only undergo imbrication if either 1) they end in /al/ or 2) if they are bimorphemic CV-VC, where the CV base is independently attested.

To sum up this subsection, we have seen that there are a number of both segmental and prosodic factors which must be taken into account in order to determine whether imbrication is triggered. The main segmental constraint is that the base cannot end in a NC sequence. In general, imbrication will apply whenever the base meets at least one of the two criteria listed below. (The base is defined up to this point as the root plus any VC extension(s)—extensions which are a single V will be discussed below in §4.4 and §4.5.)

(35) Criteria for imbrication (at least one must be met):

- a. the base contains a root plus a VC extension
- b. a base contains at least two syllables

While most of the cases of imbrication which we have examined above meet both of the criteria listed in (35), it was argued that the forms in (32) only meet the criterion in (35a), while those in (17)-(19) only meet the criterion in (35b).

The only forms which meet the criterion in (35b), but which I have found resist imbrication are given below, and I assume that they must be lexically marked accordingly.<sup>12</sup>

- (36) a. tw-áá-pítáàny-il-é ‘we strolled’ /tú-á-pítaan-il-é/ \*twapitiine  
 b. tw-áá-vùngòòz-il-é ‘we mashed’ /tú-á-vungool-il-é/ \*twavungwiile  
 c. tw-áá-síísìis-il-é ‘we were idle’ /tú-á-síisiit-il-é/ \*twaasisisiite

Once it has been determined that the base meets the requirements for imbrication, then the /-i/ of the Perfective /-il/ is placed immediately before the final C of the base.

### 4.3 Secondary Imbrication

It should be noted that this process of imbrication has actually affected the realization of extended roots in tense/aspects not characterized by the Perfective /-il-e/ suffixes. This is shown below in several infinitival forms.

<sup>12</sup> Of course, some of these are undoubtedly polymorphemic historically. E.g. ‘to stroll’ has some obvious connection with *ú-kú-<sup>l</sup>pí<sup>l</sup>t-á* ‘to go’.

- (37) a. ú-kú-<sup>!</sup>só<sup>!</sup>pólól-à 'to untie'  
 b. ú-kú-<sup>!</sup>só<sup>!</sup>pólól-w-á 'to be untied'  
 c. ú-kú-<sup>!</sup>só<sup>!</sup>pólól-án-à 'to untie each other'  
 d. ú-kú-<sup>!</sup>só<sup>!</sup>pólw-éél-à 'to untie for'  
 e. ú-kú-<sup>!</sup>só<sup>!</sup>pólw-éésh-á 'to untie a lot'  
 f. ú-kú-<sup>!</sup>só<sup>!</sup>pólw-éésh-á 'to cause to untie'
- (38) a. ú-kú-lóóndólól-à 'to explain'  
 b. ú-kú-lóóndólól-w-á 'to be explained'  
 c. ú-kú-lóóndólw-éél-à 'to explain for'  
 d. ú-kú-lóóndólw-éésh-á 'to explain a lot'  
 e. ú-kú-lóóndólw-éésh-á 'to cause to explain'
- (39) a. ú-kú-zíík-úl-à 'to dig up'  
 b. ú-kú-zíík-úl-w-á ~ zíík-úl-íw-á 'to be dug up'  
 c. ú-kú-zíík-úl-án-à 'to dig up each other'  
 d. ú-kú-zííkw-ííl-à 'to dig up for'  
 e. ú-kú-zíík-úl-ísh-á 'to dig up a lot'  
 f. ú-kú-zííkw-íísh-á ~ ú-kú-zíík-úl-íísh-á 'to cause to dig up'
- (40) a. ú-kú-fúúng-úl-à 'to unlock'  
 b. ú-kú-fúúng-úl-w-á 'to be unlocked'  
 c. ú-kú-fúúng-úl-án-à 'to unlock each other'  
 d. ú-kú-fúúngw-ííl-à 'to unlock for'  
 e. ú-kú-fúúng-úl-ísh-á 'to unlock a lot'  
 f. ú-kú-fúúngw-íísh-á 'to cause to unlock'

In each case, when the applicative /-il/ is added to an existing base containing at least two syllables ending in [ul] or [ol], (whether this final VC be a transparent extension or not) the base changes to the shape that it takes before the Perfective /-il-e/ ending. (This does not affect CVC bases. E.g. /ú-ku-súl-il-a/ > ú-kú-<sup>!</sup>sú<sup>!</sup>l-íl-à 'to sculpt for' \*ukuswiila.) This imbricated base is not used when the passive or reciprocal extensions are added. The imbricated base is generally used when the causative extension is added (being optional in one case). When the intensive extension is added the forms with the transparent /-ul/ reversive extension, they do not use the imbricated base, whereas forms ending in /-ol/ do. While there is some variation, what is happening here clearly seems to be on analogy with happens in the imbricated forms, i.e. the fact that when /ziik-ul/ is put into the perfective, generally characterized by the /-íl-e/ suffix, and becomes [ziikwiile] is having an influence on the result of taking /ziik-ul/ and suffixing phonologically similar /-il-a/ to it.

Let us quickly review two possible analyses. The first would be to posit an /l/ deletion rule. While possible, the rule would be fairly complex. In addition to stipulating that the base end in /ul/ and contain at least two syllables, the /i/ which triggers the rule would need to belong to either the applicative or the causative, with various roots being exceptions to this. The second solution would be to posit two allomorphs of the reversive extension (viz. /-ul/ and /-u/) and roots ending in /ul/ or /ol/ (e.g. /sopolol/ and /sopolo/). The allomorph ending in /l/ would be the elsewhere case, with the /l/-less allomorph being used when certain conditions on the root and suffix obtain (basically the same conditions noted for the rule). I leave this as an open question.

As noted above there is a fair amount of variability in the morphological and phonological changes surrounding the imbrication process. As seen below, there are cases of roots ending in /ul/ (where this is not obviously analyzed as an extension synchronically) which only optionally use the imbricated base when the applicative is added.

- (41) a. ú-kú-sáákúl-à 'to comb'  
 b. ú-kú-sáákúl-íl-à ~ ú-kú-sáákw-ííl-à 'to comb for'
- (42) a. ú-kú-<sup>1</sup>pú<sup>1</sup>túl-à 'to slice'  
 b. ú-kú-<sup>1</sup>pú<sup>1</sup>túl-íl-à ~ ú-kú-pútw-ííl-à 'to slice for'
- (43) a. ú-kú-nyémúl-à 'to lift'  
 b. ú-kú-nyémúl-íl-à ~ ú-kú-nyémw-ííl-à 'to lift for'
- (44) a. ú-kw-éélúlúl-a 'to sift'  
 b. u-kw-eelulul-il-a ~ u-kw-eelulw-iil-a 'to sift for'

If the base does not end in /-ul/, no such change occurs, as seen in the forms below:

- (45) a. ú-kú-<sup>1</sup>zí<sup>1</sup>íngúlúk-íl-à 'to surround for'  
 b. ú-kú-lámúk-íl-à 'to greet for'  
 c. ú-kú-<sup>1</sup>kú<sup>1</sup>túmál-íl-à 'to keep quiet for'

#### 4.4 Imbrication and cosonant mutation

Having now defined the requirements on the base for imbrication, let us consider some forms which require additional discussion. First, as noted above in section 3.5, when the Perfective /-īl/ is added onto a base which contains the short causative /-i/, it is realized as [izy], as seen below in (46).

- (46) a. tw-áá-òòmv-ìiz-y-é 'we made wet' /tú-á-bomb-ī-īl-ī-é/  
 b. tw-áá-pís-ìiz-y-é 'we drove' /tú-á-pít-ī-īl-ī-é/  
 c. tw-á-ás-ìiz-y-é 'we lit' /tú-á-ak-ī-īl-ī-é/  
 d. tw-áá-cíimv-ìiz-y-é 'we won' /tú-á-címb-ī-īl-ī-é/  
 e. t-óóf-ìiz-y-é 'we frightened' /tú-á-óp-ī-īl-ī-é/  
 f. tw-áá-tálíimf-ìiz-y-é 'we elongated' /tú-á-tálimp-ī-īl-ī-é/

In each case the short causative /-i/ appears not only immediately following the root, but after the Perfective /-īl/ as well, resulting in the mutation of /l/ to [z]. The /-i/ then glides before the FV. The Perfective is also realized as [izy] after roots of the shape /CVCi/ where there is no synchronic evidence that the /i/ is the short causative. (The /l/ of the applicative is also realized as [zy] after these roots as shown in §3.5.)

- (47) a. tw-ééz-ìiz-y-é 'we tried' /tú-á-éli-īl-ī-é/  
 b. tú-úz-ìiz-y-é 'we asked' /tú-á-úli-īl-ī-é/  
 c. tw-áá-tef-ìiz-y-é 'we cried unnecessarily' /tú-á-tépi-īl-ī-é/  
 d. tw-áá-lóós-ìiz-y-é 'we mourned' /tú-á-lóosi-īl-ī-é/  
 e. tw-áá-cíinj-ìiz-y-é 'we slaughtered' /tú-á-cinji-īl-ī-é/

None of the forms in (46) and (47) has undergone imbrication. For (46f) this is because the base ends in NC. For the rest, the base does not meet either requirement in (35). It does not meet (35a) since the extension added to the root is /-i/ and therefore not of the shape VC. But why does it not meet (35b), since the short causative does add another vowel to the root? We will see below that this same question arises with respect to forms with the short passive /-u/. In short, while adding a VC extension (such as /-il/ or /-ik/) to a CVC root does make the base prosodically big enough to undergo imbrication, the addition of a V extension (such as /-i/ or /-u/) does not. Surely this is related to the fact that once a following vowel is added to the base, a CVC-VC base + V yields three syllables while a CVC-V base + V yields only two as the V extension will glide. Formally, one way to account for this is to allow all extensions (including the short causative and passive) to be part of what we define as the base, but when the base is being evaluated to determine whether or not requirement (35b) is met or not, any base-final V is extraprosodic in that calculation. Thus, in a form such as (46b), the base is /pít-i/. Requirement (35b) is not met because /i/, being base-final, will not be counted as a syllable in the calculation. The base is then determined to have a single syllable for the purposes of (35b) and therefore there is no imbrication. The /-il/ Perfective suffix will immediately follow the base.

It should be remembered from section 3.5, that when roots such as those shown in (46) take the applicative in a non /-il-e/ TAM (such as the infinitive), the vowel after the root is short.

- |      |    |                                  |                   |                      |
|------|----|----------------------------------|-------------------|----------------------|
| (48) | a. | ú-kú- <sup>!</sup> pí's-íz-y-á   | 'to drive for'    | /ú-ku-pít-i-il-i-a/  |
|      | b. | ú-kú-óómv-éz-y-á                 | 'to make wet for' | /ú-ku-omb-i-il-i-a/  |
|      | c. | ú-kw-áás-íz-y-á                  | 'to light for'    | /ú-ku-ak-i-il-i-a/   |
|      | d. | ú-kú- <sup>!</sup> cí'ímv-íz-y-á | 'to win for'      | /ú-ku-címb-i-il-i-a/ |
|      | e. | ú-kó- <sup>!</sup> óf-éz-y-á     | 'to frighten for' | /ú-ku-óp-i-il-i-a/   |

Since in (46) and (47) the suffixes added are /-il-e/, and in (48) they are /-il-a/ (both of which subsequently receive a /-i/ after the /l/ since the root has a causative on it) it is certainly appropriate to ask why the penult is long in (46) and (47), but short in (48). It should be recalled here that in section §3.5 we entertained two different analyses of the forms in (48). Hyman (1994) suggested that similar facts in Bemba could be accounted for by assuming “interfixation” whereby the causative /-i/ is first added to the root, causes mutation of the root-final consonant, after which the applicative is “interfixed” between the root and the causative. (I assume that Hyman would say that the /-il/ Perfective suffix would *not* be interfixed—rather it would trigger a “respelling” of /-i/, as discussed in some detail in §3.5.) Under the non-interfixation account presented the short causative /-i/ is added to both the root and the applicative /-il/. But how could the same set of rules (in the non-infixation account) produce a short vowel in (48), but a long vowel in (46)? This is illustrated below for the stems in (48b) and (46a).

- |      |    |                |    |               |                                     |
|------|----|----------------|----|---------------|-------------------------------------|
| (49) | a. | bomb-i-il-i-a  | b. | bomb-i-il-i-e | U.R.                                |
|      |    | bomv-i-iz-i-a  |    | bomv-i-iz-i-e | Consonant Mutation                  |
|      |    | oomv-y-iiz-y-a |    | oomv-i-iz-y-e | Gliding, /b/-Del, Nasal Demor, & CL |
|      |    | oomv-iz-y-a    |    | n/a           | y-deletion & shortening             |
|      |    | oomv-ez-y-a    |    | n/a           | Mid Vowel Harmony                   |

As can be seen, the crucial difference in these two forms is the causative /-i/ which follows the root will glide in the infinitival form, but not in the perfective form. This is because the vowel which follows the short causative is another CM-inducing /i/ in the Perfective and as such, will simply produce a long CM-inducing /ii/, whereas in the infinitive the CM-inducing /i/ is followed by a non-CM-inducing /i/ and will therefore glide. Therefore no y-deletion and therefore no shortening will apply in (49b), and the correct forms are predicted.

If the base ending in /i/ is longer than one syllable before the addition of the causative, then imbrication will of course occur as seen below.

- |      |    |                     |                   |                                 |
|------|----|---------------------|-------------------|---------------------------------|
| (50) | a. | tw-á-ánk-iiny-é     | ‘we divided’      | /tú-á-ánkan-i- <u>il</u> -i-é/  |
|      | b. | tw-áá-sókw-iiny-é   | ‘we waved’        | /tú-á-sokon-i- <u>il</u> -i-é/  |
|      | c. | tw-áá-zák-iizy-é    | ‘we made shiver’  | /tú-á-zakaz-i- <u>il</u> -i-é/  |
|      | d. | tw-ííng-iizy-é      | ‘we scored’       | /tú-á-ingil-i- <u>il</u> -i-é/  |
|      | e. | tw-áá-táizy-é       | ‘we thanked’      | /tú-á-taili- <u>il</u> -i-é/    |
|      | f. | tw-áá-tóót-w-iish-é | ‘we whispered’    | /tú-á-tóotoosi- <u>il</u> -i-é/ |
|      | g. | tw-áá-pák-iish-é    | ‘we bid farewell’ | /tú-á-pakat-i- <u>il</u> -i-é/  |

In a form such as (50b) the base is /sokon-i/. As mentioned above, a base-final V is not counted as a syllable. But even given that, there will be two syllables in this base and therefore requirement (35b) is met and imbrication will apply. Imbrication will place the /-i/ of the Perfective /-il/ before the last C of the base which is /n/, yielding /soko-i-n-i/. Gliding, compensatory lengthening and consonant mutation then apply, correctly producing [sokwiiñ].

When the applicative is added to forms such as those in (50), we see the short causative appearing after the root as well as after the applicative.

- |      |    |                    |                       |                                     |
|------|----|--------------------|-----------------------|-------------------------------------|
| (51) | a. | tw-ííngiz-iizy-é   | ‘we scored for’       | /tú-á-ingil-i-il-i- <u>il</u> -i-é/ |
|      | b. | tw-áá-pákis-iizy-é | ‘we bid farewell for’ | /tú-á-pakat-i-il-i- <u>il</u> -i-é/ |
|      | c. | tw-áá-táiz-iizy-é  | ‘we thanked for’      | /tú-á-taili-il-i- <u>il</u> -i-é/   |

#### 4.5 Passive Perfectives

Let us now turn to the realization of the Perfective in passives. As seen below, when a passivized CVC root is put into the Yesterday Past, the passive follows the /-il/ portion of the perfective.

- |      |    |                  |                     |                    |
|------|----|------------------|---------------------|--------------------|
| (52) | a. | yá-á-fúz-il-w-é  | ‘they were washed’  | /yá-á-ful-il-u-é/  |
|      | b. | yá-á-lás-i'l-w-é | ‘they were hit’     | /yá-á-lás-il-u-é/  |
|      | c. | yá-á-léés-il-w-é | ‘they were brought’ | /yá-á-léet-il-u-é/ |

The first thing we note about these forms is that no imbrication has applied. This was also true of the forms in (46) containing the short causative where the lack of imbrication was attributed to the fact that a base-final V does not count as a syllable when computing the size of the base for imbrication. If we assume that the passive is an extraprosodic part of the base in the forms in (52) then this would explain the lack of imbrication there as well. However, there is a major difference between the forms in (46) and those in (52). In the former, the Perfective /-il/ is realized after the root + short causative sequence, ultimately resulting in a long /i/ before the following consonant. In the forms in (52) the Perfective /-il/ is realized between the root and the passive /-u/.

One possible account of this is to assume that while the short causative is part of the base (even though it is an extraprosodic member of it), the passive is not. Given the generalization that /-il/ always follows the base,

this would account for the fact that /-il/ is found immediately after the root in (52) but not in (48). In this analysis the lack of imbrication in the forms in (52) is directly accounted for since the /-u/ is not part of the base.

What about roots of the shape CV(V)(N)Cu where /u/ is simply part of the root and not a synchronic passive? As can be seen below, for the following three roots of this shape, the /il/ occurs in the same position that it did in the passive forms in (52).

- |      |    |                     |                |                       |
|------|----|---------------------|----------------|-----------------------|
| (53) | a. | tw-áá-kúúmv-í'lw -é | 'we admired'   | (cf. ú-kú-'kú'úmbw-á) |
|      | b. | tw-áá-tém-í'lw -é   | 'we loved'     | (cf. ú-kú-'té'mw-á)   |
|      | c. | tw-áá-cééz-í'lw -é  | 'we were late' | (cf. ú-kú-'cé'élw-á)  |

The first two forms are obviously not passive forms, as they are transitive verbs. The third one is intransitive, and might derive historically as *ú-kú-'cé-'él-w-á* 'to be dawned on' (though my consultant did not feel that this was synchronically valid.) There are, however, three (non-passive) roots of the shape /(C)VCu/ where the Perfective /-il/ is found after the root-final /u/.<sup>13</sup>

- |      |    |               |                 |                      |
|------|----|---------------|-----------------|----------------------|
| (54) | a. | tw-á-ázw-íl-é | 'we helped'     | (cf. ú-kw-á'ázw-á)   |
|      | b. | t-úúvw-íl-é   | 'we understood' | (cf. ú-kú-'úvw-á)    |
|      | c. | tú-yúúvw-íl-é | 'we boasted'    | (cf. ú-kú-'yú'úvw-á) |

The account I have proposed here predicts that it is only the passive /-u/ which is not part of the base. Therefore a non-passive /u/ which is arguably part of the root, should precede the Perfective /-il/. (Hyman (1995) indicates that just this is true for neighboring Bemba.) Thus, the forms in (54) are directly accounted for, but the forms in (53) are not. Let me briefly contrast two possible analyses of these facts. One possible analysis would be to posit a morpheme boundary between the /u/ and the preceding C in the forms in (53). While semantically unmotivated, one could then maintain that any suffix /-u/ is defined as being outside the base even if this suffix was not the "passive" in the forms in (53), but rather some affix with empty semantics which is obligatorily subcategorized for by these few roots.

The second possible analysis would be to set up a difference between a closed and "superclosed" high back vowel, just as we have in the front high position (cf. §3.5). Under this account, the roots in (53) would end in /u/, while those in (54) would end in /u/. This undoubtedly has a certain amount of diachronic validity, since we know that historically both /i/ and /u/ induced mutation and the consonant preceding the [u] in the roots in the infinitive forms given in (54) (where the /-il/ is not present) is either [v] or [z] both of which are outputs of CM (of /b/ and /l/ respectively). (As noted in §3.5 both [v] and [z] are most commonly found in Cilungu before [i] and [u] as contrasted with other vowels.) On this account, one could maintain that a base cannot end in /u/ (though it could in /u/), and any such /u/ would therefore be defined as being outside the base. I must leave this as an open question.

If the base of the form containing a passive is multi-syllabic (whether it be mono or hetero-morphemic) prior to the addition of the passive, then imbrication will naturally apply and the passive is found after the base.

- |      |    |                     |                       |                         |
|------|----|---------------------|-----------------------|-------------------------|
| (55) | a. | yá-á-páápáàtiik-w-é | 'they were flattened' | /yá-á-páapaatik-il-u-é/ |
|      | b. | yá-ázim-w-é         | 'they were borrowed'  | /yá-á-ázim-il-u-é/      |
|      | c. | yá-á-lámwiik-w-é    | 'they were greeted'   | /yá-á-lamuk-il-u-é/     |

<sup>13</sup> The form in (54a) can also be pronounced *tw-á-ázw-ìiz-y-é*, where the short causative appears after the applicative suffix.

- |      |    |                    |                          |                       |
|------|----|--------------------|--------------------------|-----------------------|
| (56) | a. | yá-á-fúl-ìil-w-é   | ‘they were washed for’   | /yá-á-ful-il-ìl-u-é/  |
|      | b. | yá-á-léet-ìil-w-é  | ‘they were brought for’  | /yá-á-léet-il-ìl-u-é/ |
|      | c. | yá-á-zíik-ìil-w-é  | ‘they were buried for’   | /yá-á-ziik-il-ìl-u-é/ |
|      | d. | yá-á-lás-ìil-w-é   | ‘they were hit for’      | /yá-á-lás-il-ìl-u-é/  |
|      | e. | yá-á-fúl-ìs-ìi-w-é | ‘they were washed a lot’ | /yá-á-ful-isi-ìl-u-é/ |

As noted in section 2.2.2.4, the Passive is realized as [iw] (the long passive) and not simply [w] (the short passive) after many roots. (This is obligatory for some roots and optional for others.) When the long passive /-igu/ is present, imbrication is triggered since the base will have two syllables. The /-ì/ of the Perfective /-ìl/ winds up being placed immediately after the /i/ of /-igu/. This is consistent with the base containing the /-ig/ portion of the long passive /-igu/, but not the final /u/ of that suffix. This is indicated in the underlying representations below by having /-ìl/ appear between /g/ and /u/ of the long passive. This appears to constitute some evidence for considering the long passive to be bi-morphemic, i.e. /-ig-u/. The /-ig/, then acts like any other VC extension in forming part of the base, and the /-u/, as argued above, will be outside the base.

- |      |    |                      |                        |                             |
|------|----|----------------------|------------------------|-----------------------------|
| (57) | a. | tw-áá-fúw-ìiw-é      | ‘we were skinned’      | /tú-á-fuw-ig-ìl-u-é/        |
|      | b. | yá-á-fúny-ìiw-é      | ‘they were scratched’  | /yá-á-fuñ-ig-ìl-u-é/        |
|      | c. | yá-á-túúmp-ìiw-é     | ‘They were dipped’     | /yá-á-túmp-ig-ìl-u-é/       |
|      | d. | yá-á-lás-ìiw-é       | ‘they were hit’        | /yá-á-lás-ig-ìl-u-é/        |
|      | e. | yá-á-póny-ìiw-é      | ‘they were dropped’    | /yá-á-pón-ì-ig-ìl-u-é/      |
|      | f. | yá-á-wéèz-ìiw-é      | ‘they were returned’   | /yá-á-weel-ì-ig-ìl-u-é/     |
|      | g. | yá-á-kóónkòòns-ìiw-é | ‘they were knocked on’ | /yá-á-kónkonk-ì-ig-ìl-u-é/  |
|      | h. | yá-á-pís-íz-ìi-w-é   | ‘they were driven for’ | /yá-á-pít-i-il-ì-ig-ìl-u-é/ |
|      | i. | yá-á-ás-íz-ìi-w-é    | ‘they were lit for’    | /yá-á-ak-ì-il-ì-ig-ìl-u-é/  |

Both kinds of roots ending in /u/, discussed above in (53) and (54) which took different plain perfective patterns, exhibit the same pattern as the forms above in (57) when in the Passive Perfective.

- |      |    |                    |                      |                        |
|------|----|--------------------|----------------------|------------------------|
| (58) | a. | tw-áá-kúúmbw-ìiw-é | ‘we were admired’    | /tú-á-kúmbu-ig-ìl-u-é/ |
|      | b. | tw-á-ázw-ìiw-é     | ‘we were helped’     | /tú-á-ázu-ig-ìl-u-é/   |
|      | c. | tú-úvw-ìiw-é       | ‘we were understood’ | /tú-á-úvu-ig-ìl-u-é/   |

Certain verbs, whose passive in the infinitive is preferred to take /-u/ and not /-igu/, take the long passive in the perfective and exhibit the pattern seen above.

- |      |    |                      |                       |  |
|------|----|----------------------|-----------------------|--|
| (59) | a. | yá-á-káziing-ìiw-é   | ‘they were fried’     | (cf. ú-kú-káziing-w-á)                               |
|      | b. | yá-á-sáánsáant-ìiw-é | ‘they were scattered’ | (cf. ú-kú- <sup>1</sup> sá <sup>1</sup> ánsáant-w-á) |
|      | c. | yá-á-béléèng-ìiw-é   | ‘they were read’      | (cf. ú-kú- <sup>1</sup> bé <sup>1</sup> léèng-w-á)   |

Certain roots which can take either passive in the infinitive can also take either passive in the perfective.

- |      |                         |                         |                           |
|------|-------------------------|-------------------------|---------------------------|
| (60) | yá-á-tákààs-w-é ~ ìiw-é | ‘they were made smooth’ | (ú-kú-tákáás-w-á ~ -íw-á) |
|------|-------------------------|-------------------------|---------------------------|



## 4.6 Extension Reduplication

In certain cases, the morphology used to indicate the meaning of an extension will actually appear twice in the form. This is illustrated below in applicative forms of /CV/ roots. (The non-extended past forms are shown to the right in parentheses.)

- |      |    |                  |                   |                 |
|------|----|------------------|-------------------|-----------------|
| (61) | a. | yá-á-sí-íl-ìl-é  | ‘they ground for’ | (yá-á-sí-íl-é)  |
|      | b. | yá-á-fw-ííl-ìl-é | ‘they died for’   | (yá-á-fw-ííl-è) |
|      | c. | yá-á-pí-íl-ìl-é  | ‘they burnt for’  | (yá-á-pí-íl-è)  |
|      | d. | yá-á-té-él-ìl-é  | ‘stopped for’     | (yá-á-t-ííl-è)  |
|      | e. | yá-á-mw-éél-ìl-é | ‘they drank for’  | (yá-á-mw-ííl-è) |

The motivation behind the double realization of the applicative seems to be that the surface form of an imbricated applicative would otherwise wind up being homophonous with the corresponding form without the passive. To illustrate this, let us examine ‘they died for’ (61b). The non-applicative past form is /yá-á-fú-íl-é/ > *yá-á-fw-ííl-è*. The base of the applicative form is /fu-íl/. We saw above that in forms of the shape /CV-VC/ sometimes imbrication is triggered (32) and sometimes it is not (33). Were there no imbrication for ‘die for’ we would expect the segmental change /ya-a-fu-íl-il-e/ > \**yaafwiizile*, yet this is not attested. Were the form to undergo simple imbrication, this would mean that the /-i/ of /-íl/ would be inserted between the final V and C of the base /fu-íl/ yielding intermediate *ya-a-fu-i-i-l-e* and then *yafwiile*. But given a process presented in section 3.1.5 (and discussed in greater detail in section 10.4.5) whereby trimoraic syllables are pruned to two morae, this then becomes [yaafwiile] which is identical to the non-applicative form. It seems to be this pressure, to keep the non-applicative and applicative Perfective forms distinct, which leads to the forms presented in (61). They can be accounted for straightforwardly by assuming that the base of the past applicative contains the reduplicated applicative, i.e. /-il-il/ which is sometimes used as an extension in non-perfective form as well as seen below.

- |      |    |                                 |                     |
|------|----|---------------------------------|---------------------|
| (62) | a. | ú-kú-kúmb-à                     | ‘to stir’           |
|      | b. | ú-kú-kúmb-íl-íl-à               | ‘to smear medicine’ |
|      | c. | ú-kú-láánd-à                    | ‘to say’            |
|      | d. | ú-kú-láánd-íl-íl-à              | ‘to report’         |
|      | e. | ú-kú-nyé <sup>1</sup> p-á       | ‘to tie a knot’     |
|      | f. | ú-kú-nyé <sup>1</sup> p-él-él-à | ‘to fasten’         |

Additionally, there are a variety of verbs forms which appear to have a frozen /-ilil/ extension, as the form without this extension does not exist or relate semantically to the /-ilil/ form.

- |      |    |   |                        |
|------|----|---|------------------------|
| (63) | a. | ú-kú- <sup>1</sup> cí <sup>1</sup> ngílíl-à | ‘to avoid, defend’     |
|      | b. | ú-kw-í <sup>1</sup> ímílíl-à                | ‘to stand up’          |
|      | c. | ú-kú-sáámbílíl-à                            | ‘to learn’             |
|      | d. | ú-kú-sííntílíl-à                            | ‘to lean, support’     |
|      | e. | ú-kú-súkílíl-à                              | ‘to accompany, escort’ |

Returning to ‘they died for’ in (61b), input /fu-ilil-il-e/ becomes *ya-a-fu-ili-i-l-e* which then yields *yaafwiile*. Note that this analysis correctly predicts the realization of the mid vowels in ((61d-e) above. The

Perfect of /ya-a-te-ilil-il-e/ becomes *ya-a-t-eelēl-il-e* which is imbricated to *yateeleile*, which after vowel deletion and compensatory lengthening becomes *yateeliile*.

The reduplicated applicative is also used in the applicative passives of CV roots, as seen below.

- (64) a. yá-á-lí-ilil-w-é ‘they were eaten for’ /yá-á-lí-ilil-il-u-é/  
 b. yá-á-sí-ilil-w-é ‘they were ground for’ /yá-á-sí-ilil-il-u-é/

In the plain passives, the passive extension /-igu/ used in the infinitival forms is reduplicated.

- (65) a. vy-áá-lí-íw-iw-é ‘they (C8) were eaten’ /ví-á-lí-igu-ig-il-u-é/  
 b. vy-áá-sí-íw-iw-é ‘they (C8) were ground’ /ví-á-sí-igu-ig-il-u-é/  
 c. yá-á-mw-éèw-iw-é ‘it (C6) was drunk’ /yá-á-mo-igu-ig-il-u-é/

Another set of forms which seem to exhibit a double marking are bases of two or more syllables which end in [ul] or [ol]. Below are some examples. In each case there are two acceptable variants with the first being somewhat preferred.

- (66) a. tw-áá-zíik-wiil-é ‘they dug up’ /tú-á-ziik-ul-il-é/  
 b. tw-áá-zíikw-iilil-é ~ tw-áá-zíik-ùl-iil-é ‘they dug up for’  
 (67) a. tw-áá-pútw-iil-é ‘they cut’ /tú-á-pútul-il-é/  
 b. tw-áá-pútw-iilil-é ~ tw-áá-pútul-iil-é ‘they cut for’  
 (68) a. tw-áá-nyémw-iil-é ‘they lifted’ /tú-á-ñemul-il-é/  
 b. tw-áá-nyémw-iilil-é ~ tw-áá-nyémul-iil-é ‘they lifted for’  
 (69) a. tw-áá-lóòndòlw-iil-é ‘they explained’ /tú-á-londolol-il-é/  
 b. tw-áá-lóòndòlw-èèlil-é ~ tw-áá-lóòndòlòl-iil-é ‘they explained for’

First, we note that the second variant in each case represents the normal imbrication pattern. E.g. if we imbricate /ziik-ul-il/ with the /-i/ infixed before the final C of the base, we get *ziikuliile*. But what of the other form? As noted above in section 4.3, bases such as those in (66)-(69) actually take on the [CV(V)Cw] shape before the applicative and causative extensions in non-perfective tenses due to secondary imbrication. (E.g. *ú-kú-<sup>1</sup>pú<sup>1</sup>tw-iil-à* ‘to cut for’.) We noted above that this could be accomplished either by rule or by lexical allomorphy. Given the application of this rule (or allomorphy) /putul-il/ becomes [putwiil]. If we then infix /-i/, however, we get [putwiiil] which becomes [putwiil], which is homophonous to the non-applicative form. Therefore the use of the reduplicated applicative /-ilil/ is triggered. Thus, /putul-ilil/ becomes [putwiilil] via secondary imbrication, and then primary imbrication applies, inserting /-i/ before the base-final /l/, yielding the correct output [putwiilil].

Just as in the non-perfective case (cf. (37)-(40)), these /ul/ (or /ol/) final forms only exhibit the [w]-final allomorph of the base when followed by the applicative ((66)-(69)) or the causative:

- (70) a. yá-á-zíik-wiish-é ‘they made something get dug up’ /yá-á-ziik-ul-iis-il-é/  
 b. yá-á-zíik-ùl-iish-é ‘they dug up a lot’ /yá-á-ziik-ul-is-il-é/  
 c. yá-á-zíik-ùl-iin-é ‘they dug up each other’ /yá-á-ziik-ul-an-il-é/  
 d. yá-á-zíik-ùl-iw-é ‘they were dug up’ /yá-á-ziik-ul-ig-il-u-é/

- (71) a. yá-á-fúùng-wiish-é ‘they made something get unlocked’ /yá-á-fung-ul-iisi-il-é/  
 b. yá-á-fúùng-ùl-iish-é ‘they unlocked a lot’ /yá-á-fung-ul-isi-il-é/  
 c. yá-á-fúùng-ùl-iìn-é ‘they unlocked each other’ /yá-á-fung-ul-an-il-é/  
 d. yá-á-fúùng-ùl-iìw-é ‘they were unlocked’ /yá-á-fung-ul-ig-il-u-é/

Next let us consider the forms below, all of which contain the short causative.

- (72) a. yá-á-póny-iìzy-é ‘they dropped’ /yá-á-pón-i-il-i-é/  
 b. yá-á-póny-iz-iìzy-é ‘they dropped on / for’ /yá-á-pón-i-il-i-il-i-il-é/  
 (73) a. yá-á-tííny-iìzy-é ‘they frightened’ /yá-á-tiin-i-il-i-é/  
 b. yá-á-tííny-iz-iìzy-é ‘they frightened for’ /yá-á-tiin-i-il-i-il-i-il-é/  
 (74) a. yá-á-wéèz-iìzy-é ‘they returned (something)’ /yá-á-weel-i-il-i-é/  
 b. yá-á-wéèz-èz-iìzy-é ‘they returned (something) for’ /yá-á-weel-i-il-i-il-i-il-é/  
 (75) a. yá-á-óòmv-iìzy-é ‘they made (something) wet’ /yá-á-bomb-i-il-i-é/  
 b. yá-á-óòmv-èz-iìzy-é ‘they made (something) wet for’ /yá-á-bomb-i-il-i-il-i-il-é/

The plain causatives above have the same structure as those already discussed in (46). In each case the root is followed by the causative /-i/ and these comprise the base. The Perfective /-il/ will follow the base and a copy of the causative /-i/ is placed after the Perfective (just as it is in non-Perfective cases). But what about the applicative causative perfectives? If we began, e.g. with the causative applicative base /weel-i-il-i/ for (74b) and then place the /-i/ of the Perfective /-il/ before the last C, this would ultimately yield weel-i-i-i-l-i > [weeziizye], which, as can be seen, is the pronunciation of the (non-applicative) causative perfective. To avoid this homophony, the language again takes the strategy of using the reduplicated applicative /-ilil/. This is illustrated below.

- (76) /oomb-i-il-il/ Input Base with reduplicated applicative  
 oomb-i-il-i-il-i Insertion of /-i/ after each VC suffix  
 oomb-i-il-i-i-i-l-i-e Imbrication (placement of /-i/ before last C of base)  
 oomv-i-iz-i-i-i-z-i-e CM  
 oomv-y-iiz-i-i-i-z-y-e Gliding, Deletion & CL  
 oomv-iz-i-i-i-z-y-e y-deletion before [i] with shortening (cf. §3.5)  
 oomv-ez-i-i-i-z-y-e Mid Vowel Harmony

Let us now consider the following forms:

- (77) a. tw-á-ánkĩny-é ‘we divided’ /tú-á-ánkan-i-ĩl-é/  
 b. tw-á-ánkány-ìizy-é ~ tw-á-ánkány-iz-ìizy-é ‘we divided for’ /tú-á-ánkan-i-ĩl-i-ĩl-é/
- (78) a. tw-áá-sókw-ĩny-é ‘we waved’ /tú-á-sókon-i-ĩl-é/  
 b. tw-áá-sókòny-ìizy-é ~ tw-á-á-sókóny-iz-ìizy-é ‘we waved for’ /ú-kú-sókón-i-ĩl-i-ĩl-é/

For these two verbs there are two acceptable variants for the causative applicatives listed in (b). The first one listed for each is the one which results from normal imbrication of a form with a single /-il/ applicative extension. The second one results from adding the reduplicated /-il-il/ extension. What may be happening here is that speakers, who must use the /-il-il/ applicative on monosyllabic bases with the short causative to distinguish the applicative perfective from the non-applicative perfective (cf. (72)-(75)), are generalizing this into larger multi-syllabic bases even though the applicative perfect (marked by a single applicative /-il/) is in fact different from the simple perfect.

Let us now consider the reciprocal forms of verbs with a causative /-i/. We see below that in certain cases there are two possible attestations:

- (79) a. yá-á-kóónkóònsi-ìn-é ~ ‘they knocked each other’ /yá-á-kónkont-i-an-ĩl-é/  
 b. yá-á-kóónkóònsh-àány-ìn-é /yá-á-kónkont-i-an-i-an-ĩl-é/  
 c. ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóónsh-áány-á ‘to knock each other’ /ú-ku-kónkont-i-an-i-a +H/
- (80) a. yá-á-sí-ìn-é ~ ‘they lit each other’ /yá-á-ak-i-an-ĩl-é/  
 b. yá-ásh-àány-ìn-é /yá-á-ak-i-an-i-an-ĩl-é/  
 c. ú-kw-áásh-áány-á ‘to light each other’ /ú-ku-ak-i-an-i-a/
- (81) a. í-íngíz-ìn-é ~ ‘they made each other enter’ /yá-á-íngil-i-an-ĩl-é/  
 b. í-íngíz-y-àány-ìn-é /yá-á-íngil-i-an-i-an-ĩl-é/  
 c. ú-kw-í<sup>1</sup>íngíz-y-áány-á ‘to make each other enter’ /ú-ku-ingil-i-an-i-a +H/

In other cases, there is a single preferred form, as illustrated below (which takes the same pattern as the second possibility in the cases above).

- (82) a. y-óóf-y-àány-ìn-é ‘they frightened each other’ /yá-á-óp-i-an-i-an-ĩl-é/  
 b. yá-óómv-y-àány-ìn-é ‘they made each other work’ /yá-á-bómb-i-an-i-an-ĩl-é/  
 c. yá-á-písh-àány-ìn-é ‘they drove each other’ /yá-á-pít-i-an-i-an-ĩl-é/  
 d. yá-á-táíz-y-àány-ìn-é ‘they thanked each other’ /yá-á-táil-i-an-i-an-ĩl-é/

The first alternative (given in (a)) in the forms in (79)-(81) basically comes out as expected. In each case imbrication places the /-i/ infix before the last consonant of the base, which is the /n/ in /-an/. After vowel deletion [iin] results in each case. We noted in §3.5 that in forms with a short causative, an additional /-i/ is generally found after subsequent extensions. However, it was pointed out that in the case of the reciprocal /-an/, the /-i/ is only placed after it if the reciprocal immediately precedes the FV; in all other positions /-i/ is not in fact added after it. (E.g. ú-kú-<sup>1</sup>tí<sup>1</sup>iny-án-ísh-áán-y-á (\*ú-kú-<sup>1</sup>tí<sup>1</sup>iny-ány-ísh-áán-y-á) ‘to frighten each other a lot’.) In the Perfective (a,b) forms above, the /-i/ must not be present after the rightmost /-an/; otherwise the form would end in [inye], but it does not. Since the rightmost /-an/ does not immediately precede the FV in the UR, no /-i/ is added after it. Additionally, we have seen that in non-imbricated Perfectives, a short causative after the root triggers the presence of an additional short causative after the Perfective /-il/ ((72a)-(75a)).

However, forms such as those in (82) show that /-i/ must not in fact be placed after the underlying Perfective suffix, as such would trigger palatalization of the /n/ of /-an/, something which must not occur.

The reduplicated /-an-an/ is added not only when the short causative /-i/ is present, but whenever the pre-reciprocal stem ends in a CM-inducing /-i/. For instance, such is the case with the Intensive /-isi/, as seen in (83), or the Long Causative /-iisi/ as seen in (84).

- (83) y-úúm-ísh-ààn-ììn-é ‘they beat each other severely’ /yá-á-um-isi-an-i-an-ìl-é/  
 (84) a. yá-á-lí-ísh-ààny-ììn-é ‘they fed each other’ /yá-á-lí-isi-an-i-an-ìl-é/  
 b. yá-á-mány-ísh-ààny-ììn-é ‘they let each other know’ /yá-á-máñ-isi-an-i-an-ìl-é/  
 c. yá-á-lól-èèsh-ààny-ììn-é ‘they looked at each other’ /yá-á-lol-isi-an-i-an-ìl-é/

#### 4.7 Remaining Issues

The final case of imbrication which we will examine is the set of forms which contain the short passive, the applicative and the reciprocal. First, we see below that applicative reciprocals of non-causative forms behave straightforwardly.

- (85) a. yá-á-fúl-il-ììn-é ‘they washed for each other’ /yá-á-ful-il-an-ìl-é/  
 b. yá-á-páápáatik-il-ììn-é ‘they flattened for each other’ /yá-á-páapaatik-il-an-ìl-é/  
 c. yá-á-pékèt-èl-ììn-é ‘they inspected for each other’ /yá-á-pekèt-il-an-ìl-é/

It turns out, however, that when the applicative and reciprocal extensions are added to a root followed by the short causative, there is quite a bit of variation in terms of the surface imbrication patterns. The infinitives are given in the (a) forms below and the possible Perfective forms are given below.

- (86) a. ú-kú-<sup>1</sup>pí's-íz-y-áán-y-á ‘to drive for each other’ /ú-ku-pít-i-il-i-an-i-a +H/  
 b. yá-á-písh-áány-ìiz-y-é ~ ‘they drove for each other’  
 c. yá-á-pís-íz-ààn(y)-ìizy-é ~  
 d. yá-á-písh-áány-ìiz-ìizy-é  
 (87) a. ú-kw-í<sup>1</sup>ngíz-íz-y-áán-y-á ‘to score for each other’ /ú-ku-íngil-i-il-i-an-i-a +H/  
 b. í-íngíz-y-ààn(y)-ìiz-y-é ~ ‘they scored for each other’  
 c. í-íngíz-y-ààn(y)-ìiz-ìiz-y-é  
 (88) a. ú-k-ó<sup>1</sup>óf-éz-y-áán-y-á ‘to frighten for each other’ /ú-ku-óp-i-il-i-an-i-a +H/  
 b. y-óóf-y-áán-ísh-ààny-ìizy-é ~ ‘they frightened for each other’  
 c. y-óóf-y-áán-iz-ìizy-é ~  
 d. y-óóf-y-áán-is-ìizy-é ~  
 e. y-óóf-y-áán-iz-àny-ìizy-é  
 (89) a. ú-kú-<sup>1</sup>kó<sup>1</sup>ónkóóns-éz-y-áán-y-á ‘to knock for each other’ /ú-ku-kónkont-i-il-i-an-i-a +H/  
 b. yá-á-kóónkóóns-iz-y-áány-ìizy-é ‘they knocked for each other’  
 (90) a. ú-kú-<sup>1</sup>tí<sup>1</sup>íny-íz-y-áán-y-á ‘to frighten for each other’ /ú-ku-tiin-i-il-i-an-i-a +H/  
 b. yá-á-tííny-ísh-ààny-ìizy-é ‘they frightened for each other’

- (91) a. ú-kú-<sup>1</sup>fúny-<sup>1</sup>íz-y-áán-y-á                      ‘to scratch for each other’                      /ú-ku-fúnj-i-l-i-an-i-a +H/  
 b. yá-á-fúny-áán-íz-ìizy-é                      ‘they scratched for each other’
- (92) a. ú-kú-<sup>1</sup>cí<sup>1</sup>ínj-íz-y-áán-y-á                      ‘to slaughter for each other’                      /ú-ku-cínj-i-l-i-an-i-a +H/  
 b. yá-á-cíínj-áány-ìizy-é                      ‘slaughter for each other’

As can be seen there is considerable variation in the realization of these applicative reciprocals. While I will not attempt a full accounting of the variation exemplified by the forms above, several generalizations can be noted. First, unlike the applicative reciprocals of the non causatives, where the applicative precedes the causative, in the applicative reciprocals of the causatives, the applicative is the last extension added and is therefore always preceded by the reciprocal. The patterns of the forms in (86)-(92) include the following. (It should be kept in mind that the usual rules of /-i/ insertion after each extension apply.)

- (93) a. Reciprocal – Applic  
 b. Reciprocal – Reduplicated Applicative  
 c. Long Causative - Reciprocal –Applicative  
 d. Reciprocal – Long Causative – Reciprocal – Applicative  
 e. Applicative – Reciprocal - Applicative

Finally, it should be noted that there are a few verbs with irregular imbricated realizations, although the regular pattern is attested as well. (The infinitive form of the verb is given for comparison purposes.)<sup>14</sup>

- (94) a. yá-á-wéénì ~ yá-á-lóz-ìl-é                      ‘they saw’                      (ú-kú-lól-à)  
 b. á-á-zwíítè ~ yá-á-zwááz-ìl<sup>1</sup>é                      ‘they wore’                      (ú-kú-<sup>1</sup>zwá<sup>1</sup>ál-à)  
 c. yá-á-íí<sup>1</sup>zì ~ yá-á-lííl-è ~ yá-á-lááz-ìl-<sup>1</sup>é                      ‘they lay down/slept/spent night’                      (ú-kú-<sup>1</sup>lá<sup>1</sup>ál-à)  
 d. yá-à-kwéétí                      ‘they had’ (Far Past)                      (ú-kú-<sup>1</sup>kwá<sup>1</sup>át-à)

When an extension is added to such roots, the regular imbrication patterns obtain.

- (95) a. yá-á-lól-ìin-é                      ‘they saw each other’                      (ú-kú-lól-án-à)  
 b. c-áá-lól-ìik-é                      ‘it was seen’                      (ú-kú-lól-ík-à)  
 c. yá-á-cí-zwáál-ìish-é                      ‘they wore it a lot’                      (ú-kú-<sup>1</sup>zwá<sup>1</sup>ál-ìsh-á)  
 d. c-áá-zwááz-ìil-w-é                      ‘it was worn’                      (ú-kú-<sup>1</sup>zwá<sup>1</sup>ál-w-á)

<sup>14</sup> As these Perfective forms are highly suppletive, it is not clear whether the word-final /i/ should be analyzed as a FV or not. The only other place where /i/ occurs at the end of a verb is in plural imperatives. E.g. *fùl-ìini* ‘wash (pl.)!’ (See §5.3.10)

## CHAPTER 5: TONOLOGY OF FINITE VERBS

With an introduction to Cilungu verbal morphology and segmental phonology behind us, we now undertake a presentation and analysis of language's tonology. We will begin by examining the finite verbal system. We will see that, tonally, verb tenses fall into one of two categories, with the second category further divided into two categories. For many tenses/aspect/moods (TAMs) in Cilungu, the surface tonal pattern is determined directly from the combination of underlying tones contributed by each of the various segmental morphemes which comprise the verb. There are many TAMs, however, where robust evidence for an additional H tone is found. It turns out that a process by which a High tone (referred to variously in the literature as a “melodic,” “grammatical” or “suffixal” High) is added to the verbal stem in certain TAMs has been noted in the analysis of many Bantu languages. (See, among others, Goldsmith (1987), Odden (1987), Hyman & Katamba (1993), and Hyman & Ngunga (1994).) Furthermore, as is the case in other Bantu languages this additional H may behave (i.e. dock and spread) one way in some TAMs and in another way in others. (E.g., Haya in Hyman & Byarushengo (1984), Ekegusii in Bickmore (1997, 1999), and Namwanga in Bickmore (2000a).) This is true in Cilungu. We will see below that in one set of TAMs involving this melodic H, the H surfaces on the Final Vowel of the verb. In another set of TAMs, the H surfaces on the second and subsequent TBUs of the verb stem. Each of these three patterns will be discussed in turn as we describe the tonology of the individual TAMs in Cilungu.

### 5.1 TAMs with no melodic H

#### 5.1.1 Present Progressive

##### 5.1.1.1 Underlying tones and H tone spreading

We begin our discussion of the finite verbal system by examining the Present Progressive which exhibits many productive tonological processes. It's morphological shape is summarized in (1).

- (1) Subject Marker – ku – (Object Marker) – Root – (Extensions) – a

Examples of all six class 1 and 2 human subject markers are given below:

- |     |    |                 |                                 |
|-----|----|-----------------|---------------------------------|
| (2) | a. | n-kú-mú-zíík-à  | ‘I am burying him/her’          |
|     | b. | ú-kú-mú-zíík-à  | ‘you are burying him/her’       |
|     | a. | à-kú-mú-zíík-à  | ‘he/she is burying him/her’     |
|     | c. | tú-kú-mú-zíík-à | ‘we are burying him/her’        |
|     | d. | mú-kú-mú-zíík-à | ‘you (pl.) are burying him/her’ |
|     | e. | yá-kú-mú-zíík-à | ‘they are burying him/her’      |

The Present Progressive conjugation of many verbs in the language—approximately half of them—share this same tone pattern—all TBUs are High except the last one which is low. (The only exception to this is the 3 sg. subject marker, which itself surfaces as low and will be discussed further below (§5.1.1.6) as well as in section 10.7.) This tone pattern is further illustrated below with verbs containing a 1<sup>st</sup> person plural subject marker, a 3 sg. object marker and stems of different prosodic shapes.

- (3)
- |    |                     |                               |
|----|---------------------|-------------------------------|
| a. | tú-kú-mú-fúl-à      | ‘we are washing him/her’      |
| b. | tú-kú-mú-fúl-íl-à   | ‘we are washing for him/her’  |
| c. | tú-kú-mú-lámúk-à    | ‘we are greeting him/her’     |
| d. | tú-kú-mú-nyémúl-à   | ‘we are lifting him/her’      |
| e. | tú-kú-mú-súkíl-íl-à | ‘we are accompanying him/her’ |
| f. | tú-kú-mú-swéél-él-à | ‘we are brewing for him/her’  |

There is one other tonal pattern exhibited by verbs in this tense/aspect. This is illustrated first for the verb ‘to bring’ with the 6 human subject markers, and then by a variety of verbs, all conjugated in the 1<sup>st</sup> person plural.

- (4)
- |    |                              |                                  |
|----|------------------------------|----------------------------------|
| a. | ín-kú-mù-léét-à              | ‘I am bringing him/her’          |
| b. | ú-kú-mù-léét-à               | ‘you are bringing him/her’       |
| c. | à-kú-mú- <sup>1</sup> léét-à | ‘he/she is bringing him/her’     |
| d. | tú-kú-mù-léét-à              | ‘we are bringing him/her’        |
| e. | mú-kú-mù-léét-à              | ‘you (pl.) are bringing him/her’ |
| f. | yá-kú-mù-léét-à              | ‘they are bringing him/her’      |
- (5)
- |    |                     |                              |
|----|---------------------|------------------------------|
| a. | tú-kú-mù-lás-à      | ‘we are hitting him/her’     |
| b. | tú-kú-mù-lás-íl-à   | ‘we are hitting for him/her’ |
| c. | tú-kú-mù-léét-à     | ‘we are bringing him/her’    |
| d. | tú-kú-mù-swéél-él-à | ‘we are fishing for him/her’ |
| e. | tú-kú-mù-sópólól-à  | ‘we are untying him/her’     |
| f. | tú-kú-mù-páápátík-à | ‘we are flattening him/her’  |

As can be seen the overall tone pattern of the forms in (3) are different from those in (5). In each of the forms in (3), the first two syllables are High and the following one (the 3 sg. object /mu-/) is Low. (The only exception to this generalization is the 3 sg. form, to be discussed further in §5.1.1.6.) The stem-initial TBU of the forms in (5) is High as are all subsequent TBUs except the final one which is Low.

The tonal patterns found thus far can be accounted for straightforwardly if we assume that some verb roots are underlyingly H-toned while others are not, a distinction which is common within Bantu (Guthrie 1967-71, Meeussen 1967). Following Stevick (1969), Pulleyblank (1986), Hyman & Byarushengo (1984) and others, I assume that this tonal contrast is structurally one of High versus toneless, as we will see plenty of evidence that Low tones play no active role in the phonology. As is the case with other Bantu languages where tone is contrastive on verb roots, there is no further positional tonal contrast, i.e. there is no evidence that within H-toned roots, some should be set up with a H on the first TBU, while others should be set up with a H on the second TBU, etc. All H-toned roots of the shape CVVC behave identically, all H-toned roots of the shape CVCVC behave identically, etc. This raises an interesting analytical question, viz. how should the H-tone be represented underlyingly? Should it, e.g. always be linked to the first mora of the root, or the syllable, or should it be floating, indicating it is a property of the morpheme and not of any particular TBU? If the latter approach is taken, I assume that the very first tonological process would link this floating H to the first TBU of the root. To simplify the discussion that follows, I will assume that underlyingly roots are either toneless or have one H tone, which is linked to the first TBU of the root.<sup>1</sup>

<sup>1</sup> The question as to whether the underlying H should link to just the first mora or both morae of a root with an initial bimoraic syllable is addressed in further detail in §10.6.



In the analysis of the forms in (2)-(3) I assume that all extensions, the 3 sg. object /mu-/ and the Final Vowel /-a/ are underlyingly toneless. The stem tone patterns in (4)-(5) can then be accounted for assuming a process whereby a stem H is realized on all but the final TBU of the stem in these isolation forms. What, then, of the H-toned TBUs within the stems of (2)-(3), where the stem-initial TBU is toneless? To account for this I suggest that the 1 pl. subject marker /tu-/ is underlyingly H-toned. When a H tone is not followed by any other H within the word (as is also the case of the root H in (4)-(5)) it will be realized on every subsequent TBU except the word-final one. However, as is the case with the first H in the forms in (4)-(5), where the pre-prefix H is not the rightmost H in the word, it will only spread one TBU to the right.

The following is a summary of the analysis thus far:

(6) Lexical tone:

- a. Subject Marker /tu-/ is H-toned; roots in (4)-(5) bear a H on the initial TBU
- b. All other morphemes thus far presented are toneless

(7) Tone realization:

- a. H realized on TBU which bore it
- b. Rightmost H also realized on every subsequent TBU except word-final one (unbounded spreading, subject to phrase-final extraprosodicity)
- c. Other H's are also realized on following TBU (bounded spreading)

It turns out that most of the other human subject markers exhibit the same tonal behavior as the 1 pl. marker /tu-, and therefore should be set up underlyingly as H-toned. As can be seen in (2)-(5), the sole exception to this is the 3 sg. /a-/ which exhibits a slightly different behavior and will be discussed further below (§5.1.1.6). I also note here that all of the extensions (cf. §2.2.2) exhibit the same behavior as the applicative /-il/, and should therefore be set up as toneless. A number of extensions illustrating this are given below.

- |     |                     |                             |                |
|-----|---------------------|-----------------------------|----------------|
| (8) | a. tú-kú-fúl-án-à   | ‘we are washing each other’ | (reciprocal)   |
|     | b. tú-kú-fúl-ík-à   | ‘we are washed’             | (stative)      |
|     | c. tú-kú-fúl-ál-à   | ‘we are washing ourselves’  | (reflexive)    |
|     | d. tú-kú-zíík-úl-à  | ‘we are digging out’        | (reversive)    |
|     | e. tú-kú-páánd-úk-à | ‘we are becoming split’     | (intransitive) |
|     | f. tú-kú-pét-ám-à   | ‘we are bent’               | (intransitive) |

Let us next consider forms (again exemplified with a 1 pl. SM) without the 3 sg. object marker.

(9) Present Progressive with toneless roots

- a. tú-kú-fúl-à ‘we are washing’
- b. tú-kú-fúl-íl-à ‘we are washing for’
- c. tú-kú-lámúk-à ‘we are greeting’
- d. tú-kú-nyémúl-à ‘we are lifting’
- e. tú-kú-súkíl-íl-à ‘we are accompanying’
- f. tú-kú-swéél-él-à ‘we are brewing for’

(10) Present Progressive with H-toned roots

- |    |                                 |                      |
|----|---------------------------------|----------------------|
| a. | tú-kú- <sup>1</sup> lás-à       | ‘we are hitting’     |
| b. | tú-kú- <sup>1</sup> lás-íl-à    | ‘we are hitting for’ |
| c. | tú-kú- <sup>1</sup> léét-à      | ‘we are bringing’    |
| d. | tú-kú- <sup>1</sup> swéél-él-à  | ‘we are fishing’     |
| e. | tú-kú- <sup>1</sup> sópólól-à   | ‘we are untying’     |
| f. | tú-kú- <sup>1</sup> páápáátík-à | ‘we are flattening’  |

In (9) we see that the overall tone pattern is exactly the same as it was in (3). The tone pattern of the forms in (10) is very similar to the one found in (5), i.e. the root H tone is realized on all stem TBUs except the final one and the H from the Subject Marker is realized on that TBU as well as the following one. One element that is new within these forms, however, is the presence of a phonetic downstep, orthographically indicated by a raised exclamation point, which signals that the H-toned TBU following the downstep mark is realized on a lower pitch than the H-toned TBU which precedes it, but not as low as a phonological Low. In each of the forms in (10), then, the first two, pre-stem TBUs are realized as High, as they were in (5). The first TBU of the stem in each of the forms in (10) is realized as a downstepped H, and this H persists through the penultimate syllable, the final syllable being Low-toned.<sup>2</sup>

A question, then, immediately arises as to how to structurally represent the downstep. While downsteps in some languages are profitably represented by the presence of a floating L tone between two H’s (cf. Pulleyblank 1986), I will argue that L tones play no role in Cilungu phonology and should therefore be underspecified. For instance, if the underlying contrast were H vs. L (or if L were introduced by an early rule), then our rule of unbounded High tone spread would have to delink each and every L attached to the many TBUs it spreads to—something surely unnecessary. To structurally account for the phonetic downstep, then, I follow the general lines of Odden’s (1986) analysis of Kishambaa, and assume that this language simply tolerates structural OCP violations in the output of the phonology. When the phonetic component encounters two consecutive TBUs linked to distinct H’s, a downstep is realized between them. One way to handle this is to simply assume that every High Tone Span initiates a downstep within the phonetic component. To illustrate this, I present my proposed input and output representations of (2c) and (10e) below:

(11)	a.	tu-ku-mu-ziik-a	b.	tu-ku-sopolol-a	Input
		H		H	
		tu-ku-mu-ziik-a		tu-ku- sopolol-a	Output
		\ \ / //		\ / \   /	
		H		H H	
		tú-kú-mú-zíík-à		tú-kú- <sup>1</sup> sópólól-à	P.R.
		‘we are burying him/her’		‘we are untying’	

In (11b) the H from the preprefix has spread onto the following TBU, causing an OCP violation, as the second TBU following the pre-prefix is linked to a H tone. Each span of TBUs linked to a single H will be

<sup>2</sup> That the binary spreading presented here is truly phonological and not e.g. simply a late realization of a monomoraic H tone is discussed and defended in §10.4.1.

realized on a slightly lower pitch than the previous span of TBUs linked to a single H. When any number of phonetically Low TBUs (resulting from phonologically toneless TBUs) intervenes between two H-toned TBUs (as was the case in (4)-(5)), then there will be some “downdrift.” But when no L-toned TBU intervenes between the two High Tone Spans, then a (non-automatic) phonetic downstep will be realized between the two.

The contrastive nature of tone on verbal roots is most dramatically illustrated by minimal pairs in the language, which I present below.<sup>3</sup>

- |      |                                |                                       |
|------|--------------------------------|---------------------------------------|
| (12) | a. tú-kú-sh-à                  | ‘we are grinding’                     |
|      | b. tú-kú- <sup>l</sup> sh-à    | ‘we are leaving’                      |
| (13) | a. tú-kú-zw-à                  | ‘we are leaking/bleeding’             |
|      | b. tú-kú- <sup>l</sup> zw-à    | ‘we are making porridge’              |
| (14) | a. tú-kú-kál-à                 | ‘we are buying’                       |
|      | b. tú-kú- <sup>l</sup> kál-à   | ‘we are cutting the skin’             |
| (15) | a. tú-kú-vúl-à                 | ‘we are enough’                       |
|      | b. tú-kú- <sup>l</sup> vúl-à   | ‘we are inquiring about a lost thing’ |
| (16) | a. tú-kú-súl-à                 | ‘we are breaking wind’                |
|      | b. tú-kú- <sup>l</sup> súl-à   | ‘we are blacksmithing, forging’       |
| (17) | a. tú-kú-lúk-à                 | ‘we are weaving’                      |
|      | b. tú-kú- <sup>l</sup> lúk-à   | ‘we are vomiting’                     |
| (18) | a. tú-kú-síl-à                 | ‘we are drawing a line’               |
|      | b. tú-kú- <sup>l</sup> síl-à   | ‘we are finishing’                    |
| (19) | a. tú-kú-kóm-à                 | ‘we are cutting, slaughtering’        |
|      | b. tú-kú- <sup>l</sup> kóm-à   | ‘we are hard, strong’                 |
| (20) | a. tú-kú-lém-à                 | ‘we are holding, grabbing’            |
|      | b. tú-kú- <sup>l</sup> lém-à   | ‘we are planting’                     |
| (21) | a. tú-kú-tál-à                 | ‘we are being difficult’              |
|      | b. tú-kú- <sup>l</sup> tál-à   | ‘we are starting’                     |
| (22) | a. tú-kú-lééng-à               | ‘we are drawing’                      |
|      | b. tú-kú- <sup>l</sup> lééng-à | ‘we are begging’                      |
| (23) | a. tú-kú-víimb-à               | ‘we are thatching’                    |
|      | b. tú-kú- <sup>l</sup> víimb-à | ‘we are swelling’                     |

---

<sup>3</sup> The fact that some of these forms, the FV is realized as H instead of L will be accounted for below in §5.1.1.3 and §5.1.1.4.

- (24) a. tú-kú-túúmp-à 'we are dipping'  
 b. tú-kú-<sup>l</sup>túúmp-à 'we are being stupid'
- (25) a. tú-kú-óómb-à 'we are getting wet'  
 b. tú-kú-<sup>l</sup>óómb-à 'we are working'
- (26) a. tú-kú-swéél-à 'we are brewing'  
 b. tú-kú-<sup>l</sup>swéél-à 'we are fishing'
- (27) a. tú-kú-zúúl-à 'we are taking out (cassava from water)'  
 b. tú-kú-<sup>l</sup>zúúl-à 'we are becoming full, to taking off (clothes)'
- (28) a. tú-kú-pááng-à 'we are planning'  
 b. tú-kú-<sup>l</sup>pááng-à 'we are making'
- (29) a. tú-kú-wéél-à 'we are returning (intr.)'  
 b. tú-kú-<sup>l</sup>wéél-à 'we are jeering, ridiculing'
- (30) a. tú-kw-íímb-à 'we are digging'  
 b. tú-kw-<sup>l</sup>íímb-à 'we are singing'
- (31) a. tú-kw-íík-à 'we are coming down'  
 b. tú-kw-<sup>l</sup>íík-à 'we are putting'
- (32) a. tú-kú-úm-à 'we are beating'  
 b. tú-kú-<sup>l</sup>úm-à 'we are drying (intr.)'
- (33) a. tú-kw-éél-à 'we are winnowing'  
 b. tú-kw-<sup>l</sup>éél-à 'we are catching fish'
- (34) a. tú-kú-fúkúl-à 'we are deepening a well'  
 b. tú-kú-<sup>l</sup>fúk-úl-à 'we are turning cloth inside out'

Given both contrastive vowel length (§3.1) as well as tone, we would expect the possibility of a four-way minimal tonal pair. Voila:

- (35) a. tú-kú-fúk-à 'we are harvesting groundnuts'  
 b. tú-kú-<sup>l</sup>fúk-à 'we are turning up hem on garment'
- c. tú-kú-fúúk-à 'we are smoking, smoldering'  
 d. tú-kú-<sup>l</sup>fúúk-à 'we are humble'

Let us now consider forms with a toneless root with the 3 pl. object /yá-/ , where we see a very different surface tonal pattern than the one in (3) which contained toneless roots and the 3 sg. OM /mu-/.

- (36) a. tú-kú-<sup>l</sup>yá-fúl-à 'we are washing them'

- |    |                                   |                            |
|----|-----------------------------------|----------------------------|
| b. | tú-kú- <sup>1</sup> yá-fúl-íl-à   | ‘we are washing for them’  |
| c. | tú-kú- <sup>1</sup> yá-lámúk-à    | ‘we are greeting them’     |
| d. | tú-kú- <sup>1</sup> yá-nyémúl-à   | ‘we are lifting them’      |
| e. | tú-kú- <sup>1</sup> yá-súkíl-íl-à | ‘we are accompanying them’ |
| f. | tú-kú- <sup>1</sup> yá-swéél-él-à | ‘we are brewing for them’  |

If we simply assume that the 3 pl. object marker (unlike the 3 sg. one) is H-toned underlyingly, then the tone realization generalizations above in (7) will account for these patterns straightforwardly. It turns out that all the class 1 (i.e. singular human) object prefixes are toneless while all the three class 2 (i.e. plural human) object markers are all H-toned. This is illustrated below.

- |      |    |                                  |                                  |
|------|----|----------------------------------|----------------------------------|
| (37) | a. | yá-kúú-n-zíík-íl-à               | ‘they are burying for me’        |
|      | b. | yá-kú-kú-zíík-íl-à               | ‘they are burying for you (sg.)’ |
|      | c. | yá-kú-mú-zíík-íl-à               | ‘they are burying for him/her’   |
|      | d. | yá-kú- <sup>1</sup> tú-zíík-íl-à | ‘they are burying for us’        |
|      | e. | yá-kú- <sup>1</sup> mú-zíík-íl-à | ‘they are burying for you (pl.)’ |
|      | f. | yá-kú- <sup>1</sup> yá-zíík-íl-à | ‘they are burying for them’      |

As is the case in other Bantu languages it is not possible to have a full understanding of the verbal tonology if one confines oneself to isolation forms alone. While the phrasal phonology is examined in detail in chapter 9 (where the various types of phrasal prosodic phrases are defined and exemplified), we will consider verbs in each TAM in phrasal contexts. Below, examples are given of Present Progressive forms with toneless roots and H-toned roots, followed by another word in short phrases. We will see in each case that the tone pattern within the verb is different when another word follows in the same phrase and this will be accounted for below. First we consider infinitives with a toneless macrostem followed by another word.

- (38) Infinitives with toneless macrostem followed by a direct object (cf. (3))

- |    |                         |                              |
|----|-------------------------|------------------------------|
| a. | tú-kú-fùl-à Chòòlà      | ‘we are washing Choola’      |
| b. | tú-kú-zíik-à Chòòlà     | ‘we are burying Choola’      |
| c. | tú-kú-súkíl-íl-à Chòòlà | ‘we are accompanying Choola’ |
| d. | tú-kú-lòl-à yèèmbà      | ‘we are seeing the lake’     |

- (39) Infinitives with toneless macrostem followed by an adverb (cf. (3))

- |    |                      |                               |
|----|----------------------|-------------------------------|
| a. | tú-kú-fùl-à sààná    | ‘we are washing a lot’        |
| b. | tú-kú-mù-fùl-à nìngó | ‘we are washing him/her well’ |

We see in (38) and (39) that when the verb is not phrase-final the H on the preprefix undergoes binary spreading (i.e. spreading to only the following syllable /ku/) as opposed to spreading to the penult of the verb as it did when it was phrase-final (3). We conclude that unbounded spreading does not target the rightmost H of any word, but only of a phrase-final word.

In fact, as the examples below show, the rule of unbounded spreading will not apply if even a clitic follows the verb. Below, examples are given of verbal infinitives with toneless macrostems followed by the H-toned locative enclitic *pó*.<sup>4</sup>

- (40)
- |    |                    |                             |
|----|--------------------|-----------------------------|
| a. | tú-kú-fùl-à pó     | ‘we are washing (loc)’      |
| b. | tú-kú-zìik-à pó    | ‘we are burying (loc)’      |
| c. | tú-kú-zìik-il-à pó | ‘we are burying for (loc)’  |
| d. | tú-kú-sùkilil-à pó | ‘we are accompanying (loc)’ |

Next we consider infinitives with a H-initial macrostem followed by another word or clitic.

- (41) Infinitives with H-initial macrostem followed by a direct object (cf. (5), (10))

- |    |   |                                |
|----|---|--------------------------------|
| a. | tú-kú- <sup>1</sup> lās-á Chòòlà          | ‘we are hitting Choola’        |
| b. | tú-kú- <sup>1</sup> sópólól-á Chòòlà      | ‘we are untying Choola’        |
| c. | tú-kú-mù-sópólól-á Chòòlà                 | ‘we are untying Choola’        |
| d. | tú-kú- <sup>1</sup> páápáátik-il-á Chòòlà | ‘we are flattening for Choola’ |
| e. | tú-kú- <sup>1</sup> súúl-á yèèmbà         | ‘we are ignoring the lake’     |

- (42) Infinitives with H-initial macrostem followed by an adverb (cf. (5), (10), (36))

- |    |   |                                |
|----|---|--------------------------------|
| a. | tú-kú- <sup>1</sup> léét-á <sup>1</sup> sáàná | ‘we are bringing a lot’        |
| b. | tú-kú-mù-léét-á nììngó                        | ‘we are bringing him/her well’ |
| c. | tú-kú- <sup>1</sup> yá-fùl-á nììngó           | ‘we are washing them well’     |
| d. | tú-kú- <sup>1</sup> yá-swéél-él-á nììngó      | ‘we are brewing for them well’ |

- (43)
- |    |   |                            |
|----|---|----------------------------|
| a. | tú-kú- <sup>1</sup> lās-á <sup>1</sup> pó | ‘we are hitting (loc)’     |
| b. | tú-kú-!lās-il-á <sup>1</sup> pó           | ‘we are hitting for (loc)’ |
| c. | tú-kú-!súúl-á <sup>1</sup> pó             | ‘we are ignoring (loc)’    |
| d. | tú-kú-!sópólól-á <sup>1</sup> pó          | ‘we are untying (loc)’     |

A macrostem High in a non-phrase-final form spreads all the way to the verb-final TBU, as seen in all the examples above. The latter fact can be most easily accounted for by assuming that it is the final TBU of the phrase, and not the word, which is extraprosodic.<sup>5</sup> Thus, a macrostem H will always attempt to undergo unbounded spreading to the verb final syllable, and the final iteration of this is simply blocked in the event that the verb-final syllable is extraprosodic.

Before we refine our spreading generalizations of High tones to incorporate the patterns found in the forms above, a few points about the phonetic details of these phrases would be appropriate. First, in (40), it should be noted that while there is a drop in pitch from [ku] to the following macrostem-initial syllable, the pitch continues to gradually fall until it reaches its lowest point on the Final Vowel. (I assume that all such tonal interpolations are generated in the phonetic component.) There is then a very small elevation of pitch on the

<sup>4</sup> The meaning of /po-/ is somewhat complex and is taken up in section 9.6. It will be indicted in the gloss simply by “(loc)”.

<sup>5</sup> We will see below that the final TBU of the phrase is always marked extraprosodic if it is underlyingly toneless, but not if it is H-toned

phrase-final syllable [po]. This may support an analysis in which there is some kind of L boundary tone (cf. Hyman (1990)) after the final TBU of the phrase which has the effect of pulling down the pitch of the phrase-final TBU, in this case the H-toned /pó/ whose pitch is only elevated slightly from that of the preceding toneless TBU. It might also be possible that it is a boundary Low of this kind, and not extraprosodicity which accounts for spreading to the penlt in cases where the verb is phrase-final. If this boundary L docks first onto the phrase-final TBU, then this would block the spreading of H onto that syllable.

Let us now return to an overall characterization of the behavior of H tone spreading which also accounts for the verbs in non-phrase-final position, as illustrated above. To sum up, the type of spreading undergone by a High tone crucially depends on two factors: 1) the morphological domain in which it is found, i.e. whether it is in the macrostem or not and 2) whether it is the rightmost H in the phrase-final word or not. Macrostem H's will spread to the end of the verb with the constraint that they will stop on the penult if the verb is phrase-final.<sup>6</sup> Non-macrostem H's (e.g. a preprefix H) will spread to the penult only in the case that they are the rightmost H in the phrase-final word, otherwise they undergo bounded spreading. We therefore refine our generalizations regarding tone realization as follows:

(44) Tone realization:

- a. A macrostem H undergoes unbounded spreading to
  - i) the verb-penultimate syllable when the verb is phrase-final
  - ii) otherwise to the verb-final syllable
- b. A non-macrostem H undergoes
  - i) unbounded spreading to the verb-penultimate syllable when it is the rightmost H in the phrase-final word
  - ii) otherwise it undergoes bounded spreading

In terms of accounting for this with phonological rules, the very first process would be to either 1) make the phrase-final TBU extraprosodic, or 2) assign a boundary L tone to a toneless phrase-final TBU. There is then a question of whether bounded spreading precedes unbounded spreading or vice-versa. At this juncture either ordering seems possible, however we will see evidence later (in section 9.4) which suggests that binary spreading precedes unbounded spreading.

Next let us consider the final logical possibility involving the morphemes thus far discussed: an H-toned root with a H-toned object.

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<sup>6</sup> We will see below that one additional requirement for a macrostem H to undergo unbounded spreading is that it be the final H in the verb. In tense/aspects where there is a H tone on the FV, a macrostem H will undergo bounded, rather than unbounded, spreading.

- (45) a. tú-kú-<sup>1</sup>yá-léét-él-à 'we are bringing for them' /tú-ku-yá-léet-el-a/  
 b. tú-kú-<sup>1</sup>yá-sópólól-à 'we are untying them' /tú-ku-yá-sópolol-a/
- (46) a. tú-kú-<sup>1</sup>yá-léét-él-á <sup>1</sup>sàaná 'we are bringing for them a lot' /tú-ku-yá-léet-el-a sáaná//  
 b. tú-kú-<sup>1</sup>yá-sópólól-á <sup>1</sup>sàaná 'we are untying them a lot' /tú-ku-yá-sópolol-a sáaná//

Given our assumptions thus far about downstep, the input and output representation of (45b) would be as given in (47).

- (47) a. tu-ku-ya-sopolol-a Input  
           |      |  |  
          H<sub>1</sub>  H<sub>2</sub> H<sub>3</sub>
- b. tu-ku-ya-sopolol-a Output  
       \  /      \  \  /  
       H<sub>i</sub>          H<sub>j</sub>

The form in (47a) is the first one we have seen where two consecutive TBUs in the input each bear a (distinct) H tone. As can be seen in the phonetic form in (47b), while there is the expected downstep between the second and third TBUs (due to bounded spreading of the H on the preprefix), there is no downstep present between the third and fourth TBUs. If the H's on the OM and root persisted to the end of the phonology, then we would predict (incorrectly) that a downstep would be found between them, given our structural interpretation of downstep as outlined above. Since there is no downstep across the stem boundary, I assume that the correct output for this form contains a total of two H's and not three. The first (labeled H<sub>i</sub>) is linked to the first two syllables of the word, and the second (labeled H<sub>j</sub>) is linked to the third and subsequent TBUs up to the penult.

An important question which then arises is: putting aside the H linked to the preprefix, how does one get from two input H's (H<sub>2</sub> and H<sub>3</sub>) to one output H (H<sub>j</sub>)? Two possibilities immediately present themselves: 1) one of the two input H's is simply deleted or not realized in the output or 2) the two input H's have fused into a single output H. While either of these analyses would be feasible to account for forms such as (47), I will clearly demonstrate below, on the basis of other forms, that the fusion analysis is the only tenable one. Finally, it should be noted that fusion of adjacent H's is not limited to 2 H's. As seen in the cases below, when there are three consecutive input H's (the first two from OM's and the third from the root), fusion will insure that no downsteps are realized between them.

- (48) a. yá-kú-<sup>1</sup>tú-ví-léét-él-à 'they are bringing them (C8) for us' /yá-ku-tú-ví-léet-il-a/  
 b. yá-kú-<sup>1</sup>tú-cí-pé-él-à 'they are giving it (C7) to us' /yá-ku-tú-cí-pé-il-a/

The presence of H tone fusion of this type predicts that we will find tonal neutralization between forms with H-toned roots and toneless roots where a H-toned OM is present. That this is, in fact, the case is exemplified by the forms below:

- (49) a. tú-kú-<sup>1</sup>yá-swéél-él-à 'we are brewing for them' /tú-ku-yá-suel-il-a/  
 b. tú-kú-<sup>1</sup>yá-swéél-él-à 'we are fishing for them' /tú-ku-yá-súel-il-a/  
 c. tú-kú-<sup>1</sup>yá-lúk-il-à 'we are weaving for them' /tú-ku-yá-luk-il-a/  
 d. tú-kú-<sup>1</sup>yá-lúk-il-à 'we are vomiting on them' /tú-ku-yá-lúk-il-a/



Even though the verb roots in (49a) and (49c) are toneless while those in (49b) and (49d) are H-toned, this tonal difference is completely neutralized with the result that two homophonous pairs are produced.

With regard to the input tones on object markers, it turns out that the class 1 singular object markers are all toneless (37), while all other object markers (the plurals in class 1 and all object markers in classes 3 and above) are H-toned. A few examples below illustrate this and the information is summarized in Tables 1-2.<sup>7</sup>

- (50) a. tú-kú-<sup>1</sup>ú-lól-à                      ‘we are seeing it (C3)                      /tú-ku-gú-lol-a/  
       b. tú-kú-<sup>1</sup>í-lól-à                      ‘we are seeing them’ (C4)                      /tú-ku-gí-lol-a/  
       c. tú-kú-<sup>1</sup>ví-lól-à                      ‘we are seeing them (C8)’                      /tú-ku-ví-lol-a/  
       d. tú-kú-<sup>1</sup>lú-lól-à                      ‘we are seeing it (C11)’                      /tú-ku-lú-lol-a/

Person	Object Prefix
1 sg.	n-
2 sg.	ku-
3 sg.	mu-
1 pl.	tú-
2 pl.	mú-
3 pl.	yá-

Table 1: Object prefixes for classes 1 & 2

Class	Object Prefix
3	gú-
4	gí-
5	lí-
6	yá-
7	cí-
8	ví-
9	gí-
10	zí-
11	lú-
12	ká-
13	tú-
14	gú-
15	kú-
16	pá-
17	kú-
18	mú-

Table 2: Object prefixes for class 3 and above

<sup>7</sup> The reader is reminded that, as outlined in Chapter 3, intervocalic /g/ (as well as /b/) deletes.

### 5.1.1.2 Stems with V-initial roots

Let us now examine forms with vowel-initial roots. Examples of vowel-initial toneless roots are given below.

- |      |    |                        |                             |                          |
|------|----|------------------------|-----------------------------|--------------------------|
| (51) | a. | tú-kw-ímb-à            | ‘we are digging’            | /tú-ku-imb-a/            |
|      | b. | tú-kw-ííz-à            | ‘we are coming’             | /tú-ku-iz-a/             |
|      | c. | tú-kw-íík-à            | ‘we are coming down’        | /tú-ku-ik-a/             |
|      | d. | tú-kw-éél-à            | ‘we are winnowing’          | /tú-ku-el-a/             |
|      | e. | tú-kw-éélék-à          | ‘we are cooking’            | /tú-ku-elek-a/           |
|      | f. | tú-kú-úm-à             | ‘we are beating’            | /tú-ku-um-a/             |
| (52) | a. | tú-kú-ùm-à Chòòlà      | ‘we are beating Chola’      | /tú-ku-um-a Choola/      |
|      | b. | tú-kw-ìmb-à Chòòlà     | ‘we are digging out Chola’  | /tú-ku-imb-a Choola/     |
|      | c. | tú-kw-ìmb-il-à Chòòlà  | ‘we are digging for Chola’  | /tú-kku-imb-il-a Choola/ |
|      | d. | tú-kw-èèng-èl-à Chòòlà | ‘we are smelting for Chola’ | /tú-ku-eng-il-a Choola/  |
|      | e. | tú-kú-ùm-il-à Chòòlà   | ‘we are beating for Chola’  | /tú-ku-um-il-a Choola/   |
| (53) | a. | tú-kw-ìmb-à pó         | ‘we are digging (loc.)’     | /tú-ku-imb-a pó/         |
|      | b. | tú-kú-ùm -à pó         | ‘we are beating (loc.)’     | /tú-ku-um-a pó/          |
|      | c. | tú-kw-èèng-à pó        | ‘we are smelting (loc.)’    | /tú-ku-eng-a pó/         |
|      | d. | tú-kú-ùlùk-à pó        | ‘we are blowing (loc.)’     | /tú-ku-uluk-a pó/        |
|      | e. | tú-kw-íík-il-à pó      | ‘we are coming down (loc.)’ | /tú-ku-ik-il-a pó/       |
|      | f. | tú-kw-èèlèèngàny-à pó  | ‘we are considering (loc.)’ | /tú-ku-elengany-a pó/    |

The H tones within the verbs above all behave according to our generalizations in (44). The H on the preprefix in phrase-final forms in (51) will spread in an unbounded fashion to the penult. When these same V-initial verbs are not in phrase-final position, as illustrated in (52) and (53), the H on the preprefix will undergo binary, instead of unbounded, spreading. This binary spreading process will spread the H onto the first mora of the following syllable, providing evidence to support the position that the TBU in Cilungu is the mora and not the syllable.

Let us now consider vowel-initial H-toned roots.

- |      |                         |                  |                            |                   |
|------|-------------------------|------------------|----------------------------|-------------------|
| (54) | V-initial H-toned roots |                  |                            |                   |
|      | a.                      | tú-kw-ímb-à      | ‘we are singing’           | /tú-ku-ímb-a/     |
|      | b.                      | tú-kw-íík-à      | ‘we are putting’           | /tú-ku-ík-a/      |
|      | c.                      | tú-kw-íík-il-à   | ‘we are putting for’       | /tú-ku-ík-il-a/   |
|      | d.                      | tú-kw-íímíl-il-à | ‘we are standing’          | /tú-ku-ímil-il-a/ |
|      | e.                      | tú-kw-éél-à      | ‘we are catching fish’     | /tú-ku-él-a/      |
|      | f.                      | tú-kú-úm-à       | ‘we are drying (intr)’     | /tú-ku-úm-a/      |
|      | g.                      | tú-k-òómól-à     | ‘we are pulling down’      | /tú-ku-ómol-a/    |
|      | h.                      | tú-kw-àám-à      | ‘we are calling, inviting’ | /tú-ku-ám-a/      |

(55) V-initial H-toned roots in non-phrase-final position

- |    |                                  |                                  |                        |
|----|----------------------------------|----------------------------------|------------------------|
| a. | tú-kw-íimb-á Chòòlà              | ‘we are singing about Chola’     | /tú-ku-imb-a Choola/   |
| b. | tú-kù-úm-y-á Chòòlà              | ‘we are making Chola dry’        | /tú-ku-úm-i-a Choola/  |
| c. | tú-kw-èél-él-á Chòòlà            | ‘we are catching fish for Chola’ | /tú-ku-él-il-a Choola/ |
| d. | tú-kù-úm-á <sup>1</sup> pó       | ‘we are becoming dry (loc.)’     | /tú-ku-úm-a pó/        |
| e. | tú-kw-íimíl-il-á <sup>1</sup> pó | ‘we are standing for (loc.)’     | /tú-ku-ímil-il-a pó/   |

The input for the form in (54c) is given below:

- (56)    tu – ku – ik –il- a                      Input
- |   |   |   |   |   |
|---|---|---|---|---|
|   |   |   |   |   |
| μ | μ | μ | μ | μ |
|   |   |   |   |   |
| H |   | H |   |   |

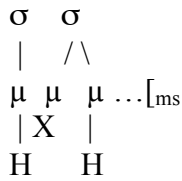
As can be seen, the only spreading that takes place in these forms is that of the root High. We must ask why the H on the SM fails to spread in these cases. This cannot be due to a general enforcement of the OCP since we have seen binary spreading apply in many examples above despite the OCP violation that it creates (10). But the OCP violations created by binary spreading in forms such as (10) are between two syllables. We might entertain the prospect that while downsteps are permitted between syllables, they are not permitted intrasyllabically. This, however, turns out not to be true, as a H in many cases does in fact spread onto the first mora of a following syllable, even though that creates an intra-syllabic OCP violation. A few of these, to be analyzed in greater detail later (cf. §10.4.3), are shown below.<sup>8</sup>

- (57)    a. tw-áá-mw-í<sup>1</sup>imb-á                      ‘we have just sung about him/her’  
           b. tú-mw-í<sup>1</sup>imb-il-é                      ‘that we sing for him/her’  
           c. yá-zí<sup>1</sup>ík-é                              ‘bury them!’

One difference between the forms in (54)-(55) and those in (57) is that the fall from H to downstepped H in the forms in (57) falls squarely within the macrostem, while the second syllable in the forms in (54)-(55) is not. The way I propose to account for this is to allow Binary Spreading to apply generally, so that a fall from H to downstepped H is created not only in the forms in (57), but those in (54)-(55) as well. A subsequent rule will apply which will retract the spreading if a fall from H to downstepped H is created in a syllable which immediately follows a H tone, but precedes the macrostem boundary. (see §10.4.4 for additional discussion of this process.) This is illustrated below.

<sup>8</sup> It turns out, then, that two different kinds of Falling tones are attested in Cilungu, one from High to Low as illustrated in (52) and (53) and one from High to downstepped High, as illustrated in (57) (see §10.4.3).

(58) Intrasyllabic Downstep Retraction



Let us now consider vowel-initial roots with object markers.

(59) Toneless root with toneless OM

- |    |                   |                              |                  |
|----|-------------------|------------------------------|------------------|
| a. | tú-kú-mw-ímb-à    | ‘we are digging him/her up’  | /tú-ku-mu-imb-a/ |
| b. | tú-kú-mw-ímb-íl-à | ‘we are digging for him/her’ | /tú-ku-mu-imb-a/ |

(60) Toneless root with H-toned OM

- |    |                                 |                                |                     |
|----|---------------------------------|--------------------------------|---------------------|
| a. | tú-kú- <sup>1</sup> mw-ímb-à    | ‘we are digging you (pl.) up’  | /tú-ku-mú-imb-a/    |
| b. | tú-kú- <sup>1</sup> mw-ímb-íl-à | ‘we are digging for you (pl.)’ | /tú-ku-mú-imb-il-a/ |

(61) H-toned root with toneless OM

- |    |                   |                                |                     |
|----|-------------------|--------------------------------|---------------------|
| a. | tú-kú-mw-ímb-à    | ‘we are singing about him/her’ | /tú-ku-mu-imb-a/    |
| b. | tú-kú-mw-ímb-íl-à | ‘we are singing for him/her’   | /tú-ku-mu-imb-il-a/ |

(62) H-toned root with H-toned OM

- |    |                                 |                                  |                     |
|----|---------------------------------|----------------------------------|---------------------|
| a. | tú-kú- <sup>1</sup> mw-ímb-à    | ‘we are singing about you (pl.)’ | /tú-ku-mú-imb-a/    |
| b. | tú-kú- <sup>1</sup> mw-ímb-íl-à | ‘we are singing for you (pl.)’   | /tú-ku-mú-imb-il-a/ |

The H on the preprefix in (59) undergoes unbounded spreading. This H undergoes bounded spreading to the following syllable in (60), resulting in a downstep before the following H-toned 2<sup>nd</sup> person pl. marker /mú-/. The forms in (60) are homophonous with those in (62) as the root-initial H and the H from the OM in the latter forms have simply fused into a single H which undergoes unbounded spreading. The forms of interest are in (61). The H on the preprefix undergoes binary spreading onto the /ku/. The /u/ of the 3 sg. OM /mu-/ glides and compensatorily lengthens the following vowel. The subsequent long vowel surfaces as a Rise, since the first mora is toneless and the second, root-initial, mora is H-toned. I note here while the contrast is quite robust between a Rise and Level High in penult position (e.g. between (61a) and (62a)), it becomes phonetically less robust the further the syllable is from the right edge of the word. Speech rate seems to have an effect here. For instance, when the speech rate is normal or slow, there is still a fairly clear contrast between a Rise and Level High in antepenult position (e.g. between (61a) and (62a)). But when speech rate increases (or the syllable in question is in pre-antepenult position) it is quite likely that the Rise will simply become a level High, neutralizing this contrast.<sup>9</sup>

<sup>9</sup> See section 10.4.4 for a detailed discussion of the distribution of Rising tones

It should be pointed out that we have now seen that long vowels can bear a number of tones: level High, level Low, Rising, Fall from High to Low, and Fall from High to Downstepped High. I take this as strong evidence that the mora is the tone bearing unit in Cilungu (see also §10.1.1). If this is the case, then there is a very straightforward generation of all the possible tonal combinations given the simple principle/constraint that each TBU can bear at most one tone.

### 5.1.1.3 Influence on spreading from glides in a word-final syllable

A salient property of the tonology is that a macrostem H and the rightmost H in a phrase-final word undergo unbounded spreading to the penult in phrase-final words (44). It turns out that in certain instances, these Highs can in fact wind up spreading all the way to the final TBU of a phrase-final word. This happens when the Final Vowel is immediately preceded by a high vowel (i.e. /i/, /ĩ/, /u/) in the input which then glides.<sup>10</sup> This is illustrated below.

- (63) a. tú-kú-<sup>1</sup>súl- íl -w -á /tú-ku-súl-íl-u-a/  
           we Pr forge Ap Pv FV  
           ‘we are being forged for’
- b. tú-kú-<sup>1</sup>léét -w -á /tú-ku-léet-u-a/  
           we Pr bring Pv FV  
           ‘we are being brought’
- c. tú- kú-mú- fúl- ísh-á /tú-ku-mu-ful-isi-a/  
           we Pr 3sOM wash Int FV  
           ‘we are washing him/her a lot’

In each of the cases above, the H which normally spreads to the penult, be it a macrostem H (as in (63a-b)) or a pre-macrostem H (as in (63c)), spreads all the way to the FV. This turns out to be correlated with the fact that in (63a-c) there is a high vowel underlyingly which glides immediately before the FV. I propose to analyze these cases in the following way. When the high vowel in the word-final syllable glides the word-final vowel will become long via compensatory lengthening. The rule of Word-final Shortening (presented in §3.1.4) will then apply, removing the word-final mora. I note that while this mora was extraprosodic with respect to H tone spreading, it must not be extraprosodic with regard to Word-final Shortening.<sup>11</sup> This analysis is illustrated in the derivation below.

<sup>10</sup> This same phenomenon occurs in closely related Namwanga (M.22) (Bickmore (2000b)).

<sup>11</sup> While other analyses of this spreading to the word-final mora might be possible (e.g. where spreading precedes shortening), we will see evidence (summarized in §10.3.3) that word-final shortening must precede Fusion which must precede both binary and unbounded H tone spread.

- (64)
- |    |   |                               |
|----|---|-------------------------------|
| a. | tu- ku-sul -il -u -a  | Input                         |
|    | $\begin{array}{cccccc}   &   &   &   &   &   \\ \mu & \mu & \mu & \mu & \mu & \mu \\   & &   & & & \\ H & & H & & & \end{array}$          |                               |
| b. | tu- ku-sul -il -u -a  | Phrase-final Extraprosodicity |
|    | $\begin{array}{cccccc}   &   &   &   &   &   \\ \mu & \mu & \mu & \mu & \mu & <\mu> \\   & &   & & & \\ H & & H & & & \end{array}$        |                               |
| c. | tu- ku-sul -il -w -a  | Gliding                       |
|    | $\begin{array}{cccccc}   &   &   &   & / & / \\ \mu & \mu & \mu & \mu & \mu & <\mu> \\   & &   & & & \\ H & & H & & & \end{array}$        |                               |
| d. | tu- ku-sul -il-w-a  | Word-final shortening         |
|    | $\begin{array}{cccccc}   &   &   &   &   & \\ \mu & \mu & \mu & \mu & \mu & \\   & &   & & & \\ H & & H & & & \end{array}$                |                               |
| e. | tu- ku-sul -il-w-a  | Bounded & Unbounded H Spread  |
|    | $\begin{array}{cccccc}   &   &   &   &   & \\ \mu & \mu & \mu & \mu & \mu & \\ \backslash & / &   & / & / & \\ H & H & & & & \end{array}$ |                               |

‘we are being forged for’

Additional examples which illustrate this process are given below.

(65) Phrase-final verbs with toneless macrostems

- |    |                     |                                    |                      |
|----|---------------------|------------------------------------|----------------------|
| a. | tú-kú-fúl-w-á       | ‘we are being washed’              | /tú-ku-ful-u-a/      |
| b. | tú-kú-fúl-ísh-á     | ‘we are washing a lot’             | /tú-ku-ful-isi-a/    |
| c. | tú-kú-mw-íimb-ísh-á | ‘we are digging him/her up a lot’  | /tú-ku-mu-imb-isi-a/ |
| d. | tú-kú-úm-w-á        | ‘we are being beaten’              | /tú-ku-um-u-a/       |
| e. | tú-kú-lííz-y-á      | ‘we are making (someone) cry’      | /tú-ku-liil-i-a/     |
| f. | tú-kú-cóóm-y-á      | ‘we are making (something) sizzle’ | /tú-ku-coom-i-a/     |
| g. | tú-kú-téfy-á        | ‘we are crying’                    | /tú-ku-tefi-a/       |

(66) Phrase-final verbs with H-toned macrostems

a.	tú-kú- <sup>1</sup> yá-fúl-ísh-á	‘we are washing them a lot’	/tú-ku-yá-ful-is̩-a/
b.	tú-kú- <sup>1</sup> mw-ímb-ísh-á	‘we are digging you (pl.) out a lot’	/tú-ku-mú-imb-is̩-a/
c.	tú-kú- <sup>1</sup> léét-w-á	‘we are being brought’	/tú-ku-léet-u-a/
d.	tú-kú- <sup>1</sup> tíiny-á	‘we are frightening’	/tú-ku-tíin-̩-a/
e.	tú-kú- <sup>1</sup> kóm-y-á	‘we are hardening/making strong’	/tú-ku-kóm-̩-a/
f.	tú-kú- <sup>1</sup> mú-úzy-á	‘we are asking you (pl.)’	/tú-ku-mú-úzi-a/
g.	tú-kú- <sup>1</sup> mw-áázw-á	‘we are helping you (pl.)’	/tú-ku-mú-ázu-a/

In (65) the H on the preprefix spreads to the final syllable, even though that syllable is phrase-final. In (66) this unbounded spreading to the final syllable is illustrated for macrostem H’s. And this is true whether the high vowel that glides constitutes a separate morpheme, as is the case with the passive /-u/ or short causative /-̩/, or is the final segment of a larger morpheme (e.g. (66f,g)). Of course, toneless macrostems and H-toned macrostems have differing behaviors when not phrase-final. As seen below in (67), a preprefix H undergoes only binary spreading when the verb is not phrase-final, regardless of whether the verb ends in a [wa] or [ya] sequence.

(67) Non-phrase-final verbs with toneless macrostems

a.	tú-kú-ùm-w-à sàaná	‘we are being beaten a lot’	/tú-ku-um-u-a sàaná/
b.	tú-kú-liiz-y-à Chòlà	‘we are making Chola cry’	/tú-ku-liil-̩-a Choola/
c.	tú-kú-còòm-y-à cùulá	‘we are making the frog sizzle’	/tú-ku-coom-̩-a cuulá/
d.	tú-kú-tèfy-à sàaná	‘we are crying a lot’	/tú-ku-tefi-a sàaná/

Since a macrostem H spreads in an unbounded fashion regardless of whether the verb is phrase-final or not, we expect such a H to spread to the FV of the verb as it always does, when another word follows.

(68) Non-phrase-final verbs with H-toned macrostems

a.	tú-kú- <sup>1</sup> léét-w-á <sup>1</sup> sàaná	‘we are being brought a lot’	/tú-ku-léet-u-a sàaná/
b.	tú-kú- <sup>1</sup> tíiny-á <sup>1</sup> sàaná	‘we are frightening a lot’	/tú-ku-tíin-̩-a sàaná/
c.	tú-kú- <sup>1</sup> léét-ésh-á Chòlà	‘we are bringing Chola a lot’	/tú-ku-léet-is̩-a Choola/
d.	tú-kú- <sup>1</sup> kóm-y-á Chòlà	‘we are strengthening Chola’	/tú-ku-kóm-̩-a Choola/

It should be noted next that a High undergoing unbounded spreading will spread to a phrase-final syllable ending in [nya]. This is true regardless of whether this syllable derives from /n-̩-a/ (where it is derivationally expected), as shown in (69), or whether there is no evidence of a causative and therefore it is presumed to derived from /ñ-a/, as in (70).<sup>12</sup>

(69)	a.	tú-kú- <sup>1</sup> pásány-á	‘we are comparing’	/tú-ku-pásan-̩-a/
	b.	tú-kú- <sup>1</sup> pony-á	‘we are dropping’	/tú-ku-pón-̩-a/

<sup>12</sup> While I am using orthographic <ny> to indicate an alveopalatal nasal pronunciation in the output, I use /ñ/ to represent an underlying alveopalatal nasal.

- |      |    |             |                    |              |
|------|----|-------------|--------------------|--------------|
| (70) | a. | ú-kú-kóny-á | ‘to wink’          | /ú-ku-koñ-a/ |
|      | b. | ú-kú-mány-á | ‘to know’          | /ú-ku-mañ-a/ |
|      | c. | ú-kú-tóny-á | ‘to feel by touch’ | /ú-ku-toñ-a/ |

Clearly it seems like the behavior of the forms in (70) is based on some sort of an analogy to those in (69). It is not clear to me how to best account for the forms in (70) formally. First, it does not seem possible to adopt a solution whereby verbs like ‘wink’ ‘know’ and ‘feel by touch’ are set up as /koni/, /mani/, and /toni/, where our rules would then predict the H spreading to the word-final mora, since extensions which follow these roots are phonetically short and not long.

- |      |    |                |                               |                 |
|------|----|----------------|-------------------------------|-----------------|
| (71) | a. | ú-kú-kóny-án-à | ‘to wink at each other’       | /ú-ku-koñ-an-a/ |
|      | b. | ú-kú-mány-án-à | ‘to know each other’          | /ú-ku-mañ-an-a/ |
|      | c. | ú-kú-tóny-án-à | ‘to feel each other by touch’ | /ú-ku-toñ-an-a/ |

The above forms raise the question as to whether spreading into the final syllable might be accounted for, in full or part, by the simple presence of a glide or palatal segment in the onset of a word-final syllable. First, let us remember that as discussed in section 3.2 all surface occurrences of Cy and Cw can be derived from /Ci/ and /Cu/ respectively. This predicts that in any verb whose stem ends in [Cya] and [Cwa] (whether the glide is part of the same morpheme as the preceding C or not) an H undergoing unbounded spreading will spread onto the word-final mora and this is universally true. What then, if the onset of the word-final syllable is a simple glide or palatal segment? In the forms below, the onset of the final syllable is a simple glide (either [y] or [w]) and the High does not in fact spread into the final syllable.

- |      |    |                           |                                    |                |
|------|----|---------------------------|------------------------------------|----------------|
| (72) | a. | tú-kú-fúw-à               | ‘we are skinning’                  | /tú-ku-fuw-a/  |
|      | b. | tú-kú-vúw-à               | ‘we are fishing with a net’        | /tú-ku-vuw-a/  |
|      | c. | tú-kú-ków-à               | ‘we are pulling/clinging to’       | /tú-ku-kob-a/  |
| (73) | a. | tú-kú-láy-à               | ‘we are saying goodbye, promising’ | /tú-ku-lab-a/  |
|      | b. | í-cí-láy-ò                | ‘promise’                          | /í-ci-lab-o/   |
|      | c. | tú-kú-lááy-à              | ‘we are setting off early’         | /tú-ku-laab-a/ |
|      | d. | tú-kú- <sup>1</sup> fíy-à | ‘we are paddling’                  | /tú-ku-fiy-a/  |

In each case above the glide derives from a single C underlyingly—either a glide or /b/. (See section 3.5 for justification on why some surface glides are being derived from underlying /b/.) However, if the glide is derived from a vowel, then the H from the preprefix winds up on the ultima via the process illustrated in (64). Such is true in the cases below (where a general segmental rule deletes /g/ intervocalically (cf. §3.3)).

- |      |    |          |           |             |                  |                |
|------|----|----------|-----------|-------------|------------------|----------------|
| (74) | a. | ú-kú-w-á | ‘to fall’ | /ú-ku-gu-a/ | cf. ú-kú-w-ííl-à | ‘to fall onto’ |
|      | b. | ú-kú-y-á | ‘to go’   | /ú-ku-gi-a/ | cf. ú-kú-í-íl-à  | ‘to go for’    |

The applicative forms provided for comparison further confirm that the roots contain a vowel and are not simply a single consonant as the vowel surfaces as long in the applicative.

The only other consonants in the inventory besides the /y/ which are palatals are [c] and [sh]. With regard to [sh], it was argued in section 3.3 that all such phonetic instances of this sound can be demonstrated to be derived from /siV/ (some occurrences of which are ultimately derived, via CM, from /tᵢV/ or /kᵢV/). Given that we predict that an H undergoing unbounded spreading will always spread into the final syllable of a stem where



the onset of the final syllable is [sh] (whether the Ci from which it derives is tautomorphemic or not) and this is universally true.

- (75) a. yá-kú-<sup>1</sup>pish-á                      ‘they are driving’                      /yá-ku-pít-i-a/  
       b. yá-ku-<sup>1</sup>lóosh-á                      ‘they are dreaming’                      /yá-ku-lóosi-a/

As mentioned previously, there are only two verb stems that I have encountered which end in [ca]:

- (76) a. ú-kú-<sup>1</sup>c-á                              ‘it (C3) is dawning’                      /ú-ku-cé-a/  
       b. tú-k-óóc-à                              ‘we are burning’                      /tú-ku-óc-a/

As discussed in section 3.4, the verb ‘to dawn, be ripe’ is set up as /cé/. Since it bears a High tone underlyingly we cannot test whether it would attract a High tone in a word-final syllable which is spreading from a location previous in the word. As seen in (76b), where the root is ‘to burn’ which we set up as /óc/, the H linked to the root vowel not spread to the final vowel. The nouns below, where spreading has stopped at the penult and not reached the word-final vowel are consistent with (76b).

- (77) a. ú-mw-á<sup>1</sup>ánáci                      ‘woman’                      /ú-mu-ánaci/  
       b. ú-mw-á<sup>1</sup>áncè                      ‘young person’                      /ú-mu-áncè/  
       c. ú-mw-éènéco                      ‘owner’                      /ú-mu-enéco/

This argues for the analysis presented above which accounts for spreading onto the word-final vowel as being due to the targeting of the penult vowel which then glides and not due to the palatal place of an onset consonant in the final syllable. The best account for the words in (70), then, must be left as an open question.

#### 5.1.1.4 CV Roots

Having examined this interaction between tones and glides, we can now present verbs with a CV root, which, by their very nature, often undergo gliding. The 1 pl. forms are listed below for verbs with toneless CV roots, as well as the corresponding applicative and passive forms.

#### (78) Toneless CV roots in phrase-final position

Root+FV	Applicative	Passive	Root Gloss	UR
a. tú-kú-sh-á	tú-kú-sí-íl-à	tú-kú-sí-íw-á	‘grind’	/si/
b. tú-kú-lw-á	tú-kú-lw-ííl-à	tú-kú-lw-ííw-á	‘fight’	/lu/
c. tú-kú-zw-á	tú-kú-zw-ííl-à	tú-kú-zw-ííw-á	‘leak, bleed’	/zu/
d. tú-kú-ny-á	tú-kú-nyé-él-à		‘defecate’	/ñe/
e. tú-kú-y-á	tú-kú-í-íl-à		‘go’	/gi/
f. tú-kú-w-á	tú-kú-w-ííl-à		‘fall’	/gu/

As predicted, whenever the verb ends with a glide-vowel sequence (as it does in the unextended forms as well as the passives), the H on the preprefix, which undergoes unbounded spreading, will spread into the final syllable. When the verb does not end in a glide-vowel sequence (as seen in the applicative forms), then normal spreading to the penult applies. Below are examples of verbs with toneless CV roots in non-phrase-final

position. As we saw above, we expect the H on the preprefix of such forms to spread in a binary fashion and then stop.

(79) Toneless CV roots in non-phrase-final position

a.	tú-kú-zw-à sàaná	‘we are bleeding a lot’	/tú-ku-zu-a sáaná/
b.	tú-kú-sh-à Chòòlà	‘we are grinding Chola’	/tú-ku-si-a Choala/
c.	tú-kú-zw-à sàaná	‘we are bleeding a lot’	/tú-ku-zu-a sáaná/
d.	tú-kú-lw-à nìngó	‘we are fighting well’	/tú-ku-lu-a ningó/

Examples of verbs (again in the 1 pl.) with H-toned CV roots are given below.

(80) H-toned CV roots in phrase-final position

Root+FV	Applicative	Passive	Root Gloss	U.R.
a. tú-kú- <sup>1</sup> ly-á	tú-kú- <sup>1</sup> lí-íl-à	tú-kú- <sup>1</sup> lí-íw-á	‘eat’	/lí/
b. tú-kú- <sup>1</sup> sh-á	tú-kú- <sup>1</sup> sí-íl-à	tú-kú- <sup>1</sup> sí-íw-á	‘leave’	/sí/
c. tú-kú- <sup>1</sup> mw-á	tú-kú- <sup>1</sup> mw-éél-à	tú-kú- <sup>1</sup> mw-ééw-á	‘drink’	/mó/
d. tú-kú- <sup>1</sup> ng’w-á	tú-kú- <sup>1</sup> ng’w-éél-à	tú-kú- <sup>1</sup> ng’w-ééw-á	‘drink’	/ng’ó/
e. tú-kú- <sup>1</sup> p-á	tú-kú- <sup>1</sup> pé-él-à	tú-kú- <sup>1</sup> p-ééw-á	‘give’	/pé/
f. tú-kú- <sup>1</sup> zw-á	tú-kú- <sup>1</sup> zw-ííl-à	tú-kú- <sup>1</sup> zw-ííw-á	‘make porridge’	/zú/
g. tú-kú- <sup>1</sup> t-á	tú-kú- <sup>1</sup> té-él-à	tú-kú- <sup>1</sup> t-ééw-á	‘stop, release, lay egg’	/té/
h. tú-kú- <sup>1</sup> py-á	tú-kú- <sup>1</sup> pí-íl-à		‘be burnt’	/pí/
i. tú-kú- <sup>1</sup> fw-á	tú-kú- <sup>1</sup> fw-ííl-à		‘die’	/fú/
j. tú-kú- <sup>1</sup> c-á	tú-kú- <sup>1</sup> cé-él-à		‘dawn, be ripe’	/cé/

Again we see that the root H will spread in an unbounded fashion. If the verb ends in a glide-vowel sequence, then the H will reach the final syllable, as is the case in the unextended and passive forms. Below are forms with H-toned CV roots in non-phrase-final position.

(81) H-toned CV roots in non-phrase-final position

a.	tú-kú- <sup>1</sup> sh-á Chóólà	‘we are leaving Chola’	/tú-ku-sí-a Choola/
b.	tú-kú- <sup>1</sup> t-á nìngó	‘we are stopping well’	/tú-ku-té-a ningó/
c.	tú-kú- <sup>1</sup> ly-á sàaná	‘we are eating a lot’	/tú-ku-lí-a sáaná/

Two things should be quickly remarked upon. First, we note that examples such as (81a,b) show that High spreading is not confined to the word domain, but can apply across words as well. Second, forms such as (81c) show that H tone fusion is operative in Cilungu over a word boundary. If it were not we would expect the first H in the object NP here to be downstepped, but it is not. These aspects of the phrasal phonology will be taken up again below and are pursued in greater detail in chapter 9.

### 5.1.1.5 The 1sg. Subject Marker

Up to this point we have discussed the phonology of Present Progressive forms which have a H-toned SM of the shape CV-. Let us now turn to those which do not. We first examine 1 sg. forms, where the SM is a H-toned nasal /n-/. Representative 1 sg. forms with toneless stems are given below.

(82) 1 sg. verbs with toneless stems-phrase-final

- |    |                                      |                            |                    |
|----|--------------------------------------|----------------------------|--------------------|
| a. | n-kú-zíík-à ~ ín-kú-zíík-à           | ‘I am burying’             | /ń-ku-ziik-a/      |
| b. | n-kú-fúl-à ~ ín-kú-fúl-à             | ‘I am washing’             | /ń-ku-ful-a/       |
| c. | n-kú-mú-fúl-íl-à ~ ín-kú-mú-fúl-íl-à | ‘I am washing for him/her’ | /ń-ku-mu-ful-il-a/ |

In the above phrase-final forms each TBU is H-toned but the phrase-final one. This is exactly the pattern predicted if the 1 sg. SM /n’-/ is set up with an underlying H tone. As can be seen the 1 sg. prefix can be realized segmentally as either [ín] or simply [n]. We can account for this by setting up this prefix with a mora linked to a High tone. After the High tone undergoes unbounded spreading to the right, the word-initial /n/ will undergo nasal demorification. The mora, now unassociated to any segment, is optionally deleted. If it undergoes deletion, then the form simply surfaces with an initial nasal. If it remains, then I assume that it is realized phonetically as the default vowel /i/. Instances where such verbs are non-phrase-final are given below:

(83) 1 sg. verbs with toneless stems-non-phrase-final

- |    |  |                              |
|----|--|------------------------------|
| a. | n-kú-fúl-à Chòòlà ~ ín-kú-fúl-à Chòòlà         | ‘I am washing Chola’         |
| b. | n-kú-zíík-íl-à Chòòlà ~ ín-kú-zíík-íl-à Chòòlà | ‘I am washing for Chola’     |
| c. | n-kú-mù-fúl-à sàaná ~ ín-kú-mù-fúl-à sàaná     | ‘I am washing him/her a lot’ |

These forms are consistent with the analysis presented above. The H on the 1 sg. prefix undergoes binary spreading since it is not the rightmost H of the phrase. After nasal demorification, the stranded mora can either be deleted or realized as /i/. This is also the case in 1 sg. forms with a toneless OM and a H-toned root.

(84) H-toned root; toneless OM

- |    |  |                              |                       |
|----|--|------------------------------|-----------------------|
| a. | n-kú-mù-lás-à ~ ín-kú-mù-lás-à                                       | ‘I am hitting him/her’       | /ń-ku-mu-lás-a/       |
| b. | n-kú-mù-lás-á <sup>1</sup> sàaná ~ ín-kú-mù-lás-á <sup>1</sup> sàaná | ‘I am hitting him/her a lot’ | /ń-ku-mu-lás-a sàaná/ |
| c. | n-kú-mù-swéél-él-à ~ ín-kú-mù-swéél-él-à                             | ‘I am fishing for him/her’   | /ń-ku-mu-súel-a/      |

Below we show 1 sg. forms with H-initial stems.

(85) Macrostem with initial H

- |    |  |                       |                      |
|----|--|-----------------------|----------------------|
| a. | n-kú- <sup>1</sup> léét-à ~ ín-kú- <sup>1</sup> léét-à                                     | ‘I am bringing’       | /ń-ku-léet-a/        |
| b. | n-kú- <sup>1</sup> lás-à ~ ín-kú- <sup>1</sup> lás-à                                       | ‘I am hitting’        | /ń-ku-lás-a/         |
| c. | n-kú- <sup>1</sup> yá-fúl-à ~ ín-kú- <sup>1</sup> yá-fúl-à                                 | ‘I am washing them’   | /ń-ku-yá-ful-a/      |
| d. | n-kú- <sup>1</sup> yá-léét-à ~ ín-kú- <sup>1</sup> yá-léét-à                               | ‘I am bringing them’  | /ń-ku-yá-léet-a/     |
| e. | n-kú- <sup>1</sup> léét-á Chòòlà ~ ín-kú- <sup>1</sup> léét-á Chòòlà                       | ‘I am bringing Chola’ | /ń-ku-léet-a Choola/ |
| f. | n-kú- <sup>1</sup> lás-á <sup>1</sup> sàaná ~ ín-kú- <sup>1</sup> lás-á <sup>1</sup> sàaná | ‘I am hitting a lot’  | /ń-ku-lás-a sàaná/   |

In the above forms the H on the 1 sg. prefix has undergone bounded spreading, causing a downstep between the TAM prefix /ku-/ and the macrostem-initial High. Below are derivations (of (84a) and (85b)). Example (86)

shows the first stages of the derivation. Example (88) shows the result if (optional) Stray Mora Erasure applies and (87) shows the result if it does not.

(86)	n-ku-las-a         μ μ μ μ     H H	n-ku-mu-las-a           μ μ μ μ μ     H H	U.R.
	n-ku-las-a         μ μ μ μ   /   H H	n-ku-mu-las-a           μ μ μ μ μ   /   H H	Binary H Spreading
	n-ku-las-a         μ μ μ μ   /   H H	n-ku-mu-las-a           μ μ μ μ μ   /   H H	Demorification
(87)	n-ku-las-a         μ μ μ     H H	n-ku-mu-las-a           μ μ μ μ     H H	Stray Mora Erasure
(88)	in-ku-las-a         μ μ μ μ   /   H H	in-ku-mu-las-a           μ μ μ μ μ   /   H H	Default /i/ insertion

Let us now consider 1 sg. forms with a vowel-initial root.

(89)	a. n-kw-íimb-à ~ ín-kw-íimb-à	‘I am digging’	/ń-ku-imb-a/
	b. n-kw-íík-à ~ ín-kw-íík-à	‘I am going down’	/ń-ku-ik-a/
(90)	a. n-kú-ùm-à sàaná ~ ín-kú-ùm-à sàaná	‘I am beating a lot’	/ń-ku-um-a sàaná/
	b. n-kw-ìimb-il-à Chòòlà ~ ín-kw-ìimb-il-à Chòòlà	‘I am digging for Chola’	/ń-ku-imb-il-a Choola/

These forms behave as predicted. The H from the 1 sg. SM spreads to the penult mora if the verb is phrase-final (89). If the verb is not phrase-final then the H will undergo binary rather than unbounded spreading, spreading to just the following mora (90).

Let us now consider H-toned vowel-initial verbs.

(91) Vowel-initial H-toned roots

a.	n-kw-í <sup>1</sup> imb-à ~ ín-kw-íimb-à	‘I am singing’	/ń-ku-ímb-a/
b.	n-kw-í <sup>1</sup> ík-à ~ ín-kw-íík-à	‘I am putting’	/ń-ku-ík-a/
c.	n-kw-í <sup>1</sup> ímíl-íl-à ~ ín-kw-íímíl-íl-à	‘I am standing’	/ń-ku-ímíl-il-a/
d.	n-kw-í <sup>1</sup> imb-á <sup>1</sup> sáaná ~ ín-kw-íimb-á <sup>1</sup> sáaná	‘I am singing a lot’	/ń-ku-ímb-a sáaná/
e.	n-kw-í <sup>1</sup> imb-íl-á Chòòlà ~ ín-kw-íimb-íl-á Chòòlà	‘I am singing for Chola’	/ń-ku-ímb-a Choola/

Like the other 1 sg. forms, these have two possible realizations—one in which the mora of the 1 sg. /n-/ has been deleted and the other where it is realized as [i-]. Just as we saw above, after the word-initial nasal undergoes Nasal Demorification, Stray Mora Deletion optionally deletes this word-initial mora. If this process does not apply, the mora will be realized segmentally by the default vowel /i/. We noted above for the Present Progressive forms with a /CV/ SM and a H-toned vowel initial root, that spreading did not create an intra-syllabic downstep across a macrostem boundary (54). The analysis presented for those forms in §5.1.1.2 was to allow the spreading and then remove the link with the Intrasyllabic Downstep Retraction rule posited in (58). Since that rule specifies that the H affected be doubly-linked before the right link is removed, it will correctly not remove the sole link from the H provided by the 1 sg. SM and the mora associated to /ku/ in the forms in (91). Thus, this analysis is preferred over the one in which the creation of an intra-syllabic OCP violation blocks Binary Spreading.

(92) a.	n-ku-imb-a	b.	n-ku-imb-a	U.R.
	H H		H H	
	n-ku-imb-a		n-ku-imb-a	Binary H Spreading
	/		/	
	H H		H H	
	n-ku-imb-a		in-ku-imb-a	Nasal Demorification followed by
			/	erasure (a) or default /i/ (b)
	H H		H H	
	n/a		in-ku-imb-a	Intrasyllabic Downstep Retraction (58)
			H H	

Below are vowel-initial roots with OMs.

(93) a.	n-kú-mw-íimb-à ~ ín-kú-mw-íimb-à	‘I am digging him/her up’	/ń-ku-mu-imb-a/
b.	n-kú- <sup>1</sup> mw-íimb-à ~ ín-kú- <sup>1</sup> mw-íimbà	‘I am digging you (pl.) up’	/ń-ku-mú-imb-a/
c.	n-kú-mw-íimb-à ~ ín-kú-mw-íimb-à	‘I am singing about him/her’	/ń-ku-mu-imb-a/
d.	n-kú- <sup>1</sup> mw-íimb-à ~ ín-kú- <sup>1</sup> mw-íimb-à	‘I am singing about you’	/ń-ku-mú-imb-a/

The tonology of these forms comes out as expected. In (93a) the H from the 1 sg. marker undergoes unbounded spreading to the penult. In (93b) (and (93c)) the H from the 1 sg. marker undergoes binary spreading

since it is followed by another H in the word. In (93c) this results in a rising tone. In (93d) the H on the OM and root fuse. (The unbounded spread of this fused H is vacuous.)

### 5.1.1.6 The 3 sg. Subject Marker

Let us now turn to a discussion and fuller examination of forms which have the 3 sg. SM. We begin with forms with toneless roots.

#### (94) 3 sg. SM with toneless macrostem; phrase-final

a.	à-kú-sh-á	‘he/she is grinding’	/á-ku-si-a/
b.	à-kú-fúl-íl-à	‘he/she is washing for’	/á-ku-ful-il-a/
c.	à-kú-zíik-à	‘he/she is burying’	/á-ku-ziik-a/
d.	à-kú-mú-fúl-íl-à	‘he/she is washing for him/her’	/á-ku-ful-il-a/
e.	à-kú-mú-súkíl-íl-à	‘he/she is accompanying him/her’	/á-ku-mu-sukil-il-a/

#### (95) 3 sg. SM with toneless macrostem; non-phrase-final

a.	à-kú-sh-á Chòòlà	‘he/she is grinding Chola’	/á-ku-si-a Choola/
b.	à-kú-sh-á <sup>1</sup> sáaná	‘he/she is grinding a lot’	/á-ku-si-a sáaná/
c.	à-kú-sí-il-à Chòòlà	‘he/she is grinding for Chola’	/á-ku-si-il-a Choola/
d.	à-kú-fúl-il-à Chòòlà	‘he/she is washing for Chola’	/á-ku-ful-il-a Choola/
e.	à-kú-zíik-à Chòòlà	‘he/she is burying Chola’	/á-ziik-a Choola/
f.	à-kú-súkíl-il-à Chòòlà	‘he/she is accompanying Choola’	/á-ku-sukil-il-a Choola/
g.	à-kú-sáàkùl-à Chòòlà	‘he/she is combing Chola’	/á-ku-saakul-a Choola/
h.	à-kú-mú-fúl-il-à pó	‘he/she is washing for him/her (loc.)’	/á-ku-mu-ful-il-a pó/

As can be seen in the examples above, phonetically, this subject marker surfaces as Low, but is followed by some string of H-toned TBUs (and the length of this string of H-toned TBUs is different from the one found in the 1 sg forms above). Since all the other morphemes in the verbs above can be diagnosed as toneless, the H which surfaces on the TAM prefix /ku-/ and following TBUs must have come from the 3 sg. SM. I would like to suggest that like all other class 1/2 SMs, the 3 sg. is underlyingly H-toned, spreads like the others do and is then exceptionally delinked from the 3 sg. prefix. But while this analysis is consistent with the tonology of the phrase-final forms in (94), it fails in (95) on the assumption that binary spreading is a process expressed by a single rule. If the H on the 3 sg. SM underwent binary spreading and then delinked from /a-/ we would expect the H to only surface on the TAM prefix /ku-/, yet this is not the case. Instead both the /ku-/ as well as the following mora are H-toned. Therefore, unless ternary spreading was posited in this one case—certainly a dubious move—such an analysis is not viable. Before positing an analysis of these facts, let us consider the 3 sg. forms of verbs with a High tone in the macrostem.

#### (96) 3 sg. SM with H initial macrostem

a.	à-kú- <sup>1</sup> sh-á	‘he/she is leaving’	/á-ku-sí-a/
b.	à-kú- <sup>1</sup> lás-il-à	‘he/she is hitting for’	/á-ku-lás-il-a/
c.	à-kú- <sup>1</sup> yá-súl-il-à	‘he/she is blacksmithing for them’	/á-ku-yá-súl-il-a/
d.	à-kú- <sup>1</sup> yá-súkíl-il-à	‘he/she is accompanying them’	/á-ku-yá-sukil-il-a/

(97) 3 sg. SM with toneless OM and H-toned root

- |    |                                 |                                       |                     |
|----|---------------------------------|---------------------------------------|---------------------|
| a. | à-kú-mú- <sup>1</sup> súl-íl-à  | ‘he/she is blacksmithing for him/her’ | /á-ku-mu-súl-il-a/  |
| b. | à-kú-mú- <sup>1</sup> léét-él-à | ‘he/she is bringing for her/him       | /á-ku-mu-léet-il-a/ |

As can be seen in (96), when a H-toned mora immediately follows the TAM prefix /ku-/, then a downstep results between the /ku-/ and the macrostem-initial H. When a toneless-H sequence follows the 3 sg. SM, as in (97), then a downstep occurs between the toneless OM and the H-toned root. Assuming that the 3 sg. SM is underlyingly H, we directly account for the forms in (96), but not those in (97).

Next, let us consider 3 sg. forms with vowel-initial roots. We begin with forms with H-toned vowel-initial roots.

(98) 3 sg. SM with H-toned vowel-initial root

- |    |                                     |                               |                        |
|----|-------------------------------------|-------------------------------|------------------------|
| a. | à-kú <sup>1</sup> -úm-à             | ‘he/she is drying’            | /á-ku-úm-a/            |
| b. | à-kw-í <sup>1</sup> imb-à           | ‘he/she is singing’           | /á-ku-imb-a/           |
| c. | à-kw-í <sup>1</sup> ík-à            | ‘he/she is putting’           | /á-ku-ík-a/            |
| d. | à-kw-í <sup>1</sup> ímíl-íl-à       | ‘he/she is standing’          | /á-ku-ímil-il-a/       |
| e. | à-kw-í <sup>1</sup> imb-íl-á Chòòlà | ‘he/she is singing for Chola’ | /á-ku-imb-il-a Choola/ |

The rules formulated to this point correctly predict these patterns. The H from the 3 sg. /á-/ will spread onto the following toneless mora which happens to be the first mora of a bimoraic syllable, whose second mora is underlyingly H-toned. This correctly predicts a fall from H to downstepped H. The H is then delinked from the 3 sg. SM. (The rule of Intrasyllabic Downstep Retraction (58) will not subsequently apply as the first H is only singly-linked.)

Let us now consider verbs with vowel-initial toneless roots.

(99) 3 sg. SM with toneless vowel-initial root; phrase-final

- |    |             |                         |              |
|----|-------------|-------------------------|--------------|
| a. | à-kwí-imb-à | ‘he/she is digging’     | /á-ku-imb-a/ |
| b. | à-kú-úm-à   | ‘he/she is beating’     | /á-ku-um-a/  |
| c. | à-kw-íík-à  | ‘he/she is coming down’ | /á-ku-ik-a/  |

(100) 3 sg. SM with toneless vowel-initial root; non-phrase-final

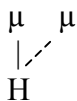
- |    |                       |                               |                     |
|----|-----------------------|-------------------------------|---------------------|
| a. | à-kw-íík-à nìngó      | ‘he/she is coming down well’  | /á-ku-ik-a níngó/   |
| b. | à-kw-íimb-à sàaná     | ‘he/she is digging a lot’     | /á-ku-imb-a sáaná/  |
| c. | à-kw-éèl-à pó         | ‘he/she is winnowing (loc.)’  | /á-ku-el-a pó/      |
| d. | à-kú-úm-à Chòòlà      | ‘he/she is beating Chola’     | /á-ku-um-a Choola/  |
| e. | à-kw-íimb-íl-à Chòòlà | ‘he/she is digging for Chola’ | /á-ku-imb-a Choola/ |

As can be seen above, the tonology of the phrase-final forms is as expected—the floating H docks onto the pen-initial mora and then spreads in an unbounded fashion to the penult. The non-phrase-final forms in (100) need further analysis as the H is realized on the pen-initial mora, but spreads no further.

In order to account for the attested spreading in the 3 sg. forms above, we must think more deeply about the rule of bounded spreading. Up to this point the rule has been employed as one which simply spreads a H to the following mora. But all the cases we have seen up to this point have involved the H from a CV syllable (e.g. the subject marker) spreading onto the initial mora of the following syllable (whether that syllable be long or short). But we must ask what happens when the input H is linked to the first mora of a bimoraic syllable. A rule which states that binary spreading spreads a H exactly one mora and then stops predicts that /ĆvCvCv/ should surface as [ĆvC̀vC̀v], but it does not. Instead what we find (and this will be exemplified robustly in the sections to follow) is that the H not only spreads to the following tautosyllabic mora, but spreads again onto the first mora of the following syllable, yielding [ĆvĆvC̀v] (or [ĆvĆvC̀v]). Binary spreading in Cilungu, therefore, cannot be as simple as saying that a High spreads onto the following mora and stops. But neither is it the case that the H spreads to the end of the following syllable, as demonstrated by forms above such as *tú-kú-ùm-à Chòlà* ‘we are beating Chola’ (52a) where the H on the 1 pl. SM spreads onto the first mora of the following syllable, but not onto the second.

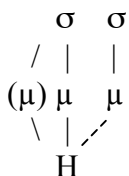
In order to account for these patterns, as well as others to be presented below, I would like to suggest that the process of Bounded Spreading is actually accomplished by the combined application of two different rules. The first rule I will call “General Doubling”. This rule will spread a High tone onto the following mora—whether that mora be tautosyllabic or heterosyllabic. This is illustrated in (101). And, as we have seen above (e.g. (10)), this rule will apply even if it creates an OCP violation with a following High.

(101) General Doubling



The next rule I will call “Heterosyllabic Doubling.” Its goal (though not always realized) is to insure that a High tone span stretches over a syllable boundary. General Doubling will often accomplish this on its own, but when it does not, Heterosyllabic Doubling attempts to make sure the H is spread into a following syllable. But it will only apply to spread a High into a following syllable if it can accomplish this by spreading onto the adjacent mora. I.e. its application is strictly local—it would never, e.g. spread a H two morae to the right just to get it into the following syllable. It is formalized in (102).

(102) Heterosyllabic Doubling



The gist of the rule is that a High, linked only to one or more tautosyllabic morae, spreads onto an adjacent heterosyllabic mora.

The two rules apply in the order they were presented, as illustrated in the following schematic derivations.



(103)	a. /ĆCvCv/	b. /ĆCvvCv/	c. /ĆvCvCv/	d. /ĆvCvvCv/	U.R.
	ĆĆĆCv	ĆĆĆvCv	ĆvĆCvCv	ĆvĆCvvCv	General Doubling
	n/a	n/a	Cv'v'ĆCv	ĆvĆĆvCv	Heterosyllabic Doubling

Heterosyllabic Doubling will not apply to (103a-b) since the H at the time this rule would apply is already linked to more than one syllable. Heterosyllabic Doubling does apply in (103b-c) since the H is not yet linked to more than one syllable.

Given this revised formalization of binary spreading, the tonology of the 3 sg. forms in (100) can be accounted for by assuming that 1) the 3 sg. /á-/ is underlyingly linked to a High tone and 2) there is a rule which delinks this H from the 3 sg. We will show below that there are two other SMs which exhibit the same behavior as the 3 sg. /á-/ in delinking, the Class 4 /i-/ and Class 9 /i-/. What these three SMs have in common is that they are onsetless. Thus I label this rule “Onsetless SM Delinking.” Crucially, this delinking rule follows General Doubling, but precedes Heterosyllabic Doubling. This is illustrated below.<sup>13</sup>

(104) Onsetless SM Delinking

$\mu_i$   
+  
H

( $\mu_i$  belongs to an onsetless SM)

(105)	a. / <u>á</u> -ku-imb-il-a <u>pó</u> /	b. / <u>á</u> -ku-ziik-il-a <u>pó</u> /	Input
	<u>á</u> - <u>kú</u> -imb-il-a <u>pó</u>	<u>á</u> - <u>kú</u> -ziik-il-a <u>pó</u>	General Doubling
	a- <u>kú</u> -imb-il-a <u>pó</u>	a- <u>kú</u> -ziik-il-a <u>pó</u>	Onsetless SM Delinking
	n/a	a- <u>kú</u> -zíik-il-a <u>pó</u>	Heterosyllabic Doubling

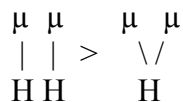
As can be seen above, after the 3 sg. H delinks, the Heterosyllabic Doubling rule will not apply to (105a) since the mora following the one the H is linked to (the root-initial mora) is not in the following syllable (but rather it is within the same syllable). This does not mean that Heterosyllabic Doubling will not spread a docked 3 sg. High, however, as seen in (105b), included for comparative purposes. In this case Heterosyllabic Doubling will spread the H to the following mora which is in the following syllable.<sup>14</sup>

<sup>13</sup> Where there are no floating elements and the association linkages are not complex, derivations will often be presented with simple accents in place of autosegments and association lines. However, since it is important to distinguish between two consecutive TBUs linked to the same H as opposed to distinct ones, this will be indicated by underlining.

<sup>14</sup> An anonymous reviewer suggests an alternative analysis whereby a rule moves the H from the 3 sg. SM onto the following mora, proposing that such a rule simply precedes General Doubling (eliminating the need here for Heterosyllabic Doubling). However, this analysis incorrectly predicts that the H will spread onto the second root mora in the forms in (100). It would not be possible to posit a subsequent process which turned a long level

Let us now return to the forms in (96). One question which we have not addressed up to this point is where Fusion should be ordered with respect to other tonal processes, and most specifically General Doubling. We will see throughout this study that there is a very strong (though not perfect) correlation between underlying adjacency between H's and Fusion, i.e. H's which are underlyingly adjacent will fuse, while those which are not underlyingly adjacent do not fuse but surface with either a Low toned TBU or downstep between them. For this reason, the most straightforward analysis is to order Fusion quite early (cf. §10.3.3) and formalize it as a process which simply fuses two H's linked to adjacent morae. (The rule, as we have seen can apply multiple times in a single form.)

(106) Fusion



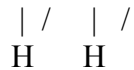
If Fusion is ordered before General Doubling & Unbounded Spreading, which in turn precede Onsetless SM Delinking, then we correctly predict that the H from the 3 sg SM and the root H will not fuse even though they wind up on adjacent morae. This is illustrated in the derivation of the form in (96b).

(107) a-ku-las-il-a U.R.



n/a Fusion

a-ku-las-il-a General Doubling & Unbounded Spreading



a-ku-las-il-a Onsetless SM Delinking



To review, then, there are two principles at play here with regard to bounded spreading. One rule or process wants to insure that a H tone be realized on at least two morae, the other that it be realized on heterosyllabic morae. In the simplest configuration /CVCv/ both of these goals are accomplished by General Doubling which will spread the H one mora to the right, onto the following syllable. But as can be seen above in (103), when we manipulate the number of morae on adjacent syllables and the underlyingly position of the H, we get a large array of possible tone patterns which resist being accounted for by a single rule. By positing two different processes here, we predict, that other rules could be ordered between them. We have already seen one such rule here (Onsetless SM Delinking) and several others will be presented below. (See the end of Chapter 10 for a

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H into a Fall since these do in fact contrast before a subsequent L. Examples of forms with a long level H before a L can be seen in (271) as well as in §10.4.2. We will see additional evidence for the rule of Heterosyllabic Doubling below.

summary of all rule ordering.) One final justification for breaking up binary spreading into these two rules is that we will show below that they have different properties with regard to being constrained by the OCP.<sup>15</sup>

### 5.1.1.7 Subject Markers in classes 3-18

Next, let us consider the subject prefixes in classes higher than 1/2. It turns out that all of these both sponsor and bear a H-toned in the Present Progressive, except class 4 and class 9 (both segmentally /i/) which, like the 3 sg. class 1 SM discussed above, sponsor a H underlyingly but surface as toneless. Representative examples of class 4 and 9 SMs are given in (108), while other SMs are given in (109). A summary of the underlying tonal status of all SMs is given in Table 3.

(108)	a.	ì-kú-fúúk-à	‘they (C4) are smoldering’	/ì-ku-fuuk-a/
	b.	ì-kú- <sup>1</sup> pón-à	‘they (C4) are falling’	/ì-ku-pón-a/
	c.	ì-kú-fúúk-à	‘it (C9) is smoldering’	/ì-ku-fuuk-a/
	d.	ì-kú- <sup>1</sup> pón-à	‘it (C9) is falling’	/ì-ku-pón-a/
(109)	a.	ú-kú- <sup>1</sup> pón-à	‘it (C3) is falling’	/gú-ku-pón-a/
	b.	ú-kú-fúúk-à	‘it (C3) is smoldering’	/gú-ku-fuuk-a/
	c.	cí-kú- <sup>1</sup> pón-à	‘it (C7) is falling’	/cí-ku-pón-a/
	d.	cí-kú-fúúk-à	‘it (C7) is smoldering’	/cí-ku-fuuk-a/
	e.	ví-kú- <sup>1</sup> pón-à	‘they (C8) are falling’	/ví-ku-pón-a/
	f.	lú-kú- <sup>1</sup> pón-à	‘it (C11) is falling’	/lú-ku-pón-a/
	g.	ú-kú- <sup>1</sup> pón-à	‘it (C14) is falling’	/gú-ku-pón-a/

<sup>15</sup> The rule of General Doubling applies even when its application results in an OCP violation. E.g. /tú-ku-lás-a/ > *tú-kú-<sup>1</sup>lás-à* ‘we are hitting’. In order to derive /a-ku-mu-lás-a/ > *a-kú-mú-<sup>1</sup>lás-à*, the rule of Heterosyllabic Doubling also must apply in this case, even when it creates an OCP violation. We will show below, however, that when the input to Heterosyllabic Doubling is a doubly-linked H, then it will not in fact apply if it would create an OCP violation.

Class	Subject Prefix
1	ń-, ú-, á-/ú-
2	tú-, mú-, yá-
3	gú-
4	í-
5	lí-
6	yá-
7	cí-
8	ví-
9	í-
10	zí-
11	lú-
12	ká-
13	tú-
14	gú-
15	kú-
16	pá-
17	kú-
18	mú-

Table 3: Subject Agreement prefixes

We will see evidence below in section 5.1.1.9 that while the class 3 and 14 SMs surface segmentally as [u] and while the class 4 and 9 SMs surface segmentally as [i], there is (tonal) evidence that the former should be set up with an onset which later deletes, while the latter should be set up as onsetless. While either /b/ or /g/ could be set up as underlying onsets, I have chosen /g/ since there is allomorphic evidence that the class 3 and class 14 OM's are underlyingly /gu-/ (cf. §3.3). Thus, it seems possible to generalize that the SMs which undergo H delinking are exactly those which are onsetless.<sup>16</sup>

#### 5.1.1.8 Negative Present Progressive

We now turn to the negative of the Present Progressive. This is formed by adding the prefix /táa-/ (immediately before the /ku-/) to the affirmative forms. We will see as we examine other TAMs below that there are three negative prefixes used in Cilungu: 1) /táa-/ used here in the Present Progressive, 2) /síi-/ used in the Habitual (cf. §5.1.9) and /tá-/ used in all other cases. (The tonology of these three will be discussed as they arise in the data presented.)

Examples illustrating the tone patterns in the negative present progressive are given below.

<sup>16</sup> The only potential counterexample to this claim would be the 2 sg. SM which does not delink. E.g. *ú-kú-lím-á* 'you are farming'. Still, this SM could in fact also be set up as /gu-/ as the /g/ would always delete. See Downing (1998) for a broad overview of the distinct properties of onsetless syllables, and Odden (1995) for a study of onsetless syllables in Kikereve.

(110) Toneless macrostem, phrase-final

- |    |                    |                                 |                      |
|----|--------------------|---------------------------------|----------------------|
| a. | tù-táa-kù-sh-à     | ‘we are not grinding’           | /tù-táa-ku-si-a/     |
| b. | tù-táa-kù-fùl-à    | ‘we are not washing’            | /tù-táa-ku-ful-a/    |
| c. | tù-táa-kù-zìik-à   | ‘we are not burying’            | /tù-táa-ku-mu-ful-a/ |
| d. | à-táa-kù-mù-fùl-à  | ‘he/she is not washing him/her’ | /á-táa-ku-mu-ful-a/  |
| e. | tù-táa-kw-ìimb-w-à | ‘we are not being dug up’       | /tù-táa-ku-imb-u-a/  |

(111) Toneless macrostem, non-phrase-final

- a. tù-tâa-kù-ziik-à pó 'we are not burying (loc.)' /tù-tâa-ku-ziik-a pó/  
b. tù-tâa-kwì-imb-à Chòòlà 'we are not digging up Chola' /tù-tâa-ku-imb-a Choola/

(112) H-toned macrostem, phrase-final

- |    |                        |                                   |                          |
|----|------------------------|-----------------------------------|--------------------------|
| a. | tù-táa-kù-léet-à       | ‘we are not bringing’             | /tù-táa-ku-léet-a/       |
| b. | tù-táa-kù-mù-léet-él-à | ‘we are not bringing for him/her’ | /tù-táa-ku-mu-léet-il-a/ |
| c. | à-táa-kù-mú-fúl-à      | ‘he/she is not washing you (pl.)’ | /á-táa-ku-mú-ful-a/      |

(113) H-toned macrostem, non-phrase-final

- a. tǔ-táa-kù-léet-él-án-á<sup>1</sup> sáaná 'we are not bringing for each other a lot' /tǔ-táa-ku-léet-il-an-a sáaná/  
 b. tǔ-táa-kw-íimb-á Chòolà 'we are not singing about Chola' /tǔ-táa-ku-ímb-a Choola/

These forms are tonally odd in several different ways. First, all SMs surface as Low. We will see that this is something which is true in the negative forms in all TAMs. Second, we would expect the H in the forms in (110) (where it is the rightmost H in a phrase-final word) to undergo unbounded spreading to the penult, but it does not. Third, why is it that the H that surfaces on the negative prefix does not appear to have undergone even bounded spreading? Let us explore two alternatives. The first, and perhaps least abstract, analysis would be to set up the negative prefix as /táa/ and lexically mark it as an exception to any spreading—a somewhat drastic move since bounded and unbounded spreading are otherwise extremely productive. With regard to the SMs, we will see below that SMs always surface as Low before a negative prefix. To account for this, one could either posit a rule which deletes a SM High before this morpheme or assume some lexical allomorphy in the SMs such that they all select a toneless variant in this morphological context.<sup>17</sup>

A second and admittedly more abstract analysis, but the one I would like to pursue and ultimately adopt, would attempt to account for the word-initial CVCVCV pattern in the same way we did for the 3 sg. forms in (100) which begin with the same tone pattern. To do this, we assume that in the negative (just as in the affirmative), all SMs are underlyingly H-toned. As all SMs do in fact surface as Low before the H of a negative prefix (something we will see to be true in all TAMs), we posit the rule below, which exhibits clear motivation from the OCP.

<sup>17</sup> The tonology of all SMs is addressed in greater detail in §10.7.

(114) Pre-Negative H Delinking

$$\begin{array}{c} \mu \\ + \\ H \ H_n \end{array}$$

( $H_n$  is a H sponsored by a negative prefix)

While this accounts for the Low on the SMs in the negative Present Progressive forms in (110)-(113), we must still account for the Falling tone on [táà]. My proposal in this regard is to have the negative prefix sponsor its own H tone which ultimately becomes floating. In this way the H on the SM will no longer be the rightmost H in the word and therefore will undergo binary rather than unbounded spreading—exactly what is needed in this case. I set up the negative prefix as /táa-/ and posit a rule which delinks the H when it is immediately preceded by a H-toned TBU. This clearly seems to be a version of what has come to be called Meeussen’s Rule within Bantu—where a H tone deletes or delinks when it is adjacent to another H tone (often confined to specific morphosyntactic environments). We will see supporting evidence below in §5.1.6, 5.1.8, 5.1.9, and 5.1.10, that the particular delinking process only affects a pre-macrostem H in a bimoraic morpheme. This rule, dubbed “Bimoraic H Delinking” is formalized below.

(115) Bimoraic H Delinking

$$\begin{array}{c} \sigma \\ / \ \backslash \\ \mu \ \mu_i \ \mu_j \\ | \ + \\ H \ H \end{array}$$

( $\mu_i$  and  $\mu_j$  are pre-macrostem, tautomorphemic morae)

The rules postulated above, when correctly ordered, produce exactly the required results, as seen in the derivation below.

(116)	tu-taa-ku-ful-a     H H	Input
	tu-taa-ku-ful-a   H H	Bimoraic H Delinking
	tu-taa-ku-ful-a   / H H	General Doubling
	n/a	Heterosyllabic Doubling
	n/a	Unbounded Spreading
	tu-taa-ku-ful-a / H H	Pre-Negative H Delinking

#### 5.1.1.9 Present Progressive Relatives

We now turn to the relative forms of the Present Progressive, beginning with subject relatives. The structure of the Present Progressive relative is given in (117) and representative examples of relative NPs are given in (118).

(117) Relative Prefix – SM – ku - Stem

(118)	a. í-cí-ùùngú í-cí-kù-pón-à	‘the caterpillar (C7) which is falling’
	b. í-cí-kù-fw-á	‘that (C7) which is dying’
	c. í-m-pé <sup>1</sup> énzú <sup>1</sup> í-zí-kù-pón-à	‘the cockroaches (C10) which are falling’
	d. í-ví-ntú <sup>1</sup> í-ví-kù-pón-à	‘the things (C8) which are falling’
	e. í-ví-kù-zìik-w-à	‘those (C8) which are being buried’
	f. í-ví-kù-zìik-w-à nìngó	‘those (C8) which are being buried well’
	g. í-cí-kù-léét-w-á	‘those (C8) who are being brought’

The table showing the segmental realizations of the relative marker plus following SM is given below.

Class	Relative Prefixes
1/1a	a-a- u-u-
2	a-(b)a- <sup>18</sup>
3	u-gu-
4	i-i-
5/5a	i-li-
6	a-ya-
7	i-ci-
8	i-vi-
9	i-i-
10	i-zi-
11	u-lu-
12	a-ka-
13	u-tu-
14	u-gu-
15	u-ku-

Table 4: Relative Prefixes + SM

I propose that the relative prefix is a H-toned /V-/, where the V is a copy of the V in the subject marker that immediately follows. Let us now examine these subject relatives in closer detail. We saw above in the non-relative forms that SMs were of two types: those which sponsored a H underlyingly but did not bear it on the surface (3 sg. /á-/ , Class 4 /i-/ and Class 9 /i-/), and those which sponsored a High underlyingly and bore it on the surface as well (all other SMs) (see. §§5.1.1.6, 5.1.1.7). Let us examine the behavior of relatives containing both types of SMs. We begin with those of the latter type which do not undergo delinking.<sup>19</sup>

- (119) a. á-á-kù-sh-à ‘those who are grinding’ /á-bá-ku-si-a/  
b. á-á-kù-sùkil-il-à ‘those who are accompanying’ /á-bá-ku-sukil-il-a/  
c. á-á-kù-mù-zìik-à ‘those who are burying him/her’ /á-bá-ku-mu-ziik-a/  
d. á-á-kù-sùkil-il-à nìngó ‘those who are accompanying well’ /á-bá-ku-sukil-il-a ningó/  
e. á-á-kù-lèm-à sáaná ‘those who are grabbing a lot’ /á-bá-ku-lem-a sáaná/  
f. í-ví-kù-zìik-w-à ‘those (C8) which are being buried’ /í-ví-ku-ziik-u-a/  
g. í-zí-kù-zìik-w-à ‘those (C9) which are being buried’ /í-zí-ku-ziik-u-a/  
h. ú-ú-kù-pèkèt-w-à ‘the one (C3) which is being inspected’ /ú-gú-ku-pekèt-u-a/  
i. ú-ú-kù-pèkèt-w-à ‘the one (C14) which is being inspected’ /ú-gú-ku-pekèt-u-a/
- (120) a. á-á-kù-mù-léet-à ‘those who are bringing him/her’ /á-bá-ku-mu-léet-a/  
b. á-á-kù-mù-súm-à ‘those who are sewing him/her’ /á-bá-ku-mu-súm-a/  
c. á-á-kù-n-dém-él-à ‘those who are planting for me’ /á-bá-ku-n-lém-il-a/

<sup>18</sup> The 3 pl. relative SM is generally /ba-/ when followed by a V-initial TAM, and otherwise /a-/.

<sup>19</sup> If ‘those’ in the gloss is the human 3 pl. (i.e. class 2) it is unmarked. If it refers to any other class, then that class is listed.



(121) a.	á-á-kù-léét-à	‘those who are bringing’	/á-bá-ku-léet-a/
b.	á-á-kù-lás-à	‘those who are hitting’	/á-bá-ku-lás-a/
c.	í-ví-kù-pón-à	‘those (C8) which are falling’	/í-ví-ku-pón-a/
d.	ú-lú-kù-léét-w-á	‘the one (C11) which is being brought’	/ú-lú-ku-léet-u-a/
e.	á-á-kù-yá-zíik-à	‘those who are burying them’	/á-bá-ku-yá-ziik-a/
f.	á-á-kù-yá-léét-à	‘those who are bringing them’	/á-bá-ku-yá-léet-a/

In each case the first two syllables surface as High, while all subsequent syllables surface as Low. The question thus arises as to why the H on the relative prefix has undergone bounded rather than unbounded spreading. To account for a similar phenomenon in the negative Present Progressive forms (section 5.1.1.8), we made sure that the H which underwent binary spreading was followed by a floating H. Since only the rightmost H in the word will undergo unbounded spreading, this insured that the H on the SM underwent binary spreading only. I propose something similar here which formally could be handled in one of two ways. One way would be to set up the SMs with a floating H tone. The alternative, and one I adopt here, would be to set up the SMs with a linked H (which is the case in the non-relative Present Progressive forms) and then have a Relative SM Delinking rule, motivated by the OCP, which will delink the H on a relative SM in the context of it being preceded by a H-toned relative prefix. (The stipulation that the two morae be heterosyllabic will be explained below.)

(122) Relative SM Delinking

$\sigma$	$\sigma$
$\mu_1$	$\mu$
	+
H	H

( $\mu_1$  is a relative prefix)

(123)	i-vi-ku-ziik-a	Input
	H H	
	i-vi-ku-ziik-a	Relative SM Delinking
	H H	
	i-vi-ku-ziik-a	General Doubling
	/	
	H H	
	n/a	Unbounded Spreading

Let us now turn to forms which have have a SM that was shown to undergo delinking, viz. the 3 sg. /á-/ , the Class 4 /í-/ and the Class 9 /i-/

(124) Subject Relatives with toneless macrostems; phrase-final

a.	á-à-kú-fúl-à	‘the one who is washing’	/á-á-ku-ful-a/
b.	á-à-kú-mú-zíik-à	‘the one who is burying him/her’	/á-á-ku-mu-ziik-a/
c.	á-à-kú-mú-lééng-à	‘the one who is drawing him/her’	/á-á-ku-leng-a/
d.	á-à-kúú-n-dém-él-à	‘the one who is grabbing for me’	/á-á-ku-n-lem-il-a/
e.	á-à-kú-lém-ésh-à	‘the one who is grabbing a lot’	/á-á-ku-lem-isj-a/
f.	í-ì-kú-lámúk-à	‘the one (C9) which is greeting’	/í-í-ku-lamuk-a/
g.	í-ì-kú-lámúk-à	‘those (C4) which are greeting’	/í-í-ku-lamuk-a/

(125) Subject Relatives with toneless macrostems; non-phrase-final

a.	á-à-kú-zíik-à sáaná	‘the one who is burying a lot’	/á-á-ku-ziik-a sáaná/
b.	á-à-kú-súkíl-ìl-à sáaná	‘the one who is accompanying a lot’	/á-á-ku-sukil-il-a sáaná/
c.	í-ì-kú-fúl-w-à sáaná	‘the one (C9) which is being washed a lot’	/í-í-ku-ful-u-a sáaná/
d.	í-ì-kú-fúl-w-à sáaná	‘those (C4) which are being washed a lot’	/í-í-ku-ful-u-a sáaná/

(126) Subject Relatives with H-initial root & no OM

a.	á-à-kú- <sup>1</sup> sh-à	‘the one who is leaving’	/á-á-ku-sí-a/
b.	á-à-kú- <sup>1</sup> lás-à	‘the one who is hitting’	/á-á-ku-lás-a/
c.	á-à-kú- <sup>1</sup> swéél-à	‘the one who is fishing’	/á-á-ku-súel-a/
d.	á-à-kú- <sup>1</sup> léét-à	‘the one who is bringing’	/á-á-ku-léet-a/
e.	á-à-kú- <sup>1</sup> sópólól-à	‘the one who is untying’	/á-á-ku-sópolol-a/

(127) Subject Relatives with H-initial root & H-toned OM

a.	á-à-kú- <sup>1</sup> mú-léét-à	‘the one who is bringing you (pl.)’	/á-á-ku-mú-léet-a/
b.	á-à-kú- <sup>1</sup> yá-zíik-à	‘the one who is bringing them’	/á-á-ku-yá-ziik-a/
c.	á-à-kú- <sup>1</sup> mú-lás-à	‘the one who is hitting you’	/á-á-ku-mú-lás-a/

(128) Subject Relatives with H-initial root & toneless OM

a.	á-à-kú-mú- <sup>1</sup> léét-à	‘the one who is bringing him/her’	/á-á-ku-mu-léet-a/
b.	á-à-kú-mú- <sup>1</sup> lás-à	‘the one who is hitting him/her’	/á-á-ku-mu-lás-a/

What makes these forms behave tonally in a different way from the forms examined in (119)-(121) is that the combination of relative prefix + prefix in the forms in (124)-(128) is a single syllable, while it is two syllables in those in (119)-(121). The rule of Relative SM Delinking was formalized in (122) to delink a H only if it was preceded by a heterosyllabic H, and thus this rule will not apply to the forms in (124)-(128). Instead, the H on the onsetless SM in these forms will undergo either unbounded or bounded spreading after which Onsetless SM Delinking (104) will apply.<sup>20</sup> Derivations of (121b), (124a), and (126b) are given below.<sup>21</sup>

<sup>20</sup> The fact that the Class 4 and Class 9 SMs pattern with the 3 sg SM in (124)-(128), while the Class 3 and Class 14 SMs do not (119h,i) demonstrates that the latter should be set up with an onset (/g/), while the former should not.

(129)	a-ba-ku-las-a       H H H	a- a-ku-ful-a     H H	a-a-ku-las-a       HH H	U.R.
	a-ba-ku-las-a       H H H			Relative SM Delinking
	a-ba-ku-las-a   /   H H	a- a-ku-ful-a   \ / H H	a-a-ku-las-a   \ /   H H H	General Doubling
		a- a-ku-ful-a     H H	a-a-ku-las-a       H H H	Onsetless SM Delinking
		a- a-ku-ful-a     / H H		Unbounded Spreading

Let us now consider relatives with V-initial roots. We begin with the 3 sg. forms.

(130) 3 sg. Subject Relatives affirmative, toneless V-initial roots

a.	á-à-kw-ímb-à	‘the one who is digging’	/á-á-ku-imb-a/
b.	á-à-kú-úm-à	‘the one who is beating’	/á-á-ku-um-a/
c.	á-à-kw-éélék-à	‘the one who is cooking’	/á-á-ku-elek-a/
d.	á-à-kw-ímb-à sáaná	‘the one who is digging a lot’	/á-á-ku-imb-a sáaná/
e.	á-à-kw-éél-él-à Chòòlà	‘the one who is winnowing for Chola’	/á-á-ku-el-il-a Choola/

(131) 3 sg. Subject Relatives affirmative, H-toned V-initial roots

a.	á-à-kw-í <sup>1</sup> mb-à	‘the one who is singing’	/á-á-ku-ímb-a/
b.	á-à-kú-ú <sup>1</sup> m-à	‘the one who is hardening’	/á-á-ku-úm-a/
c.	á-à-kw-é <sup>1</sup> él-él-à Chòòlà	‘the one who is fishing for Chola’	/á-á-ku-él-il-a Choola/
d.	á-à-kú-mw-ímb-íl-à	‘the one who is singing for him/her’	/á-á-ku-mu-imb-il-a/

In the forms with toneless roots (130a-c) the H of the 3 sg. prefix undergoes unbounded spreading to the penult. As seen in (130d-e), when another word follows, then this H will undergo bounded spreading. In the forms with H-toned roots (131) the H of the 3 sg. prefix spreads onto the /ku-/ causing an intrasyllabic downstep in (131a-c) since the root-initial mora is H.

<sup>21</sup> It was shown above in (107) that the rule of Fusion must be ordered before Onsetless SM Delinking. I must assume therefore that the H on the 3 sg. relative SM (or perhaps more generally any relative prefix) is marked as an exception to Fusion.

Let us now turn to relatives with V-initial roots and non-3-sg. SMs.

(132) 3 pl. Subject Relatives, toneless V-initial roots

a.	á-á-kw-ìmb-à	‘those who are digging’	/á-bá-ku-imb-a/
b.	á-á-kù-ùm-à	‘those who are beating’	/á-bá-ku-um-a/
c.	á-á-kw-èèlèk-à	‘those who are cooking’	/á-bá-ku-elek-a/
d.	á-á-kw-ìmb-à sáaná	‘those who are digging a lot’	/á-bá-ku-imb-a sáaná/
e.	á-á-kw-ìmb-il-àn-à sáaná	‘those who are digging for e.o. a lot’	/á-bá-ku-imb-il-an-a sáaná/
f.	í-ví-kw-ìmb-à	‘those (C8) which are digging’	/í-ví-ku-imb-a/

(133) 3 pl. Subject Relatives, H-toned V-initial roots

a.	á-á-kw-ímb-à	‘those who are singing’	/á-bá-ku-ímb-a/
b.	á-á-kù-úm-à	‘those who are hardening’	/á-bá-ku-úm-a/
c.	á-á-kw-éél-à	‘those who are fishing’	/á-bá-ku-él-a/
d.	á-á-kù-mw-ímb-il-à	‘those who are singing for him/her’	/á-ba-ku-mu-ímb-il-a/
e.	í-ví-kw-ímb-à	‘those (C8) who are singing’	/í-ví-ku-ímb-a/

Relative SM Delinking will apply in all these forms. In the forms with toneless root, the H on the relative prefix undergoes binary spreading and not unbounded spreading due to the floating H (cf. (124)-(125)). In the forms in (133) the syllable containing the root-initial V predictably bears a rising tone.

Let us now examine the negative relative forms.

(134) a.	í-ví-tàà-kù-fùl-à	‘those (C8) which are not washing’	/í-ví-táa-ku-ful-a/
b.	í-ví-tàà-kù-pón-à	‘those (C8) which are not falling’	/í-ví-táa-ku-pón-a/
c.	í-ví-tàà -kw-ìmb-à	‘those (C8) which are digging’	/í-ví-táa-ku-imb-a/
d.	í-ví-tàà -kw-ímb-à	‘those (C8) which are singing’	/í-ví-táa-ku-ímb-a/
(135) a.	á-à-táa-kù-ziik-à	‘the one(s) who is/are not burying’	/á-á-táa-ku-ziik-a/
b.	á-à-táa-kù-mù-léét-à	‘the one(s) who is/are not bringing him/her’	/á-á-táa-ku-mu-léet-a/
c.	á-à-táa-kù-léét-à	‘the one(s) who is/are not bringing’	/á-á-táa-ku-léet-a/

In (134) we see that both Bimoraic H Delinking (115) as well as Relative SM Delinking (122) have applied. In (135) we see that there has been a tonal neutralization of the 3 sg. and 3 pl. forms. Both must be set up with /á-/ to account for the surface forms. We will in fact see a great deal of evidence below that just as there are two lexical allomorphs for the 3 sg. SM (in both relative and non-relative forms): /á-/ and /u-/; there are two lexical allomorphs for the 3 pl. relative SM: /á-/ and /bá-/. The former is generally used when a consonant immediately follows (as is the case in (135)) and the latter is generally used when a V immediately follows. The Present Progressive is actually somewhat unusual in that the 3 pl. is realized as /bá-/ in when the C-initial morpheme /ku-/ follows.

Two negative forms are derived below.

(136)	a.	a-a- taa-ku-leet-a	b.	i-vi-taa-ku-ful-a	U.R.
		$\begin{array}{c}   \quad   \quad   \quad   \\ \text{HH} \quad \text{H} \quad \quad \text{H} \end{array}$		$\begin{array}{c}   \quad   \quad   \\ \text{H} \quad \text{H} \quad \text{H} \end{array}$	
		a-a- taa-ku-leet-a		i-vi-taa-ku-ful-a	Bimoraic H Delinking (115)
		$\begin{array}{c}   \quad   \quad   \quad   \\ \text{HH} \quad \text{H} \quad \quad \text{H} \end{array}$		$\begin{array}{c}   \quad   \\ \text{HH} \quad \text{H} \end{array}$	
				i-vi-taa-ku-ful-a	Relative SM Delinking
				$\begin{array}{c}   \\ \text{HH} \quad \text{H} \end{array}$	
		a-a-taa-ku-leet-a		i-vi-taa-ku-ful-a	Gen Doubling
		$\begin{array}{c}   \quad   \quad / \quad   \quad / \\ \text{HH} \quad \text{H} \quad \quad \text{H} \end{array}$		$\begin{array}{c}   \quad / \\ \text{H} \quad \text{H} \quad \text{H} \end{array}$	
		a-a-taa-ku-leet-a			Pre-Negative H Delinking (114)
		$\begin{array}{c}   \quad   \quad   \quad / \\ \text{H} \quad \text{H} \quad \text{H} \quad \text{H} \end{array}$			
		n/a			Heterosyllabic Doubling

The lack of application of Pre-Negative H Delinking in (136b) shows that this rule applies only when the H preceding the negative marker is singly linked.

Below I give examples containing 1<sup>st</sup> and 2<sup>nd</sup> person subject relatives.

- |       |    |                            |                                 |
|-------|----|----------------------------|---------------------------------|
| (137) | a. | n-éémúnò ín-kú-zíík-à      | ‘I who am burying’              |
|       | b. | w-éémúnò ú-kú-zíík-à       | ‘you (sg.) who are burying’     |
|       | c. | sw-éémúnò tú-kú-zíík-à     | ‘we who are burying’            |
|       | d. | mw-éémúnò mú-kú-zíík-à     | ‘you (pl.) who are burying’     |
|       | e. | mw-éémúnò mú-tàà-kù-zìik-à | ‘you (pl.) who are not burying’ |

I note here that object relatives do not seem to have any special morphological or phonological properties. Several examples are given below:

- |       |   |   |
|-------|---|---|
| (138) | ín-kú-lòònd ù-kú-lól ù-múù-ntù winò _____ | ‘I want to see the person who _____’    |
|       | a. ... yá-kú-zíík-à                       | ‘they are burying’ cf. (9)              |
|       | b. ... yá-kú- <sup>1</sup> léét-à         | ‘they are bringing’ cf. (10)            |
|       | c. ... à-kú-zíík-íl-à                     | ‘he/she is burying for’ cf. (94)        |
|       | d. ... à-kú-zíik-íl-à Chòòlà              | ‘he/she is burying for Choola’ cf. (95) |
|       | e. ... à-kú- <sup>1</sup> léét-à          | ‘he/she is bringing’ cf. (96)           |

As can be seen, these patterns are the same ones we find in (non-relative) main clauses. As this is also true for all other TAMs, only subject relatives will be presented in subsequent sections on individual TAMs.

### 5.1.2 Past Inceptive

The Past Inceptive is used to describe the initiation of an action at any time in the past. E.g. to express ‘we were all given fields, and then we started to farm’ the second clause would employ this TAM. The morphological structure of this TAM is as follows:

#### (139) Past Inceptive

SM –aa – (OM) – VR – (EXT) – a

- |       |    |                         |   |                          |
|-------|----|-------------------------|---|--------------------------|
| (140) | a. | tw-áá-sh-á              | ‘and then we started to grind’            | /tú-aa-si-a/             |
|       | b. | tw-áá-fúl-à             | ‘and then we started to wash’             | /tú-aa-ful-a/            |
|       | c. | tw-áá-swéél-él-à        | ‘and then we started to brew for’         | /tú-aa-suel-il-a/        |
|       | d. | tw-áá-mú-fúl-íl-à       | ‘and then we started to wash for him/her’ | /tú-aa-mu-ful-il-a/      |
|       | e. | tw-áá-swéél- à pó       | ‘and then we started to brew (loc.)’      | /tú-aa-suel-a pó/        |
|       | f. | tw-áá-swéél-él-à Chòòlà | ‘and then we started to brew for Chola’   | /tú-aa-suel-il-a Choola/ |
|       | g. | tw-áá-lúk-il-à Chòòlà   | ‘and then we started to weave for Chola’  | /tú-aa-luk-il-a Choola/  |
|       | h. | á-á-fúl-à               | ‘and then he/she started to wash’         | /á-aa-ful-a/             |
|       | i. | á-á-súkíl-il-à          | ‘and then he/she started to accompany’    | /á-aa-sukil-il-a/        |
| (141) | a. | tw-áá-ímb-à             | ‘and then we started to dig’              | /tú-aa-imb-a/            |
|       | b. | tw-áá-úm-íl-à           | ‘and then we started to beat for’         | /tú-aa-um-il-a/          |

We noted earlier in section 3.1.1 that vowel hiatus is maintained (i.e. no deletion occurs) if the first of the two vowels is underlyingly long. Given that hiatus obtains before V-initial roots, as can be seen in (141), I set up the Past Inceptive prefix with a long vowel. This means, of course, that there will underlyingly be three morae in the first syllable in the forms above. But as discussed in §3.1.5 there is no surface contrast between trimoraic and bimoraic syllables in Cilungu. I therefore posited a rule of Trimoraic Pruning which will remove one of the three morae. (See §10.4.5 for a discussion on which of the three morae gets deleted, depending on the environment.) Next, we note that the 3 sg. is /a-/ in the Past Inceptive. (We will see below that before a TAM prefix with a short /a-/ the 3 sg. is underlyingly /u-/.)

With regard to tone, we find that the SM + TAM prefix surfaces as a level H in (140)-(141), which spreads to the penult if no word follows. To account for this I set up the TAM prefix as toneless. The H on the SM will then spread rightward in an unbounded fashion when the word is phase-final and in a bounded fashion when the word is not phrase-final. Let us now examine forms with H-toned roots.

- |       |    |                   |                                     |                     |
|-------|----|-------------------|-------------------------------------|---------------------|
| (142) | a. | tw-áà-sh-á        | ‘and then we started to leave’      | /tú-aa-sí-a/        |
|       | b. | tw-áà-yá-sh-á     | ‘and then we started to leave them’ | /tú-aa-yá-sí-a/     |
|       | c. | tw-áà-lás-à       | ‘and then they started to hit’      | /tú-aa-lás-a/       |
|       | d. | tw-áà-léét-à      | ‘and then we started to bring’      | /tú-aa-léet-a/      |
|       | e. | tw-áà-páápáátík-à | ‘and then we started to flatten’    | /tú-aa-páapaatik-a/ |
|       | f. | tw-áà-símúl-à     | ‘and then we started to run’        | /tú-aa-símul-a/     |

- |          |                     |   |                      |
|----------|---------------------|---|----------------------|
| (143) a. | tw-áá-mù-léét-él-à  | ‘and then we started to bring for him/her’  | /tú-aa-mu-léet-il-a/ |
| b.       | tw-áá-mù-kúz-y-á    | ‘and then we started to raise him/her’      | /tú-aa-mu-kúl-i-a/   |
| c.       | tw-áá-mw-íimb-ísh-á | ‘and then we started to sing about him/her’ | /tú-aa-mu-imb-isi-a/ |
| d.       | tw-áá-mù-ly-á       | ‘and then we started to eat him/her’        | /tú-aa-mu-lí-a/      |

As can be seen the forms in (142) begin with a long Falling tone, while those in (143) begin with a long level High. In both cases the H on the SM spreads onto the first mora of the TAM prefix. As noted previously, Cilungu does not allow more than two morae in a syllable. While the reader is referred to section 10.4.5 for a detailed description of Trimoraic Pruning, let me simply note here that after General Doubling, one of the two H-toned morae in the word-initial syllable is pruned in each example in (142), which accounts for the surface Fall. In the examples in (143) the final (toneless) mora is pruned, accounting for the surface level H. (The final mora cannot be pruned in the examples in (142) as that would cause an OCP violation.)

There is no single word negative for the Past Inceptive. Instead, the negative is expressed by putting the verb *ú-kw-éénd-à* ‘to start’ into the negative, which is then followed by the verbal infinitive. There is also no one word relative for this TAM. Again, to express the notion of ‘the one(s) who started to X’ the verb ‘to start’ would be relativized.

### 5.1.3 Contrastive Habitual

The meaning of the forms below was described to me as “these days we verb” usually contrasted with the past when this wasn’t the case. E.g. “Because of the HIV/AIDS problem, these days we bury...” or “although..., we verb/we keep verbing”. Its morphological structure is given in (144) and representative examples follow.

#### (144) Contrastive Habitual

SM – ma-áa – (OM) – VR – (EXT) - VF

#### (145) Toneless macrostem

- |    |                             |                                       |                               |
|----|-----------------------------|---------------------------------------|-------------------------------|
| a. | tú-mà-á-sh-á                | ‘these days we grind’                 | /tú-ma-áa-si-a/               |
| b. | tú-mà-á-fúl-à               | ‘these days we wash’                  | /tú-ma-áa-ful-a/              |
| c. | tú-mà-á-ík-à                | ‘these days we come down’             | /tú-ma-áa-ik-a/               |
| d. | tú-mà-á-zíik-à              | ‘these days we bury’                  | /tú-ma-áa-ziik-a/             |
| e. | tú-mà-á-mú-fúl-à            | ‘these days we wash him/her’          | /tú-ma-áa-mu-ful-a/           |
| f. | tú-mà-á-zíik-il-à Chòòla    | ‘these days we bury for Chola’        | /tú-ma-áa-ziik-il-a Choola/   |
| g. | tú-mà-á-mú-zíik-il-à ñiingó | ‘these days we bury for him/her well’ | /tú-ma-áa-mu-ziik-il-a ñingó/ |
| h. | tú-mà-á-mw-íimb-il-à sàaná  | ‘these days we dig for him/her a lot’ | /tú-ma-áa-mu-imb-il-a sáaná/  |

(146) H-initial macrostem

a.	tú-mà-á- <sup>1</sup> sh-á	‘these days we leave’	/tú-ma-áa-sí-a/
b.	tú-mà-á- <sup>1</sup> lās-à	‘these days we hit’	/tú-ma-áa-lās-a/
c.	tú-mà-á- <sup>1</sup> ík-à	‘these days we put’	/tú-ma-áa-ík-a/
e.	tú-mà-á- <sup>1</sup> léét-à	‘these days we we bring’	/tú-ma-áa-léet-a/
f.	tú-mà-á- <sup>1</sup> páápáátík-à	‘these days we flatten’	/tú-ma-áa-páapaatik-a
g.	tú-mà-á- <sup>1</sup> yá-léét-él-à	‘these days we bring for them’	/tú-ma-áa-yá-léet-il-a/
h.	tú-mà-á- <sup>1</sup> léét-él-á Chòòlà	‘these days we bring for Chola’	/tú-ma-áa-léet-il-a Choola/

(147) Toneless OM and H-toned root

a.	tú-mà-á-mù-sh-á	‘these days we leave him/her’	/tú-ma-áa-mu-sí-a/
b.	tú-mà-á-mù-léét-él-à	‘these days we bring for him/her’	/tú-ma-áa-mu-léet-il-a/
c.	tú-mà-á-mù-lās-à	‘these days we hit him/her’	/tú-ma-áa-mu-lās-a/

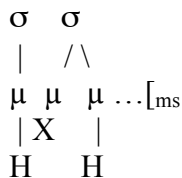
In forms with toneless macrostems (145), the H in the TAM prefix spreads in an unbounded fashion. In the event that the macrostem-initial mora is H-toned (146), then it is downstepped (and undergoes unbounded spreading). Finally, if it is followed by a toneless CV OM which in turn is followed by a H-toned root (147) then the H on the TAM prefix fails to spread to the following mora. This can all be accounted for by positing that the Contrastive Habitual is signaled by two TAM prefixes: /ma-/ and /áa-/ (the second of which we will see employed in other TAMs to be presented below).

In each verb above the SM surfaces as High, while the TAM marker surfaces as Rising. This was the same tonal pattern we saw in the present progressive of verbs with H-toned V-initial roots (§5.1.1.2). A few of these are repeated below.

(148) a.	tú-kw-íimb-à	‘we are singing’	/tú-ku-ímb-a/
b.	tú-kw-íík-à	‘we are putting’	/tú-ku-ík-a/
c.	tú-kw-éél-à	‘we are catching fish’	/tú-ku-él-a/

The analysis which was proposed for these forms and which can be extended to the Contrastive Habitual ones is to allow General Doubling to apply completely generally and then posit a later Intrasyllabic Downstep Retraction rule (58), repeated below, which will remove the rightmost link from a doubly-linked H where that second link creates a fall from High to Downstepped H in a pre-macrostem syllable. While the second “Duke of York” style analysis may seem more complex, we will see below that it is preferable given the tonology of the 3 sg. forms.

(149) Intrasyllabic Downstep Retraction





A derivation of three forms in this TAM are provided below ((145d), (146b), (147c)) where it is assumed in each case that Trimoraic Pruning removes one of the last two H-toned morae.

(150)	<u>tú</u> -ma- <u>áá</u> -ziik-a	<u>tú</u> -ma- <u>áá</u> - <u>lás</u> -a	<u>tú</u> -ma- <u>áá</u> -mu- <u>lás</u> -a	U.R.
				Fusion
	<u>tú</u> - <u>má</u> - <u>áá</u> -ziik-a	<u>tú</u> - <u>má</u> - <u>áá</u> - <u>lás</u> -a	<u>tú</u> - <u>má</u> - <u>áá</u> -mu- <u>lás</u> -a	General Doubling
	<u>tú</u> -ma- <u>áá</u> -ziik-a	<u>tú</u> -ma- <u>áá</u> - <u>lás</u> -a	<u>tú</u> -ma- <u>áá</u> -mu- <u>lás</u> -a	Downstep Retraction
	<u>tú</u> -ma- <u>áá</u> - <u>ziík</u> -a		blocked	Heterosyllabic Doubling
	<u>tú</u> -ma- <u>áá</u> - <u>ziík</u> -a	n/a	n/a	Unbounded Spreading
	<u>tú</u> -ma- <u>á</u> - <u>ziík</u> -a	<u>tú</u> -ma- <u>á</u> - <u>lás</u> -a	<u>tú</u> -ma- <u>á</u> -mu- <u>lás</u> -a	Trimoraic Pruning

Let us now turn to the 3 sg. forms.

(151) 3 sg. forms; toneless-initial macrostem

a.	à-má- <sup>!</sup> á-fùl-à	‘these days he/she washes’	/á-ma-áa-ful-a/
b.	à-má- <sup>!</sup> á-ziík-à	‘these days he/she buries’	/á-ma-áa-ziik-a/
c.	à-má- <sup>!</sup> á-mú-ziík-à	‘these days he/she buries him/her’	/á-ma-áa-mu-ziik-a/
d.	à-má- <sup>!</sup> á-fùl-il-à Chòòlà	‘these days he/she washes for Chola’	/á-ma-áa-ful-il-a Choola/

(152) 3 sg. forms; H-initial macrostem

a.	à-má- <sup>!</sup> á- <sup>!</sup> yá-ziík-à	‘these days he/she buries them’	/á-ma-áa-yá-ziik-a/
b.	à-má- <sup>!</sup> á- <sup>!</sup> súl-à	‘these days he/she sculpts’	/á-ma-áa-súl-a/
c.	à-má- <sup>!</sup> á- <sup>!</sup> léét-à	‘these days he/she brings’	/á-ma-áa-léet-a/
d.	à-má- <sup>!</sup> á- <sup>!</sup> mú-léét-à	‘these days he/she brings you (pl.)’	/á-ma-áa-mú-léet-a/
e.	à-má- <sup>!</sup> á- <sup>!</sup> léét-él-à Chòòlà	‘these days he/she brings for Chola’	/á-ma-áa-léet-il-a Choola/

In the 3 sg. forms, we see again the SM surfaces as Low. Yet like other cases, we see evidence that the 3 sg. SM has indeed contributed a H tone to the form which in this case is realized on the first mora of the second syllable, creating an intra-syllabic downstep. Downstep Retraction will not apply in these 3 sg. forms since it is formalized (based on evidence already presented in §5.1.1.5) to only apply to a doubly-linked H. Thus, as long as Onsetless SM Delinking is ordered before Downstep Retraction, the forms are correctly predicted as shown below.

(153)	á-ma-áa-ziik-a	á-ma-áa-léet-a	U.R.
			Fusion
	<u>á-má</u> <u>áá</u> -ziik-a	<u>á-má</u> <u>áá</u> -léét-a	General Doubling
	a-má <u>áá</u> -ziik-a	a-má <u>áá</u> - léét-a	Onsetless SM Delinking
	<u>á-má</u> <u>áá</u> -zíik-a		Unbounded Spr
	n/a	n/a	Intrasyllabic Downstep Retraction
	a-má <sup>1</sup> á-zíik-a	a-má <sup>1</sup> á- <sup>1</sup> léét-a	Trimoraic Pruning

The negative of this TAM is the same one used in the Negative Persistentive, to be covered later in section 5.3.6.

Let us now examine relative forms.

(154)	a	í-ví-mà-á-sh-á	‘one(s) who grind these days’	/í-ví-ma-áa-si-a/
	b.	í-zí-mà-á-fúl-w-á	‘those (C10) which get washed these days’	/í-zí-ma-áa-ful-u-a/
	c.	í-ví-mà-á-zíik-à	‘they (C8) which bury these days’	/í-ví-ma-áa-ziik-a/
	d.	í-cí-mà-á- <sup>1</sup> pón-à	‘the thing (C7) which falls these days’	/í-cí-ma-áa-pón-a/
	e.	í-ví-mà-á- <sup>1</sup> léét-à	‘those (C8) which bring these days’	/í-ví-ma-áa-léet-a/
	f.	í-ví-mà-á- <sup>1</sup> sh-á	‘one(s) who leave these days’	/í-ví-ma-áa-sí-a/
(155)	a.	á-à-má- <sup>1</sup> á-zíik-à	‘one(s) who bury these days’	/á-á-ma-áa-ziik-a/
	b.	í-ì-má- <sup>1</sup> á-fúl-w-á	‘the one (C9) which is being buried these days’	/í-í-ma-áa-ful-u-a/
	c.	á-à-má- <sup>1</sup> á-mú-zíik-íl-à	‘one(s)who bury him/her these days’	/á-á-ma-áa-mu-ziik-il-a/
	d.	á-à-má- <sup>1</sup> á- <sup>1</sup> léét-à	‘one(s)who bring these days’	/á-á-ma-áa-léet-a/

In (154), the rule of Relative SM Delinking (122) will apply, setting the H from the SM afloat. This correctly predicts binary spreading of the H on the relative prefix. In (155) we see that the 3 sg. and 3 pl. relative forms are homophonous. This follows if, as was mentioned above in §5.1.1.9, the 3 pl. relative SM selects the /á-/ allomorph (the same as the 3 sg. one) when a consonant immediately follows. If the /bá-/ were used in this TAM, this would incorrectly predict \*á-á-mà-á-zíik-à for a form such as (155a). The H on /á-/ will undergo General Doubling, accounting for the fall from High to downstepped High in the second syllable in these forms after which it will delink via Onsetless SM Delinking, exactly as it did in the 3 sg. non-relative forms in (151) and (152).

The negative of the relative is the same as the negative of the relative of the Present Progressive (§5.1.1.9).

#### 5.1.4 Future Continuative

Next we discuss the Future Continuative. This has the meaning ‘from now on one will be verb-ing’ or ‘we will continue to verb (in spite of what has happened before)’. Its structure is given in (156) and representative examples follow.

(156) Morphological structure of Inceptive Future Habitual: SM – ka-áa – (OM) – VR – (EXT) – VF

(157) Toneless macrostem

a.	tú-kà-á-zw-á	‘we will continue to bleed’	/tú-ka-áa-zu-a/
b.	tú-kà-á-zíik-íl-à	‘we will continue to bury for’	/tú-ka-áa-ziik-il-a/
c.	tú-kà-á-mú-swéél-él-à	‘we will continue to brew for him/her’	/tú-ka-áa-mu-suel-il-a/
d.	tú-kà-á-ík-à	‘we will continue to come down’	/tú-ka-áa-ik-a/
e.	tú-kà-á-imb-à	‘we will continue to dig’	/tú-ka-áa-imb-a/
f.	tú-kà-á-ziik-il-àn-à sáaná	‘we will continue to bury for e.o. a lot’	/tú-ka-áa-ziik-il-an-a sáaná/

(158) Macrostem with H tone

a.	tú-kà-á- <sup>1</sup> sh-á	‘we will continue to leave’	/tú-ka-áa-sí-a/
b.	tú-kà-á- <sup>1</sup> lúk-à	‘we will continue to vomit’	/tú-ka-áa-lúk-a/
c.	tú-kà-á- <sup>1</sup> ík-à	‘we will continue to put’	/tú-ka-áa-ík-a/
e.	tú-kà-á- <sup>1</sup> páápáátík-à	‘we will continue to flatten’	/tú-ka-áa-páapaatik-a/
f.	tú-kà-á- <sup>1</sup> yá-léét-él-à	‘we will continue to bring for them’	/tú-ka-áa-yá-léet-il-a/
g.	tú-kà-á-mù-sh-á	‘we will continue to leave him/her’	/tú-ka-áa-mu-sí-a/
h.	tú-kà-á-mù-léét-él-à	‘we will continue to bring him/her’	/tú-ka-áa-mu-súel-il-a/
j.	tú-kà-á- <sup>1</sup> léét-él-án-à <sup>1</sup> sáaná	‘we will continue to bring for e.o. a lot’	/tú-ka-áa-léet-il-an-a sáaná/

(159) 3 sg. forms

a.	à-ká- <sup>1</sup> á-zíik-à	‘he/she will continue to bury’	/á-ka-áa-ziik-a/
b.	à-ká- <sup>1</sup> á-mú-swéél-él-à	‘he/she will continue to brew for him/her’	/á-ka-áa-mu-suel-il-a/
c.	à-ká- <sup>1</sup> á-lúk-à	‘he/she will continue to vomit’	/á-ka-áa-lúk-a/
d.	à-ká- <sup>1</sup> á-léét-à	‘he/she will continue to bring’	/á-ka-áa-léet-a/

As can be seen, the Future Continuitive forms are tonal identical in every respect to the Contrastive Habitual forms discussed above in §5.1.3 (and thus the reader is referred there for the particulars of the tonal analysis). To account for these patterns I propose that the Future Habitual is signaled by the TAM prefixes /ka-/ and /áa-/.

1 sg. forms have two possible pronunciations, depending on whether the mora of the SM /n-/ remains after nasal demorification and is realized as a default /i/, or if it undergoes stray erasure.

(160) a.	ín-kà-á-fúl-à	‘I will continue to wash’	/ń-ka-áa-ful-a/
b.	n-ká- <sup>1</sup> á-fúl-à	‘I will continue to wash’	/ń-ka-áa-ful-a/

These are the same patterns we saw in the 1 sg. Present Progressive forms with V-initial roots (cf. (91) in §5.1.1.5). If the mora from the SM remains, it bears the H tone and this will spread onto the following mora. In (160a) the H will be retracted from the second syllable, but in (160b) it will not. This is accounted for by the rule of Intrasyllabic Downstep Retraction (58) which retracts the H if it is in a pre-macrostem syllable and preceded by a H tone.

Relative forms in this TAM are given below.

- (161) a. í-ví-kà-á-sh-á 'those (C8) which will continue to grind' /í-ví-ka-áa-si-a/  
 b. í-ví-kà-á-súkíl-íl-à 'those (C8) which will continue to accompany' /í-ví-ka-áa-sukil-il-a/  
 c. í-ví-kà-á-mù-lás-íl-à 'those (C8) which will continue to hit for him/her' /í-ví-ka-áa-mu-lás-il-a/  
 d. í-ví-kà-á-<sup>!</sup>sh-á 'those (C8) which will continue to leave' /í-ví-ka-áa-sí-a/  
 e. í-ví-kà-á-<sup>!</sup>pón-à 'those (C8) which will continue to fall' /í-ví-ka-áa-pón-a/  
 f. í-ví-kà-á-<sup>!</sup>sópólól-à 'those (C8) which will continue to untie' /í-ví-ka-áa-sópolol-a/
- (162) a. á-à-ká-<sup>!</sup>á-zíík-à 'one(s) who will continue to bury' /á-á-ka-áa-ziik-a/  
 b. í-í-ká-<sup>!</sup>á-fúl-à 'the one (C9) which continues to wash' /í-í-ka-áa-ful-a/  
 c. á-à-ká-<sup>!</sup>á-mú-<sup>!</sup>léét-él-à 'one(s) who will continue to bring him/her' /á-á-ka-áa-mu-léet-il-a/  
 d. á-à-ká-<sup>!</sup>á-<sup>!</sup>léét-à 'one(s) who will continue to bring' /á-á-ka-áa-léet-a/

The tone patterns here are identical to those found in the Contrastive Habitual (§5.1.3) and thus the reader is referred there for the particulars of the tonal analysis.

When asked to produce the negatives of this tense (both the relatives and non-relatives), my consultants gave the Negative Future Progressive, discussed below in section 5.1.5.

It is possible to add a progressive sense to the semantics of this TAM by adding the progressive TAM suffix /-ang/. One of my consultants felt that its inclusion often indicated that the speaker is complaining about the situation being spoken about. It's morphological structure is given in (163), and representative examples are given below. As the presence of this progressive suffix does not alter the tonal behavior of these forms in any way (expect to provide additional morae for the rule of unbounded spreading) no additional analytic commentary is necessary here.

(163) SM – ka-áa – (OM) – VR – (EXT) – ang - VF

(164) Non 3 sg. forms

- a. tú-kà-á-ziik-ááng-à 'we will continue to be burying' /tú-ka-áa-ziik-ang-a/  
 b. tú-kà-á-mú-fúl-íl-ááng-à 'we will continue to be washing for' /tú-ka-áa-mu-ful-il-ang-a/  
 c. tú-kà-á-mù-súl-íl-ááng-à 'we will continue to be sculpting for him/her' /tú-ka-áa-mu-súl-il-ang-a/  
 d. tú-kà-á-<sup>!</sup>léét-ááng-à 'we will continue to be bringing' /tú-ka-áa-léet-ang-a/

(165) 3 sg. forms

- a. à-ká-<sup>!</sup>á-fúl-ááng-à 'he/she will continue to be washing' /á-ka-áa-ful-ang-a/  
 b. à-ká-<sup>!</sup>á-mú-fúl-ááng-à 'he/she will continue to be washing him/her' /á-ka-áa-mu-ful-ang-a/  
 c. à-ká-<sup>!</sup>á-mú-<sup>!</sup>súl-ááng-à 'he/she will continue to be sculpting him/her' /á-ka-áa-mu-súl-ang-a/  
 d. à-ká-<sup>!</sup>á-<sup>!</sup>súl-ááng-à 'he/she will continue to be sculpting' /á-ka-áa-súl-ang-a/  
 e. à-ká-<sup>!</sup>á-<sup>!</sup>yá-fúl-ááng-à 'he/she will continue to be washing them' /á-ka-áa-yá-ful-ang-a/

The negative of the above forms are constructed by adding the suffix /-ang/ to the negative of the Present Progressive. (See §5.1.1.8 for an account of the tonology of the first two syllables of the negative forms.)

(166) Negative

- |    |                           |  |                           |
|----|---------------------------|--|---------------------------|
| a. | tù-tàà-kù-fùl-ààng-à      | ‘we will not continue to be washing’     | /tú-táa-ku-ful-ang-a/     |
| b. | tù-tàà-kù-swèél-èl-ààng-à | ‘we will not continue to be brewing for’ | /tú-táa-ku-suel-il-ang-a/ |
| c. | tù-tàà-kù-súl-ááng-à      | ‘we will not continue to be sculpting’   | /tú-táa-ku-súl-ang-a/     |
| d. | tù-tàà-kù-swéél-él-ááng-à | ‘we will not continue to be fishing for’ | /tú-táa-ku-súel-il-ang-a/ |

(167) Relatives

- |    |                                     |  |                        |
|----|-------------------------------------|--|------------------------|
| a. | á-à-ká- <sup>1</sup> á-swéél-ááng-à | ‘one(s) who will continue to be brewing’ | /á-á-ka-áa-suel-ang-a/ |
| b. | á-à-ká- <sup>1</sup> á-swéél-ááng-à | ‘one(s) who will continue to be fishing’ | /á-á-ka-áa-súel-ang-a/ |

Negative relatives are the same as those in the Future Progressive, discussed in the following section.

### 5.1.5 Future Progressive

We now turn to the Future Progressive. Its morphological structure is given in (168) and representative examples of non 3 sg. forms follow.

(168) Morphological structure of Future Progressive: SM – la-áa – (OM) – VR – (EXT) - VF

(169) Toneless macrostem

- |    |                          |                                |                             |
|----|--------------------------|--------------------------------|-----------------------------|
| a. | tú-là-á-zw-á             | ‘we will be bleeding’          | /tú-la-áa-zu-a/             |
| b. | tú-là-á-sí-íl-à          | ‘we will be grinding for’      | /tú-la-áa-si-il-a/          |
| c. | tú-là-á-zíik-íl-à        | ‘we will be burying for’       | /tú-la-áa-ziik-il-a/        |
| d. | tú-là-á-súkíl-íl-à       | ‘we will be accompanying’      | /tú-la-áa-sukil-il-a/       |
| e. | tú-là-á-ímb-à            | ‘we will be digging’           | /tú-la-áa-imb-a/            |
| f. | tú-là-á-ík-à             | ‘we will be coming down’       | /tú-la-áa-ik-a/             |
| g. | tú-là-á-fùl-w-á          | ‘we will be being washed’      | /tú-la-áa-ful-u-a/          |
| h. | tú-là-á-zíik-il-à Chòòlà | ‘we will be burying for Chola’ | /tú-la-áa-ziik-il-a Choola/ |

(170) Macrostems with H tone

- |    |  |                                 |                             |
|----|--|---------------------------------|-----------------------------|
| a. | tú-là-á- <sup>1</sup> sh-á             | ‘we will be leaving’            | /tú-la-áa-sí-a/             |
| b. | tú-là-á- <sup>1</sup> sí-íl-à          | ‘we will be leaving for’        | /tú-la-áa-sí-il-a/          |
| c. | tú-là-á- <sup>1</sup> lúk-à            | ‘we will be vomiting’           | /tú-la-áa-lúk-a/            |
| d. | tú-là-á- <sup>1</sup> léét-él-à        | ‘we will be bringing for’       | /tú-la-áa-léet-il-a/        |
| e. | tú-là-á- <sup>1</sup> ímb-à            | ‘we will be singing’            | /tú-la-áa-ímb-a/            |
| f. | tú-là-á- <sup>1</sup> ík-à             | ‘we will be putting’            | /tú-la-áa-ík-a/             |
| g. | tú-là-á-mù-lás-à                       | ‘we will be hitting him/her’    | /tú-la-áa-mu-lás-a/         |
| h. | tú-là-á- <sup>1</sup> léét-él-á Chòòlà | ‘we will be bringing for Chola’ | /tú-la-áa-léet-il-a Choola/ |

As can be seen, the patterns here are the same ones we saw in analogous Contrastive Habitual (§5.1.3) and Future Continuative forms (§5.1.4), which are directly predicted if we set us the Future Progressive as /la-áa/.

(The reader is referred to the former section for a full analysis of these patterns.) We will see independent evidence of /la-/ being used as a Future marker in §5.3.4.

Let us now turn to the 3 sg. forms.

(171) Toneless macrostems with no OM

- |    |   |                                  |                  |
|----|---|----------------------------------|------------------|
| a. | à-lá <sup>1</sup> á-swéél-à<br>~ à-là-á-swéél-à   | ‘he/she will be brewing’         | /á-la-áa-suel-a/ |
| b. | à-lá <sup>1</sup> á-mú-fúl-à<br>~ à-là-á-mú-fúl-à | ‘he/she will be washing him/her’ | /á-la-áa-ful-a/  |

(172) Macrostems with H tone

- |    |   |                                     |                     |
|----|---|-------------------------------------|---------------------|
| a. | à-lá <sup>1</sup> á- <sup>1</sup> swéél-à<br>~ à-là-á- <sup>1</sup> swéél-à     | ‘he/she will be fishing’            | /á-la-áa-súel-a/    |
| b. | à-lá <sup>1</sup> á-kú- <sup>1</sup> súúl-à<br>~ à-là-á-kú- <sup>1</sup> súúl-à | ‘he/she will be ignoring you (sg.)’ | /á-la-áa-ku-súul-a/ |
| c. | à-lá <sup>1</sup> á- <sup>1</sup> yá-súúl-à<br>~ à-là-á- <sup>1</sup> yá-súúl-à | ‘he/she will be ignoring them’      | /á-la-áa-yá-súul-a/ |

The Future Progressive 3 sg. forms have two possible pronunciations. The first one given in the examples above has the same tone pattern as the analogous (3 sg.) forms in the Contrastive Habitual (§5.1.3) and the Future Continuative (§5.1.4). In this case the 3 sg. sponsors a High tone which spreads and then delinks. In the second possible pronunciation of each form the second syllable bears a rising tone instead of a fall. These variants can be accounted for if we assume that the H on the 3 sg. SM optionally deletes in this TAM. We will see later in §5.3.4 that the TAM prefix /la-/ is also used in the Remote Future (with no other TAM prefix following it). In the Remote Future the 3 sg. SM does not contribute any H to the form. It is therefore likely that it is on analogy with these other Future forms that the H on the 3 sg. in the Future Progressive is optionally delinked.<sup>22</sup>

Representative negative forms are given below.

(173) Toneless macrostem

- |    |                             |  |                               |
|----|-----------------------------|--|-------------------------------|
| a. | tù-tá-là-á-zíík-à           | ‘we will not be burying’                 | /tú-tá-la-áa-ziik-a/          |
| b. | tù-tá-là-á-súkíl-il-à       | ‘we will not be accompanying’            | /tú-tá-la-áa-sukil-il-a/      |
| c. | à- tá-là-á-mú-zíík-il-à     | ‘he/she will not be burying for him/her’ | /á-tá-la-áa-mu-ziik-il-a/     |
| d. | tù-tá-là-á-súkíl-il-à sáaná | ‘we will not be accompanying a lot’      | /tú-tá-la-áa-sukil-il-a/      |
| e. | tù-tá-là-á-zíík-il-à sáaná  | ‘we will not be burying for a lot’       | /tú-tá-la-áa-ziik-il-a sáaná/ |

<sup>22</sup> I note that my two main consultants did have individual and slightly different opinions here in terms of which of the variants they preferred. Both of my consultants seemed to slightly prefer the second variant in the forms in (171). While one consultant found both forms equally acceptable in (172), the other clearly preferred the second variant in these cases.

(174) Macrostem with H tone

- |    |  |  |                               |
|----|--|--|-------------------------------|
| a. | tù-tá-là-á- <sup>1</sup> léét-à          | ‘we will not be bringing’                      | /tú-tá-la-áa-léet-a/          |
| b. | tù-tá-là-á- <sup>1</sup> mú-zíik-íl-à    | ‘we will not be burying for you (pl.)’         | /tú-tá-la-áa-mú-ziik-il-a/    |
| c. | tù-tá-là-á- <sup>1</sup> mú-léét-él-à pó | ‘we will not be bringing for you (pl.) (loc.)’ | /tú-tá-la-áa-mú-léet-il-a pó/ |

As was the case in the Present Progressive (cf. §5.1.1.9), all SMs surface as toneless before a H-toned negative prefix, in this case /tá-/. We can again attribute this to Pre-Negative H Delinking (114), illustrated below.

- |       |  |                                   |
|-------|--|-----------------------------------|
| (175) | tu-ta-la-aa-ziik-a   | Input                             |
|       | $\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$         |                                   |
|       | tu-ta-la-aa-ziik-a   | General Doubling                  |
|       | $\begin{array}{ccc}   &   & / \quad   \\ \text{H} & \text{H} & \text{H} \end{array}$ |                                   |
|       | tu-ta-la-aa-ziik-a   | Intrasyllabic Downstep Retraction |
|       | $\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$         |                                   |
|       | tu-ta-la-aa-ziik-a   | Pre-Negative H Delinking          |
|       | $\begin{array}{ccc}   & &   \\ \text{H} & \text{H} & \text{H} \end{array}$           |                                   |
|       | tu-ta-la-aa-ziik-a   | Unbounded Spreading               |
|       | $\begin{array}{ccc}   & &   \quad // \\ \text{H} & \text{H} & \text{H} \end{array}$  |                                   |
|       | tu-ta-la-a-ziik-a  | Trimoriac Pruning                 |
|       | $\begin{array}{ccc}   & &   \quad // \\ \text{H} & \text{H} & \text{H} \end{array}$  |                                   |

Sample relative forms are given below:

- |       |    |                                     |  |                          |
|-------|----|-------------------------------------|--|--------------------------|
| (176) | a. | í-ví-là-á-swéél-à                   | ‘those (C8) who will be brewing’         | /í-ví-la-aá-suel-a/      |
|       | b. | í-ví-là-á- <sup>1</sup> swéél-à     | ‘one(s) who will be fishing’             | /í-ví-la-aá-súel-a/      |
|       | c. | í-ví-là-á- <sup>1</sup> sópólól-à   | ‘those (C8) who will be untying’         | /í-ví-la-aá-sópolol-a/   |
| (177) | a. | á-à-lá- <sup>1</sup> á-swéél-à      | ‘one(s) who will be brewing’             | /á-á-la-aá-suel-a/       |
|       |    | ~ á-á-là-á-swéél-à                  |  |                          |
|       | b. | á-à-lá- <sup>1</sup> á-mú-zíik-íl-à | ‘one(s) who will be burying for him/her’ | /á-á-la-aá-mu-ziik-il-a/ |
|       |    | ~ á-á-là-á-mú-zíik-íl-à             |  |                          |

- (178) a. á-à-lá-<sup>!</sup>á-<sup>!</sup>léét-à                      ‘one(s) who will be bringing’                      /á-á-la-aá-léet-a/  
           ~ á-á-là-á-<sup>!</sup>léét-à  
       b. á-à-lá-<sup>!</sup>á-<sup>!</sup>yá-léét-à                      ‘one(s) who will be bringing them’                      /á-á-la-aá-yá-léet-a/  
           ~ á-á-là-á-<sup>!</sup>yá-léét-à

(179) Negative Relatives

- a. á-à-tá-là-á-zíík-à                      ‘one(s) who will not be burying’                      /á-á-tá-la-aá-ziik-a/  
       b. á-à-tá-là-á-mú-zíík-íl-à                      ‘one(s) who will not be burying for him/her’                      /á-á-tá-la-aá-mu-ziik-il-a/  
       c. á-à-tá-là-á-<sup>!</sup>léét-à                      ‘one(s) who will not be bringing’                      /á-á-tá-la-aá-léet-a/  
       d. á-à-tá-là-á-mù-léét-él-à                      ‘one(s) who will not be bringing for him/her’                      /á-á-tá-la-aá-mu-léet-il-a/

We noted above that when the 3 sg. SM is used in this TAM its contribution of a H to the form is somewhat variable, and this is reflected in the relative forms as well. In the affirmative relatives with toneless macrostems in (177), the second form was somewhat preferred forms by my consultants, whereas in the relatives with H-initial macrostems (178), the second form was preferred.

### 5.1.6 Hortative

The Hortative gives the meaning of ‘let noun start verb-ing’, ‘let noun continue verb-ing’ or ‘let noun verb regularly’. It’s morphological structure is given below.

(180) Morphological structure of Hortative: SM – áa – (OM) – VR – (EXT) – VF

Let us first consider forms which contain a toneless macrostem.

(181) Toneless macrostem

- a. tw-áa-sh-à                      ‘let us start grinding’                      /tú-áa-si-a/  
       b. tw-áa-fùl-à                      ‘let us start washing’                      /tú-áa-ful-a/  
       c. tw-áa-zíík-à                      ‘let us start burying’                      /tú-áa-ziik-a/  
       d. á-à-sùkílíl-à                      ‘let him start accompanying’                      /á-áa-mu-sukil-il-a/  
       e. tw-áa-ìmb-à                      ‘let us start digging’                      /tú-áa-imb-a/  
       f. tw-áa-òmb-à                      ‘let us start clapping’                      /tú-áa-omb-a/  
       g. tw-áa-fùl-íl-à Chòòlà                      ‘let us start washing for Chola’                      /tú-áa-ful-il-a Choola/  
       h. tw-áa-zíík-íl-à Chòòlà                      ‘let us start burying for Chola’                      /tú-áa-ziik-il-a Choola/

In each example above the verb begins with a falling tone which is followed by all Low tones—regardless of whether the verb is phrase-final or not. As can be seen below this pattern occurs in forms containing a toneless OM followed by a H-toned root (182), as well as when the macrostem is H-initial (183).

(182) Toneless OM and H-initial root

- a. tw-áa-mù-léét-à                      ‘let us start bringing him/her’                      /tú-áa-mu-léet-a/  
       b. tw-áa-mù-kúz-y-á                      ‘let us start to raise him/her’                      /tú-áa-mu-kúl-i-á/



(183) H-initial macrostems

a.	tw-áà-sh-á	‘let us start leaving’	/tú-áa-sí-a/
b.	tw-áà-ímb-à	‘let us start singing’	/tú-áa-ímb-a/
c.	tw-áà-súl-à	‘let us start blacksmithing’	/tú-áa-súl-a/
d.	tw-áà-léét-à	‘let us start bringing’	/tú-áa-léet-a/
e.	tw-áà-páápáátík-à	‘let us start flattening’	/tú-áa-páapaatik-a/
f.	tw-áà-yá-léét-él-à	‘let us start bringing for them’	/tú-áa-yá-léet-il-a/
g.	tw-áà-swéél-él-á Chòòlà	‘let us start fishing for Chola’	/tú-áa-súel-il-a Choola/

Let us begin with the forms with toneless macrostems (181). The striking thing about these forms is that we would have expected the H tone on the SM to undergo unbounded spreading to the penult, but such does not occur. Let us recall that we saw similar patterns in the negative Present Progressive (§5.1.1.8) where the H on the SM underwent bounded spreading rather than unbounded spreading even though ostensibly there were no other H’s further to the right within the word. To account for that case we set up the negative prefix as /táa-/ and posited a rule Bimoraic H Delinking (115) which delinked the H from a morpheme with a long vowel when it was immediately preceded by a H-toned mora. I would like to propose that the same be done here in the Hortative. I therefore set up this TAM prefix as /áa-/. The effect of Bimoraic H Delinking can be seen by contrasting the derivations below—one of a Hortative form and the other of a Past Inceptive form (cf. §5.1.2) (the latter of which has the toneless prefix /aa-/).

(184) a.	tu-aa-ful-a	b.	tu-aa-ful-a	U.R.
	H H		H	
	tu-aa-ful-a			Bimoraic H Delinking
	H H			
	tw-aaa-ful-a		tw-aaa-ful-a	Gliding & C.L.
	HH		H	
	tw-a a a-ful-a		tw-a a a-ful-a	General Doubling
	/		/	
	H H		H	
	n/a		tw-a a a-ful-a	Unbounded Spreading
			/ / /	
			H	
	tw-aa-ful-a		tw-a a -ful-a	Trimoraic Pruning
			/ /	
	H H		H	
	‘let’s wash’		‘and then we started to wash’	
	[twááfùlâ]		[twááfùlâ]	

The forms with H-initial macrostems (183) are derived similarly. The H of the TAM prefix /áa-/ will delete and the macrostem H will undergo unbounded spreading to the penult.

The negative of the Hortative is found below:

(185) Toneless macrostem

a.	tù-tá-á-sh-á	‘let us not start grinding’	/tù-tá-áa-si-a/
b.	tù-tá-á-ík-à	‘let us not start coming down’	/tù-tá-áa-ik-a/
c.	tù-tá-á-imb-à	‘let us not start digging’	/tù-tá-áa-imb-a/
e.	tù-tá-á-mú-swéél-él-à	‘let us not start brewing for’	/tù-tá-áa-mu-suel-il-a/
f.	à-tá-á-swéél-à	‘let him/her not start brewing’	/á-tá-áa-suel-a/
g.	tù-tá-á-swéél-él-à Chòòlà	‘let us not start brewing for Chola’	/tù-tá-áa-suel-il-a Choola/
h.	tù-tá-á-fúl-il-à Chóólà	‘let us not start washing for Chola’	/tù-tá-áa-ful-il-a Choola/

(186) H-toned macrostem

a.	tù-tá-à-ík-à	‘let us not start putting’	/tù-tá-áa-ík-a/
b.	tù-tá-à-víimb-à	‘let us not start swelling’	/tù-tá-áa-vimb-a/
c.	tù-tá-à-yá-swéél-él-à	‘let us not start fishing for them’	/tù-tá-áa-yá-súel-il-a/
d.	à-tá-à-swéél-à	‘let him/her not start fishing’	/á-tá-áa-súel-a/
e.	tù-tá-à-cí-lúm-à	‘let us not start biting it (C7)’	/tù-tá-áa-cí-lúm-a/
f.	tù-tá-à-mù-léét-à	‘let us not start bringing him/her’	/tù-tá-áa-mu-léet-a/

In each case the SM surfaces as Low, something accounted for by our rule of Pre-Negative H Delinking (114). To account for the tone patterns in (185) we must insure that the rule of Bimoraic H Delinking does not delink the H from the /áa-/ TAM prefix, since we see that unbounded spreading and not binary spreading has applied. What we will see is that in the cases where Bimoraic H Delinking must apply the trigger is either a H on a SM or on a TAM prefix, but not the negative prefix and I therefore assume that this morphological conditioning be present in the rule. In all the examples above, then, the H on the negative prefix /tá-/ and the H on the first mora of the TAM prefix /áa-/ will fuse.

According to my consultants this TAM does not have any relative form.

### 5.1.7 Persistent Potential

Let us now turn to the Persistent Potential. This TAM is used to express ‘to be able to keep verb-ing.’ For instance, if someone asks, “What will you do if there are increasing numbers of potholes? Will you tear up the road and build a new one?” The answer could be “No, we won’t tear up the road. We can/will keep on filling in the potholes until the road is fixed,” where this TAM would be used in the second sentence. It gives assurance that one will be able to continue to do something. Representative forms are given below.

(187) Persistent Potential

SM – ngá - aa – (OM) – VR – (EXT) - VF

(188) Toneless macrostem

a.	tùù-ngá-á-sh-á	‘we can keep on grinding’	/tu-ngá-aa-si-a/
b.	tùù-ngá-á-fúl-à	‘we can keep on washing’	/tu-ngá-aa-ful-a/
c.	yàà-ngá-á-zíík-à	‘we can keep on burying’	/tú-ngá-aa-ziik-a/
d.	tùù-ngá-á-mú-zíík-íl-à	‘we can keep on burying for him/her’	/tú-ngá-aa-mu-ziik-il-a/
e.	àà-ngá-á-zíík-à	‘he/she can keep on burying’	/a-ngá-aa-ziik-a/
f.	tùù-ngá-á-ímb-à	‘we can keep on digging’	/tu-ngá-aa-imb-a/
g.	tùù-ngá-á-ík-à	‘we can keep on coming down’	/tu-ngá-aa-ik-a/
h.	tùù-ngá-á-ziik-à Chòòlà	‘we can keep on burying Chola’	/tu-ngá-aa-ziik-a Choola/

(189) H-initial macrostem; phrase-final

a.	tùù-ngá-à-sh-á	‘we can keep on leaving’	/tu-ngá-aa-sí-a/
b.	tùù-ngá-à-léet-à	‘we can keep on bringing’	/tu-ngá-aa-léet-a/
c.	tùù-ngá-à-yá-fúl-à	‘we can keep on washing them’	/tu-ngá-aa-yá-ful-a/
d.	tùù-ngá-à-ímb-à	‘we can keep on singing’	/tú-ngá-aa-imb-a/
e.	yàà-ngá-à-lém-él-á Chòòlà	‘they can keep on planting for Chola’	/yá-ngá-aa-lém-il-a Choola/
f.	tùù-ngá-à-ímb-íl-á Chòòlà	‘we can keep on singing for Chola’	/tu-ngá-aa-imb-il-a Choola/

The first thing we note is that all SMs surface as Low, just as they did in the negative Present Progressive (§5.1.1.8). I assume that either the morphology selects a toneless SM for this TAM (as reflected in my URs) or else, if the SM is H, there must be an early rule which deletes the H on the SM in this TAM (cf. §10.7.1). The second TAM prefix has been set up here as toneless /aa-/ (also posited for the Past Inceptive §5.1.2) and not /áa-/ (which was posited in a number of TAMs previously presented). This is because the H on /ngá-/ must undergo unbounded spreading in (188). Were the second TAM prefix set up as /áa-/ and then Bimoraic H Delinking applied to it as it did in the Hortative (cf. §5.1.6), the we would incorrectly predict that the H on /ngá-/ would undergo binary spreading, due to the following floating H.

In the forms in (189), General Doubling will spread the H on /ngá-/ onto the following mora. Trimoraic Shortening will then apply and the result is a long Fall.

With regard to positing two morphemes for this TAM (i.e. /ngá-aa/), I note that is that there is independent motivation for /ngá-/ as a TAM prefix, as seen below in examples from the (plain) Potential (to be presented and analyzed in §5.2.1).

(190) a.	tùù-ngá-fúl- <sup>1</sup> á	‘we can wash’	/tu-ngá-ful-á/
b.	tùù-ngá-ziik-á	‘we can bury’	/tu-ngá-ziik-á/
c.	tùù-ngá-súl-á	‘we can sculpt’	/tu-ngá-súl-á/
d.	tùù-ngá-sópólól-á	‘we can untie’	/tu-ngá-sópolol-á/

As the Persistent Potential does have a component of potential meaning, this is most straightforwardly accounted for by having /ngá-/ be part of both the plain Potential as well as the Persistent Potential.

Confirming evidence that the second of the two TAM prefixes set up here should be long is that a root-initial vowel does not induce deletion of the immediately preceding /a/ ((188f-g), (189d)). As was shown in section 3.1, a root-initial vowel will cause an immediately preceding short vowel to delete, but not a long one.

Below are representative examples of the negative Persistent Potential.<sup>23</sup>

- (191) a. yà-táá-ngá-á-súkíl-íl-à ‘they cannot keep accompanying’ /ya-tá-ngá-aa-sukil-il-a/  
 b. yà-táá-ngá-à-sópólól-à ‘they cannot keep untying’ /ya-tá-ngá-aa-sópolol-a/

Below are some sample relative forms:

- (192) a. í-víi-ngá-á-zíik-à ‘those (C8) who can keep burying’ /í-ví-ngá-aa-ziik-a/  
 b. í-víi-ngá-à-léét-à ‘those (C8) who can keep bringing’ /í-ví-ngá-aa-léet-a/
- (193) a. á-à-ngá-á-swéél-à ‘the one(s) who can keep brewing’ /á-á-ngá-aa-suel-a/  
 b. á-à-ngá-á-ziik-íl-à Chòòlà ‘the one(s) who can keep burying for Chola’ /á-á-ngá-aa-ziik-il-a Choola/  
 c. á-à-ngá-à-léét-à ‘the one(s) who can keep bringing’ /á-á-ngá-aa-léet-a/  
 d. á-à-ngá-à-mù-léét-à ‘the one(s) who can keep bringing him/her’ /á-á-ngá-aa-mu-léet-a/  
 e. í-í-ngá-à-símúl-à ‘the one (C9) who can keep running’ /í-í-ngá-aa-símul-a/

As we have seen before, Relative SM H Delinking will apply in the forms in (192), while /á-/ is used for both the 3 sg. and 3 pl. forms in (193).

Examples of negative relatives are given below.

- (194) a. á-à-táá-ngá-á-swéél-à ‘the one/those who cannot keep brewing’ /á-á-táa-ngá-aa-suel-a/  
 b. á-à-táá-ngá-à-swéél-à ‘the one/those who cannot keep fishing’ /á-á-táa-ngá-aa-súel-a/

To account for the fall on the second syllable in these words I assume that the negative prefix here is /táa-/ (the same one used in the Present Progressive (§5.1.1.8)). (Were the prefix /tá-/ , we would expect a long H on this prefix instead of a Fall, as was seen in (191).)

### 5.1.8 Immediate Future

Let us now turn to the Immediate Future. This TAM is used to describe events to take place in a short period of time (and always later that day) as opposed to /la-/, to be discussed in section 5.3.4, which is used for events taking place tomorrow or later. This will be indicated by including ‘now’ in the gloss. Representative forms of this tense/aspect are given below.

- (195) Immediate Future

SM – máa – (OM) – VR – (EXT) – VF

<sup>23</sup> To account for the fusion between the negative prefix and the TAM prefix, I assume that the mora of the nasal in /ngá-/ is also H-toned. (Cf. §10.1.2 for more on pre-consonantal nasals and their tonal behavior.)

(196) Forms with toneless-initial macrostem; phrase-final

a.	tú-máà-sh-à	‘we will now grind’	/tú-máa-si-a/
b.	tú-máà-fùl-à	‘we will now wash’	/tú-máa-ful-a/
c.	tú-máà-mù-fùl-à	‘we will now wash him/her’	/tú-máa-mu-ful-a/
d.	tú-máà-zìik-à	‘we will now bury’	/tú-máa-ziik-a/
e.	tú-máà-sùkil-il-à	‘we will now accompany’	/tú-máa-sukil-il-a/
f.	tú-máà-ìmb-à	‘we will now dig’	/tú-máa-imb-a/
g.	tú-máà-ùm-à	‘we will now beat’	/tú-máa-um-a/
h.	tú-máà-fùl-il-à Chòòlà	‘we will now wash for Chola’	/tú-máa-ful-il-a Choola/

(197) Forms with H-tone in macrostem; phrase-final

a.	tú-máà-sh-á	‘we will now leave’	/tú-máa-sí-a/
b.	tú-máà-súl-à	‘we will now blacksmith’	/tú-máa-súl-a/
c.	tú-máà-léét-à	‘we will now bring’	/tú-máa-léet-a/
d.	tú-máà-páápáátik-à	‘we will now flatten’	/tú-máa-páapaatik-a/
e.	tú-máà-yá-swéél-él-à	‘we will now fish for them’	/tú-máa-yá-súel-il-a/
f.	tú-máà-ìmb-à	‘we will now sing’	/tú-máa-imb-a/
g.	tú-máà-ùm-à	‘we will now be dry’	/tú-máa-um-a/
h.	tú-máà-mù-léét-él-à	‘we will now bring for him/her’	/tú-máa-mu-léet-il-a/
i.	tú-máà-ìmb-íl-á Chòòlà	‘we will now singing for Chola’	/tú-máa-imb-il-a Choola/

We see in (196) that the H on the SM undergoes bounded rather than unbounded spreading. We account for this the same way we accounted for similar patterns in the negative Present Progressive and the Hortative, i.e. by positing a H-initial morpheme whose H will delete via Bimoraic H Delinking (115). Since the H on the SM is not the rightmost H in the verb, it will undergo bounded spreading. This is illustrated below.

(198)	tu-maa-ful-a	U.R
	H H	
	tu-maa-ful-a	Bimoraic H Delinking
	H H	
	tu-maa-ful-a	General Doubling
	/	
	H H	
	n/a	Unbounded Spreading

Let us now turn to the 3 sg. forms.

(199) 3 sg. forms with toneless macrostems

a. à-màà-sh-à	‘he/she will now grind’	/á-máa-sí-a/
b. à-màà-fùl-à	‘he/she will now wash’	/á-máa-ful-a/
c. à-màà-ziik-à	‘he/she will now bury’	/á-máa-ziik-a/
d. i-màà-fùl-àl-à	‘it (C9) will now bathe’	/í-máa-ful-al-a/
e. à-màà -ziik à Chòòlà	‘he/she will now bury Chola’	/á-máa-ziik-a Choola/

(200) 3 sg. forms with a H in the macrostem

a. à-màà-sh-á	‘he/she will now leave (some)’	/á-máa-sí-a/
b. à-màà-léét-à	‘he/she will now bring’	/á-máa-léet-a/
c. à-màà-súl-à	‘he/she will now blacksmith’	/á-máa-súl-a/
d. à-màà-kù-lás-à	‘he/she will now hit you (sg.)’	/á-máa-ku-lás-a/
e. à-màà-mù-léét-à	‘he/she will now bring him/her’	/á-máa-mu-léet-a/

These forms are accounted for by positing the 3 sg. (as well as class 4 and class 9 SMs) as underlyingly H. This H will undergo General Doubling just as the H did on the non-3sg. SMs in (196) and (197). The rule of Onsetless SM Delinking will then apply, giving the correct surface forms.

The Negative form of this tense turns out to be identical to the one used for the Present Progressive, found in section 5.1.1.8.

Representative affirmative and negative relative forms are given below:

(201) a. í-ví-màà-ziik-à	‘they (C8) who will now bury’	/í-ví-máa-ziik-a/
b. í-ví-màà-sópólól-à	‘they (C8) who will now untie’	/í-ví-máa-sopolol-a/
c. í-ví-màà-mù-léét-à	‘they (C8) who will now bring him/her’	/í-ví-máa-mu-léet-a/
(202) a. á-à-màà-ziik-il-à	‘one/those who will now bury for’	/á-á-máa-ziik-il-a/
b. á-à-màà-mù-léét-él-à	‘one/those who will now bring for him/her’	/á-á-máa-mu-léet-il-a/
c. á-à-màà-yá-ziik-à	‘one/those who will now bury them’	/á-á-máa-yá-ziik-a/
d. á-à-màà-léét-à	‘one/those who will now bring’	/á-á-máa-léet-a/
(203) a. á-à-tá-màà-ziik-à	‘one/those who will not now bury’	/á-á-tá-máa-ziik-a/
b. á-à-tá-màà-léét-à	‘one/those who will not now bring’	/á-á-tá-máa-léet-a/
c. í-ví- <sup>1</sup> tá-màà-fùl-à	‘one(s) who will not now wash’	/í-ví-tá-máa-ful-a/

In the forms in (201) the H on the TAM prefix deletes via Bimoraic H Delinking (115) after which the H on the relative SM will delete via Relative SM Delinking (122). The H on the relative prefix will undergo binary spreading. (The same pattern and account was proposed for Present Progressive negative relatives (cf. (136b)). As can be seen in (202)-(203) the 3 sg. and 3 pl. forms surface identically. To account for these patterns I again assume that in this TAM both the 3 sg. as well as the 3 pl. SMs in the relative select /á-/ This H will undergo bounded spreading (due to the floating H on the following TAM prefix) after which Onsetless SM Delinking will apply.

Finally, I note that it is possible to add the progressive TAM suffix /-ang/ to this TAM (just as we saw was true for the Future Continutive in §5.1.4). This does not affect the tonology in any unpredictable way. Representative examples are given below.

(204) Non-relative forms

a. tú-máà-fùl-ààng-à	‘we will now be washing’	/tú-máa-ful-ang-a/
b. tú-máà-mù-zìik-ààng-à	‘we will now be burying him/her’	/tú-máa-mu-ziik-ang-a/
c. tú-máà-zìik-ààng-à sáaná	‘we will now be burying a lot’	/tú-máa-ziik-ang-a sáaná/
d. tú-máà-mù-lás-íl-ááng-à	‘we will now be hitting for him/her’	/tú-máa-mu-lás-il-ang-a/
e. tú-máà-léét-ááng-à	‘we will now be bringing’	/tú-máa-léet-ang-a/
f. tú-máà-yá-lúk-íl-áángà	‘we will now be weaving for them’	/tú-máa-yá-luk-il-ang-a/
g. à-máà-fùl-ààng-à	‘he/she will now be washing’	/á-máa-ful-ang-a/
h. à-máà-zìik-ààng-à	‘he/she will now be burying’	/á-máa-ziik-ang-a/
i. à-máà-súl-ááng-à	‘he/she will now be sculpting’	/á-máa-súl-ang-a/
j. à-máà-léét-ááng-à	‘he/she will now be bringing’	/á-máa-léet-ang-a/

(205) Relative forms

a. á-à-máà-fùl-ààng-à	‘one(s) who will now be washing’	/á-á-máa-ful-ang-a/
b. á-à-máà-zìik-ààng-à	‘one(s) who will now be burying’	/á-á-máa-ziik-ang-a/
c. á-à-máà-léét-ááng-à	‘one(s) who will now be bringing’	/á-á-máa-léet-ang-a/
d. á-à-máà-yá-zìik-ááng-à	‘one(s) who will now be burying them’	/á-á-máa-yá-ziik-ang-a/
e. í-ví-máà-sh-ààng-à	‘those (C8) who will now be grinding’	/í-ví-máa-si-ang-a/
f. í-ví-máà-léét-ááng-à	‘those (C8) who will now be bringing’	/í-ví-máa-léet-ang-a/

### 5.1.9 Habitual

We now turn to the Habitual. Its morphological structure is given in (206) and representative examples containing toneless macrostems follow.

(206) Morphological structure of Habitual: SM – káa – (OM) – VR – (EXT) – VF

(207) Toneless macrostem

a. tú-káà-sh-à	‘we grind’	/tú-káa-si-a/
b. tú-káà-fùl-à	‘we wash’	/tú-káa-ful-a/
c. tú-káà-zìik-à	‘we bury’	/tú-káa-ziik-a/
d. tú-káà-mù-swèèl-èl-à	‘we brew for him/her’	/tú-káa-mu-suel-il-a/
e. tú-káà-mù-sùkìl-ìl-à	‘we accompany him/her’	/tú-káa-mu-sukil-il-a/
f. tú-káà-ìmb-à	‘we dig’	/tú-káa-imb-a/
g. tú-káà-mw-ìmb-ìl-à	‘we dig for him/her’	/tú-káa-mu-imb-il-a/
h. tú-káà-swèèl-èl-à Chòòlà	‘we brew for Chola’	/tú-káa-suel-il-a Choola/

(208) Toneless OM, H-toned root

a. tú-káà-mù-sh-á	‘we leave him/her’	/tú-káa-mu-sí-a/
b. tú-káà-mù-léét-à	‘we bring him/her’	/tú-káa-mu-léet-a/
c. tú-káà-mù-swéél-él-à	‘we brew for him/her’	/tú-káa-mu-súel-il-a/
d. tú-káà-mù-léét-á Chòòlà	‘we bring for Chola’	/tú-káa-mu-léet-a Choola/

The Habitual forms with toneless-initial macrostem (207) are reminiscent of the Immediate Future (§5.1.8) forms in (196) which exhibited the same pattern. We accounted for the this pattern in the latter case by setting up /máa-/ and positing a rule of Bimoraic H Delinking which delinked this H when another H immediately precedes it. I therefore propose to set up the Habitual prefix as /káa-/ and the same analysis can apply.

It turns out, however, that when the macrostem in H-initial, the tone pattern of the Immediate Future forms (197) and those of the Habitual are radically different. Representative examples are given below.

(209) No OM, H-initial root

a. tú-káá-sh-á	‘we leave’	/tú-káa-sí-a/
a. tú-káá-lém-à	‘we plant’	/tú-káa-lém-a/
b. tú-káá-lém-èl-à	‘we plant for’	/tú-káa-lém-il-a/
c. tú-káá-imb-à	‘we sing’	/tú-káa-imb-a/
d. tú-káá-léet-à	‘we bring’	/tú-káa-léet-a/
e. tú-káá-páàpààtik-à	‘we flatten’	/tú-káa-páapaatika-a/
f. tú-káá-sh-à sáaná	‘we leave a lot’	/tú-káa-sí-a sáaná/
g. tú-káá-lém-à sáaná	‘we plant a lot’	/tú-káa-lém-a sáaná/
h. tú-káá-léet-èl-à Chòòlà	‘we bring for Chola’	/tú-káa-léet-il-a Choola/

To account for the forms with H-initial macrostems in (209), we must insure that the H on /káa-/ does not delete. Additionally, we need a rule which will delink the H from the root. This will account for the fact that the H on /káa-/ will then undergo bounded spreading, spreading to the tautomorphemic /a/ in the TAM prefix (via General Doubling) as well as to the initial mora of the following syllable (via Heterosyllabic Doubling). But before we propose a rule to account for this, let us examine forms with a H-toned OM.

(210) H-toned OM, toneless root

a. tú-káá-yá-lèm-à	‘we grab them’	/tú-káa-yá-lem-a/
b. tú-káá-yá-lèm-èl-à	‘we grab for them’	/tú-káa-yá-lem-il-a/
c. tú-káá-mú-swèèl-èl-à	‘we brew for him/her’	/tú-káa-mú-suel-il-a/
d. tú-káá-mú-sùkìl-il-à	‘we accompany for you (pl.)’	/tú-káa-mú-sukil-il-a/
e. tú-káá-mw-ìmb-à	‘we dig you (pl.) out’	/tú-káa-mú-imb-a/

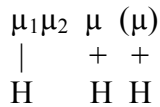


(211) H-toned OM, H-toned root

a.	tú-káá-yá-lèm-à	‘we plant them’	/tú-káa-yá-lém-a/
b.	tú-káá-yá-lèm-èl-à	‘we plant for them’	/tú-káa-yá-lém-il-a/
c.	tú-káá-mú-swèl-èl-à	‘we fish for you (pl.)’	/tú-káa-mú-súel-il-a/
d.	tú-káá-yá-pààpàatik-il-à	‘we flatten for them’	/tú-káa-yá-páapaatik-il-a/
e.	tú-káá-mw-ìmb-à	‘we sing about you (pl.)’	/tú-káa-mú-imb-a/

As can be seen, when a H-toned OM is present, the tonal pattern of forms with a toneless root (210) and those with a H-toned root (211) are exactly the same. (This is especially apparent in the neutralization of forms such as (210c) and (211c).) In order to account for the fact that the H on /káa-/ simply undergoes binary spreading in all the forms in (209)-(211), we must posit a rule, specific to the Habitual which deletes any string of Hs immediately following the TAM prefix. This is formalized below.

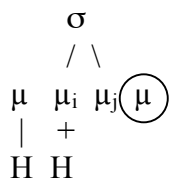
(212) Habitual macrostem H Delinking



( $\mu_1$  and  $\mu_2$  belong to a Habitual TAM prefix)

The final dilemma to be addressed is while Bimoraic H Delinking (115) appears to apply quite straightforwardly in forms with a toneless macrostem-initial mora ((207)-(208)), it must not apply in forms with a H-toned macrostem-initial mora (209)-(211), since this would incorrectly predict they should surface as \**tú-káà*... One possibility is that there is a second Bimoraic H Delinking rule, particular to the Habitual, which demands that the mora following the long vowel be toneless. This is formalized below.

(213) Bimoraic H Delinking (Habitual)



( $\mu_i$  and  $\mu_j$  are pre-macrostem, tautomorphemic morae in the Habitual)

If this rule is ordered before Habitual macrostem H Delinking, then the correct results obtain as seen below.

(214) a.	tu-kaa-mu-leet-a       H H H	b.	tu-kaa-ya-leet-a         H H H H	U.R.
	tu-kaa-mu-leet-a       H H H			Bimoraic H Delinking (Habitual)
	n/a		tu-kaa-ya-leet-a         H H H H	Habitual macrostem H Delinking
	tu-kaa-mu-leet-a   /   H H H		tu-kaa-ya-leet-a   /     H H H H	General Doubling
	n/a		tu-kaa-ya-leet-a   / /   H H H H	Heterosyllabic Doubling

In the 3 sg. forms, the SM surfaces as Low, but other than that, the tonology of these forms is identical to those of non 3 sg. forms, as seen below. These are straightforwardly accounted for by the rule of Onsetless SM Delinking.

(215) 3 sg., Toneless-initial macrostem

a.	à-káà-lùk-à	‘he/she weaves’	/á-káa-luk-a/
b.	à-káà-zìik-à	‘he/she digs’	/á-káa-ziik-a/
c.	à-káà-swèèl-èl-à	‘he/she brews for’	/á-káa-suel-il-a/
d.	à-káà-mù-swèèl-èl-à	‘he/she brews for him/her’	/á-káa-mu-suel-il-a/
e.	à-káà-mù-léét-á Chòòlà	‘he/she brings Chola’	/á-káa-mu-léet-a Choola/

(216) 3 sg., H in macrostem

a.	à-káá-lúk-à	‘he/she vomits’	/á-káa-lúk-a/
b.	à-káá-swèèl-èl-à	‘he/she fishes for’	/á-káa-súel-il-a/
c.	à-káá-léét-à Chòòlà	‘he/she brings Chola’	/á-káa-léet-a Choola/
d.	à-káà-mù-léét-à	‘he/she brings him/her’	/á-káa-mu-léet-a/
e.	à-káá-yá-swèèl-èl-à	‘he/she brews/fishes for them’	/á-káa-yá-súel-il-a/

Next let us turn to the Negative Habitual. Representative examples are given below.

(217) Toneless-initial macrostems

a. tù-síi-sùkil-il-à	‘we don’t accompany’	/tú-síi-sukil-il-a/
b. tù-síi-mù-zìik-il-à	‘we don’t bury for him/her’	/tú-síi-mu-ziik-il-a/
c. à-síi-mù-zìik-il-à	‘he/she doesn’t bury for’	/á-síi-mu-ziik-il-a/
d. tù-síi-ik-à	‘we don’t come down’	/tú-síi-ik-a/
e. tù-síi-imb-à	‘we don’t dig’	/tú-síi-imb-a/

(218) H in macrostems

a. tù-síi-lás-à	‘we don’t hit’	/tú-síi-lás-a/
b. tù-síi-léet-à	‘we don’t bring’	/tú-síi-léet-a/
c. tù-síi-imb-à	‘we don’t sing’	/tú-síi-imb-a/
d. tù-síi-yá-zìik-il-à	‘we don’t bury for them’	/tú-síi-yá-ziik-il-a/
e. tú-síi-léet-èl-à Chòòlà	‘we don’t bring for Chola’	/tú-síi-léet-il-a Choola/

We can see in the negative forms that their tonal behavior (to the right of the SM) is identical to their counterparts in the affirmative. To account for these patterns I assume that the SM is underlyingly H-toned, and the negative prefix is /síi-/. The rules of Bimoraic H Delinking (Habitual) and Habitual macrostem H Delinking will both apply, after which Pre-Negative H Delinking will delink the H from the SM.

Sample relative forms are given below.

(219) a. í-ví-kàà-sh-à	‘those (C8) who grind’	/í-ví-káa-si-a/
b. í-ví-kàà-zìik-à	‘those (C8) who bury’	/í-ví-káa-ziik-a/
c. í-ví-kàà-sùkil-il-à	‘those (C8) who accompany’	/í-ví-káa-sukil-il-a/
d. í-ví-kàà-mù-lás-il-à	‘those (C8) who hit for him/her’	/í-ví-káa-mu-lás-il-a/
e. í-ví- <sup>1</sup> káa-sh-à	‘those (C8) who leave’	/í-ví-káa-sí-a/
f. í-ví- <sup>1</sup> káa-léet-à	‘those (C8) who bring’	/í-ví-káa-léet-a/
g. í-ví- <sup>1</sup> káa-sópòlòl-à	‘those (C8) who untie’	/í-ví-káa-sópolol-a/
(220) a. á-à-káa-zìik-à	‘one(s) who bury’	/á-á-káa-ziik-a/
c. á-à-káa-mù-léet-él-à	‘one(s) who bring for him/her’	/á-á-káa-mu-léet-il-a/
b. á-à-káa-léet-à	‘one(s) who bring’	/á-á-káa-léet-a/
d. á-à-káa-yá-zìik-il-à	‘one(s) who bury for them’	/á-á-káa-yá-ziik-il-a/
e. á-à-káa-yá-léet-à	‘one(s) who bring them’	/á-á-káa-yá-léet-a/

(221) Negative relatives

a. í-ví-siì-zìik-à	‘those (C8) who do not bury’	/í-ví-síi-ziik-a/
b. í-ví- <sup>1</sup> síi-léet-à	‘those (C8) who do not bring’	/í-ví-síi-léet-a/
c. á-à-siì-mù-zìik-il-à	‘one(s) who do not bury for him/her’	/á-á-síi-mu-ziik-il-a/
d. á-à-siì-mù-léet-él-à	‘one(s) who do not bring for him/her’	/á-á-síi-mu-léet-il-a/
e. á-à-síi-yá-zìik-il-à	‘one(s) who do not bury for them’	/á-á-síi-yá-ziik-il-a/
f. á-à-síi-yá-léet-él-à	‘one(s) who do not bring for them’	/á-á-síi-yá-léet-il-a/

Our analysis correctly predicts the tonal patterns of all of these forms. Relative SM H Delinking will apply to the H on the relative SM in the forms in (219). In (219a-d) and (221a-b), the morpheme initial H of /káa-/ and /síi-/ will delete via Bimoraic H Delinking (Habitual), as the preceding morpheme (the SM) is H-toned and the following one is toneless. These forms support the contention that the relative SM is underlyingly linked to a H, triggering Habitual H Delinking in this case, even though the H of the relative SM is always delinked (by Relative SM H Delinking).

(222) a.	i-vi-kaa-ziik-a	b.	a-a-kaa-ziik-a	U.R.
	H H H		H H H	
	i-vi-kaa-ziik-a		a-a-kaa-ziik-a	Bimoraic H Delinking (Habitual)
	HH H		H H H	
	i-vi-kaa-ziik-a			Relative SM H Delinking
	HH H			
	i-vi-kaa-ziik-a		a-a-kaa-ziik-a	General Doubling
	/		/	
	H H H		H H H	
			a-a-kaa-ziik-a	Onsetless SM Delinking
			/	
			H H H	

#### 5.1.10 Persistentive

We now turn to the Persistentive. Its morphological structure is given in (223) and representative examples follow.<sup>24</sup>

(223) Morphological structure of Persistentive: SM – cí - líi – (OM) – VR – (EXT) – VF

<sup>24</sup> This TAM is related to a compound TAM with the same meaning, discussed in §8.5.3, where the [li] portion is actually an irregular stem meaning ‘to be’. (E.g. *tú-cí-lí tú-kú-lím-à* ‘we are still farming’) It seems quite likely that the TAM discussed here is historically simply a shortened version of the compound TAM.

(224) Toneless macrostem (short stems)

a.	tú-cí-líi-sh-à	‘we are still grinding’	/tú-cí-líi-si-a/
b.	tú-cí-líi-fùl-à	‘they are still washing’	/tú-cí-líi-ful-a/
c.	tú-cí-líi-imb-à	‘we are still being dug out’	/tú-cí-líi-imb-a/
d.	tú-cí-líi-ik-à	‘we are still coming down’	/tú-cí-líi-ik-a/
e.	tú-cí-líi-ùm-à	‘we are still beating’	/tú-cí-líi-um-a/
f.	tú-cí-líi-sh-à sàaná	‘we are still grinding a lot’	/tú-cí-líi-si-a sàaná/
g.	tú-cí-líi-lèm-à	‘we are still grabbing’	/tú-cí-líi-lem-a/
h.	tú-cí-líi-fùl-à Chòòlà	‘we are still washing Chola’	/tú-cí-líi-ful-a Choola/
i.	à-cí-líi-fùl-à	‘he/she are still washing’	/a-cí-líi-ful-a/

(225) Toneless macrostem (long stems)

a.	tú-cí-lí-lùk-il-à	‘we are still weaving for’	/tú-cí-líi-luk-il-a/
b.	tú-cí-lí-fùl-il-àn-à	‘we are still washing for each other’	/tú-cí-líi-ful-il-an-a/
c.	ví-cí-lí-si-ìw-à	‘they (C8) are still being ground’	/ví-cí-líi-si-iw-a/
d.	tú-cí-lí-si-il-à	‘we are still grinding for’	/tú-cí-líi-si-il-a/
e.	tú-cí-lí-viimb-à	‘we are still covering’	/tú-cí-líi-vimb-a/
f.	tú-cí-lí-ziik-à	‘we are still burying’	/tú-cí-líi-ziik-a/
g.	yá-cí-lí-swèèl-èl-w-à	‘they are still being brewed for’	/yá-cí-líi-suel-il-u-a/
h.	tú-cí-lí-mù-fùl-à	‘we are still washing him/her’	/tú-cí-líi-mu-ful-a/
i.	tú-cí-lí-mù-swèèl-èl-à	‘we are still brewing for him/her’	/tú-cí-líi-mu-suel-il-a/
j.	tú-cí-lí-mw-iimb-à	‘we are still digging him/her out’	/tú-cí-líi-mu-imb-a/
k.	tú-cí-lí-fùl-il-à Chòòlà	‘we are still washing for Chola’	/tú-cí-líi-ful-il-a Choola/
l.	yá-cí-lí-ùm-àn-à	‘they are still beating each other’	/tú-cí-líi-um-an-a/
m.	à-cí-lí-mù-fùl-il-à	‘he/she is still washing for him/her’	/á-cí-líi-mu-ful-il-a/

The Persistent is another TAM where there is no evidence of unbounded spreading. To account for this in previously-discussed TAMs, we have posited a rule which delinks a H from a TAM prefix, which explains why any H to the left of it undergoes bounded rather than unbounded spreading. To account for the tonology in the Persistent forms, I set up the second TAM prefix as /líi-/. The rule of Bimoraic H Delinking (115) will apply in each form to set the H of /líi-/ afloat as it is immediately preceded by a H (on /cí-/). In the case of 3 sg. forms (224i), (225m), Onsetless SM Delinking will apply insuring that they surface as Low.

We note that in some forms the vowel in the TAM prefix /líi-/ surfaces as long (224), while in other cases it surfaces as short (225). Before analyzing this, let us first present the forms with an H in the macrostem.

(226) Toneless OM and H-toned Root

a.	à-cí-lí-mù-lás-à	‘he/she is still hitting him/her’	/a-cí-líi-mu-lás-a/
b.	tú-cí-lí-mù-swéél-él-à	‘we are still fishing for him/her’	/tú-cí-líi-mu-súel-il-a/
c.	tú-cí-lí-mù-sópólw-éél-à	‘we are still untying for him/her’	/tú-cí-líi-mu-sópolol-il-a/
d.	tú-cí-lí-mw-iimb-à	‘we are still singing about him/her’	/tú-cí-líi-mu-ímb-a/

(227) H-initial macrostem (short stems)

a.	tú-cí-líi-sh-á	‘we are still leaving’	/tú-cí-líi-sí-a/
b.	tú-cí-líi-ly-á	‘we are still eating’	/tú-cí-líi-lí-a/
c.	tú-cí-líi-lúk-à	‘we are still vomiting’	/tú-cí-líi-lúk-a/
d.	tú-cí-líi-lás-à	‘we are still hitting’	/tú-cí-líi-lás-a/
e.	tú-cí-líi-ík-à	‘we are still putting’	/tú-cí-líi-ík-a/
f.	tú-cí-líi-ímb-à	‘we are still singing’	/tú-cí-líi-ímb-a/
g.	tú-cí-líi-sh-á sáaná	‘we are still leaving a lot’	/tú-cí-líi-sí sáaná/

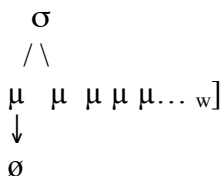
(228) H-initial macrostem (long stems)

a.	tú-cí-lí- <sup>l</sup> lúk-il-à	‘we are still vomiting on’	/tú-cí-líi-lúk-il-a/
c.	tú-cí-lí- <sup>l</sup> súl-il-án-à	‘we are still sculpting for each other’	/tú-cí-líi-súl-il-an-a/
d.	tú-cí-lí- <sup>l</sup> vímb-à	‘we are still swelling’	/tú-cí-líi-vímb-a/
e.	tú-cí-lí- <sup>l</sup> léét-à	‘we are still bringing’	/tú-cí-líi-léet-a/
f.	tú-cí-lí- <sup>l</sup> léét-él-án-à	‘we are still bringing for each other’	/tú-cí-líi-léet-il-an-a/
g.	tú-cí-lí- <sup>l</sup> swéél-él-w-á	‘we are still being fished for’	/tú-cí-líi-súel-il-u-a/
h.	tú-cí-lí- <sup>l</sup> ám-án-à	‘we are still calling each other’	/tú-cí-líi-ám-an-a/
i.	tú-cí-lí- <sup>l</sup> yá-zíik-à	‘we are still burying them’	/tú-cí-líi-yá-ziik-a/
j.	tú-cí-lí- <sup>l</sup> yá-swéél-él-à	‘we are still fishing for them’	/tú-cí-líi-yá-súel-il-a/

As noted when a subset of this data was presented in §3.1.6, the generalization which emerges regarding the realization of the vowel in the /líi-/ prefix is that it surfaces as long when the following macrostem contains two morae or less and surfaces as short when the following macrostem contains three or more morae. How can this be formally accounted for? First, it seems necessary to justify setting up the prefix as long rather than short. There are a few good reasons for doing this. First, as noted above, to account for the bounded spreading of the H on /cí-/ , the H on the following TAM prefix must delink and the rule of Bimoraic H Delinking only operates on bimoraic morphemes. Second, as can be seen in the forms above, the vowel in [líi] does not glide (or delete) before a V-initial root—something we expect only if the pre-root V is long. Were this prefix set up as short and then appropriately lengthened, we would expect the /i/ to glide in forms such as (225l) and (228h), but it does not.

The rule posited (in §3.1.6) to account for this length alternation is Pre-Stem Shortening. This rule, repeated below, will shorten a pre-stem syllable when it is followed by more than two morae.

(229) Pre-Stem Shortening



Having ascertained what triggers the shortening of this prefix, we can ask how various other phenomena, such as gliding, interact with this. In that light, let us consider the following:

- |          |                   |                                   |                     |
|----------|-------------------|-----------------------------------|---------------------|
| (230) a. | tú-cí-líi-fùl-w-à | ‘we are still being washed’       | /tú-cí-líi-ful-u-a/ |
| b.       | ví-cí-líi-lùk-w-à | ‘they are still being woven’      | /tú-cí-líi-luk-u-a/ |
| c.       | ví-cí-líi-lúk-w-á | ‘they are still being vomited up’ | /tú-cí-líi-lúk-u-a/ |
| d.       | ví-cí-líi-ímb-w-á | ‘they are still being sung’       | /tú-cí-líi-ímb-u-a/ |
| e.       | tú-cí-líi-ík-w-á  | ‘we are still being put’          | /tú-cí-líi-ík-u-a/  |
- 
- |          |                   |                        |                     |
|----------|-------------------|------------------------|---------------------|
| (231) a. | tú-cí-líi-kàz-y-à | ‘we are still selling’ | /tú-cí-líi-kal-i-a/ |
| b.       | tú-cí-líi-kúz-y-á | ‘we are still raising’ | /tú-cí-líi-kúl-i-a/ |

Each of the forms in (230) contains the passive suffix /u-/ and each of the forms in (231) contains the short causative suffix /-i/. The fact that the TAM prefix surfaces as long in all of these cases seems to indicate that the mora count that matters is the one on the surface and not the input. In terms of rule ordering this means that Pre-Stem Shortening must apply after Gliding and Word-Final Shortening. The following data are also consistent with this, where the stem-final /u-/ or /i-/ is arguably not a separate morpheme synchronically’.

- |          |                  |                              |                    |
|----------|------------------|------------------------------|--------------------|
| (232) a. | tú-cí-líi-ázw-á  | ‘we are still helping’       | /tú-cí-líi-ázu-a/  |
| b.       | tú-cí-líi-ézy-á  | ‘we are still trying’        | /tú-cí-líi-ézi-a/  |
| c.       | tú-cí-líi-témw-á | ‘we are still loving’        | /tú-cí-líi-tému-a/ |
| d.       | tú-cí-líi-úvw-á  | ‘we are still understanding’ | /tú-cí-líi-uvu-a/  |

Before concluding this point, however, let us consider the forms below:

- |          |                                |                                  |                     |
|----------|--------------------------------|----------------------------------|---------------------|
| (233) a. | tú-cí-lí-mù-sh-à               | ‘we are still grinding him/her’  | /tú-cí-líi-mu-si-a/ |
| b.       | tú-cí-lí-mù-sh-á               | ‘we are still leaving him/her’   | /tú-cí-líi-mu-sí-a/ |
| c.       | tú-cí-lí-mù-ly-à               | ‘we are still eating him/her’    | /tú-cí-líi-mu-lí-a/ |
| d.       | tú-cí-lí-mù-t-á                | ‘we are still releasing him/her’ | /tú-cí-líi-mu-té-a/ |
| e.       | yá-cí-lí-mù-p-á                | ‘they are still giving him/her’  | /tú-cí-líi-mu-pé-a/ |
| f.       | tú-cí-lí- <sup>1</sup> ví-ly-à | ‘we are still eating them’       | /tú-cí-líi-ví-lí-a/ |
| g.       | tú-cí-lí- <sup>1</sup> ví-p-á  | ‘we are still giving them’       | /tú-cí-líi-ví-pé-a/ |

As can be seen, in each case in (233), /líi-/ surfaces as short even though the analysis to this point would have predicted that it should surface as long, as there are only two morae on the surface following /líi-/. We noted in §3.1.6 that there are other processes in Cilungu which are also sensitive to the mora count following the targeted syllable, where Pre-Stem Shortening will apply in many instances. In these cases as well stems such as those shown in (230)-(232) do not trigger Pre-Stem Shortening while those shown in (233) do. Let us briefly consider two possible solutions here. First, one could posit two different Word-final Shortening rules, one of which shortens a word-final syllable with a non-root-initial mora (230)-(232) and one which shortens a word-final syllable with a root-initial mora (233). In fact, this is necessary to do on independent grounds. We will see evidence in §9.7 that the rule which shortens a word-final syllable containing a root-initial mora must follow the rule of Fusion, while the rule shortening a word-final syllable not containing a root-initial mora must precede Fusion. Given two separate Word-final Shortening rules, one could account for the length of /líi-/ in all the forms above by ordering Word-final Shortening (non-root-initial) before Pre-Stem Shortening, which in turn would be ordered before Word-final Shortening (root-initial). The problem with this approach has to do with rule ordering. Various forms discussed in §5.2 and §9.7 show very clearly that both word-final shortening processes must precede General Doubling, whereas Pre-Stem Shortening must clearly follow General Doubling. Therefore this solution, while attractive for accounting for just the data above, is problematic once a wider

range of rules, and their ordering, is considered. The second solution, and the one I adopt here relies on the fact that /li-/ always surfaces as short when the following TBU is not part of the stem (which will be the case any time an OM is present). Thus, the rule of Pre-Stem Shortening must be formalized such that the pre-stem TBU is shortened whenever it is followed by 1) more than two morae or 2) a non-stem TBU.

The negative of this TAM is the same as the negative of the Contrastive Habitual. It turns out, however, that its tonology is markedly different from the tenses we have looked at so far, due to the fact that it takes a melodic H, and therefore will be presented in section 5.3.6.

Sample relative forms are given below where the length alternation is still attested.

(234) a.	á-à-cí-lì-fùl-à	‘one(s) who are still washing’	/á-á-cí-líi-ful-a/
b.	á-à-cí-lí-mù-fùl-à	‘one(s) who are still washing him/her’	/á-á-cí-líi-mu-ful-a/
c.	á-à-cí-lí-zìik-il-à	‘one(s) who are still burying for’	/á-á-cí-líi-ziik-il-a/
d.	á-à-cí-lí-mù-súl-à	‘one(s) who are still sculpting him/her’	/á-á-cí-líi-mu-súl-a/
e.	á-à-cí-lì-súl-à	‘one(s) who are still blacksmithing’	/á-á-cí-líi-súl-a/
f.	á-à-cí-lí- <sup>1</sup> léét-él-à	‘one(s) who are still bringing for’	/á-á-cí-líi-léet-il-a/
g.	í-ví- <sup>1</sup> cí-lì-fùl-à	‘ones (C8) who are still washing’	/í-ví-cí-líi-ful-a/

The negative relative of this tense is the same as the negative relative of the Present Progressive.

## 5.2 TAMs with Melodic H: Realization on the FV

In the TAMs examined above, the surface tonal patterns were ultimately predictable from the underlying H’s supplied by the various segmental affixes and roots (even if some of the tonal processes were morphologically conditioned). In many Bantu languages in addition to a set of TAMs of this type, there is another set of TAMs which are characterized by the presence of an additional H tone, variously referred to in the literature as a “melodic” or “grammatical” or “suffixal” High. And within the tenses which exhibit this additional melodic H, there is often a distinction in how the melodic H is realized in some of these versus others. We will now see that such is the case in Cilungu. A variety of TAMs exhibit this melodic High, and we will see that it can be realized in three different ways: 1) on the FV only, 2) on the second and subsequent TBUs of the stem (V2-FV), and 3) on the second and subsequent TBUs of the stem up to the penult (V2-PU).<sup>25</sup> In most TAMs, all forms are realized with either the FV or the V2-FV patterns. In two (the Subjunctive (§5.3.9) and the Imperative (§5.3.10)) some forms are realized with the FV pattern and others with the V2-FV pattern. In one TAM (the Recent Past (§5.2.4)) some forms are realized with the FV patterns and others with the V2-PU pattern, and in one (Perfect (§5.3.7)) all three patterns can be found. These will all be discussed in detail below. We begin with those that exhibit the FV pattern.

A number of Cilungu TAMs are tonally distinct from the TAMs that we examined up to now in that the Final Vowel generally surfaces as High. The FV only occasionally surfaced as High in the TAMs presented in the section above (5.1), viz.: 1) when a verb had a H-toned CV root with no following extensions (§5.1.1.4, e.g. *tú-kú-<sup>1</sup>sh-á* ‘we are leaving’); 2) when a macrostem H in a non-phrase-final verb underwent unbounded spreading to the FV (§5.1.1.1, e.g. *tú-kú-<sup>1</sup>lās-á Chòòlà* ‘we are hitting Choola’); and 3) when a macrostem H in a phrase-final form underwent unbounded spreading to the FV in the event that there was an /i/ or /u/ immediately preceding the FV in the UR, which glided (§5.1.1.3, e.g. *tú-kú-fùl-w-á* ‘we are being washed’). I

<sup>25</sup> As will be discussed in chapters 6 and 7 there is also a nominal melodic H which exhibits a somewhat different pattern from the verbal melodic H.



will now present and analyze TAMs where it is very clear that a MH (as opposed to a prefixal H or root H) is realized on the FV. We begin with the Potential.

### 5.2.1 Potential

The morphological structure of the Potential is given in (235).

(235) Potential

SM – ngá – (OM) – VR – (EXT) – á

Examples of phrase-final Potential forms with toneless macrostems are given below.

(236) a.	tùù-ngá-fú <sup>1</sup> l-á	‘we can wash’	/tu-ngá-ful-á/
b.	tùù-ngá-sí-iw-á	‘we can be ground’	/tu-ngá-si-iw-á/
c.	tùù-ngá-zìik-á	‘we can bury’	/tu-ngá-ziik-á/
d.	tùù-ngá-vìimb-á	‘we can thatch’	/tu-ngá-vimb-á/
e.	tùù-ngá-swéèl-á	‘we can brew’	/tu-ngá-suel-á/
f.	tùù-ngá-zìik-il-á	‘we can bury for’	/tu-ngá-ziik-il-á/
g.	tùù-ngá-fúl-ish-á	‘we can wash a lot’	/tu-ngá-ful-isi-á/
h.	tùù-ngá-mú-zìik-il-á	‘we can bury for him/her’	/tu-ngá-mu-ziik-il-á/
i.	tùù-ngá-mú-sùkìl-il-á	‘we can accompany him/her’	/tu-ngá-mu-sukil-il-á/

As can be seen above, the FV bears a H tone in every form. The first question that arises concerns where this H tone comes from. We know from its absence in the non-melodic forms discussed above in section 5.1, that whether it is present or not is morpho-synactically conditioned. I.e. in certain TAMs it is present and in certain TAMs it is not. It will also become apparent that synchronically it does not seem possible to find any single morphological or even semantic common denominator present in the TAMs where it is found versus those where it is not. I therefore assume that certain TAMs require the presence of a MH. The next question which arises concerns exactly how this MH is introduced into the form. Let us briefly consider two options in this regard.

The first would be to have certain TAMs subcategorize for different FVs. The TAMs in section 5.1 would subcategorize for a toneless FV, the forms in (236) (as well as the rest of the forms in all TAMs presented in this section (5.2) would subcategorize for a H-toned FV, and the forms to be presented in section 5.3 would subcategorize for a FV with a floating H (which ultimately docks onto V2-FV). This was the approach taken, e.g., in this author’s analysis of Namwanga (Bickmore (2000a)).

The second approach would be to have a single allomorph of the FV (toneless /-a/) and have certain TAMs (namely all those presented in §5.2 and §5.3) require a suffix which is a floating H with no segmental content. Then a very early rule would dock this H into the stem. Of course the TAMs presented in this section (5.2) need the MH to dock onto the FV only while those to be presented in §5.3 need the FV to be docked onto V2-FV (and in a few cases V2-penult).

While it is probably possible to adopt either of these approaches for Cilungu, I favor the second approach and explore it in greater detail in §5.4. With regard to the underlying representations presented in this work, as an aid to the reader the MH which is realized on the FV only will be represented differently than the one which is realized on V2-FV. The former is represented in URs as <-á>, while the latter (exhibited by TAMs to be presented in §5.3) will be represented in URs as <+H>

Let us now continue with the presentation and discussion of the Potential data. As seen below, when a word follows a Potential form such as those presented in (236), the tone pattern of the verb is unchanged.

- (237)
- |    |                           |                           |                           |
|----|---------------------------|---------------------------|---------------------------|
| a. | tùu-ngá-lámùk-á sáaná     | ‘they are greeting a lot’ | /tu-ngá-lamuk-á sáaná/    |
| b. | tùu-ngá-súkìl-il-á níngó  | ‘we can accompany well’   | /tú-ngá-súkìl-il-á níngó/ |
| c. | tùu-ngá-fúl-il-á Múlééngà | ‘we can wash for Mulenga’ | /tu-ngá-ful-il-á Mulenga/ |

As seen, the tone pattern of verbs with an H-toned FV are identical in phrase-final and non-phrase-final position (something certainly not true of the verbs presented in §5.1). This is nearly always the case in forms in the various TAMs which require a H-toned FV and so for the most part I will not include many non-phrase-final instances of verbs in this section. Of course anytime the phrase-final and non-phrase-final tone patterns are different, then both will be given. What is interesting and important in the non-phrase-final forms seen in examples such as those in (237) is that they shed light on the domains in which rules such as Fusion and General Doubling apply. This will be taken up in detail in chapter 9. For now, let us simply note that (237a) shows that the H on the FV and an immediately following H in another word will in fact fuse, showing that the domain of Fusion is larger than the word. The forms in (237b,c) show that the H on the FV of the verb can spread into the following word—in a bounded fashion in (237b) and in an unbounded fashion in (237c). This shows that the domain of the rightward spreading rules is also larger than the word.

Returning to the forms in (236), we see that the H on the TAM prefix /ngá-/ undergoes binary spreading in each case. This is correctly predicted by our analysis since the H on /ngá-/ is not the rightmost H in the word. In each case it spreads onto the following mora.

Below are a few examples of macrostems with toneless OM’s and H-toned roots.

- (238)
- |    |   |                             |                       |
|----|---|-----------------------------|-----------------------|
| a. | tùu-ngá-mú- <sup>1</sup> súl-á                  | ‘we can sculpt him/her’     | /tu-ngá-mu-súl-á/     |
| b. | tùu-ngá-mú- <sup>1</sup> súl-í <sup>1</sup> l-á | ‘we can sculpt for him/her’ | /tu-ngá-mu-súl-il-á/  |
| c. | tùu-ngá-mú- <sup>1</sup> sópólòl-èl-á           | ‘we can untie him/her’      | /tu-ngá-mu-sópolol-á/ |

As can be seen, the H on the TAM prefix /ngá-/ undergoes binary spreading, causing a downstep before the H-toned root (which itself undergoes binary spreading if the following TBU is toneless).

Let us now examine Potential forms with H-initial macrostems. Representative examples are given below.

(239) No OM, H-toned root

- |    |                        |                  |                      |
|----|------------------------|------------------|----------------------|
| a. | tùu-ngá-sh-á           | ‘we can leave’   | /tu-ngá-sí-á/        |
| b. | tùu-ngá-lás-á          | ‘we can hit’     | /tu-ngá-lás-á/       |
| c. | tùu-ngá-kány-á         | ‘we can spread’  | /tu-ngá-káñ-á/       |
| d. | tùu-ngá-sópólòl-á      | ‘we can untie’   | /tu-ngá-sópolol-á/   |
| e. | tùu-ngá-páápáatik-il-á | ‘we can flatten’ | /tu-ngá-páapaatik-á/ |

(240) H-toned OM, toneless root

- |    |                       |                                |                        |
|----|-----------------------|--------------------------------|------------------------|
| a. | tùu-ngá-yá-fúl-il-á   | ‘we can wash for them’         | /tu-ngá-yá-ful-il-á/   |
| b. | tùu-ngá-yá-zíik-il-á  | ‘we can bury for them’         | /tu-ngá-yá-ziik-il-á/  |
| c. | yàa-ngá-mú-súkìl-il-á | ‘they can accompany you (pl.)’ | /ya-ngá-mú-súkìl-il-á/ |

(241) H-toned OM, H toned root

a.	tùù-ngá-yá-sh-á	‘we can leave them’	/tu-ngá-yá-sí-á/
b.	tùù-ngá-yá-lás-á	‘we can hit them’	/tu-ngá-yá-lás-á/
c.	tùù-ngá-yá-lás-í <sup>1</sup> l-á	‘we can hit for them’	/tu-ngá-yá-lás-il-á/
d.	tùù-ngá-yá-léét-é <sup>1</sup> l-á	‘we can bring for them’	/tu-ngá-yá-léet-il-á/
e.	tùù-ngá-yá-sópólól-á	‘we can untie them’	/tu-ngá-yá-sópolol-á/

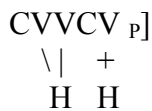
The first thing we see in the forms above is that there is no downstep between the TAM prefix /ngá-/ and any immediately following H tones. This is illustrated quite clearly in (241b) where four consecutive H’s (one a pre-macrostem H, one OM, one root and one FV) have all fused. This is directly predicted by our rule of Fusion (106) which will fuse two adjacent H tones. That the correct way to interpret the lack of downstep is indeed fusion and not High Deletion, can be clearly seen in the forms above. In (239d), for instance, if there were a rule which deleted the H on the root-initial mora, we would predict that the form would surface as *\*tùù-ngá-sópòlól-á*, but this is incorrect. Under the analysis presented here, all adjacent H’s will fuse and then the fused H will undergo binary spreading, correctly accounting for the tone patterns in all the forms above.

Let us now consider cases which contain a H-toned CVVCV stem.

(242) a.	tùù-ngá-víimb-à	‘we can swell’	/tu-ngá-víimb-á/
b.	tùù-ngá-swéél-à	‘we can fish’	/tu-ngá-súel-á/
c.	tùù-ngá-sí-íw-à	‘we can be left’	/tu-ngá-sí-iw-á/
d.	tùù-ngá-yá-léét-à	‘we can bring them’	/tu-ngá-yá-léet-á/

According to the rules we have postulated thus far, we would have expected these forms to end in [Cv́v́Cv́]. It turns out, however, that Cilungu conspicuously avoids a phonetic output which contains a long High followed by a downstep. When the productive rules of the phonology create such a configuration it must then be repaired, and this is done in different ways, depending on the morpho-phonological environment in which it is created. What we learn from the forms in (242) is that when this offending configuration is created phrase-finally, the second H simply delinks. (See §10.5 where this, as well as non-phrase-final instances of verbs such as those in (242) are discussed in greater detail.) This, as we will see, correctly predicts that both phrase-final /Cv́v́Cv́/ as well as /Cv́v́Cv/ surface homophonously as [Cv́v́Cv̀]. The rule which accomplishes this is given below.

(243) Phrase-final Downstep Deletion



There is one other configuration which results in the deletion of the H on the FV (though this one is not due to an avoidance of *\*Cv́v́Cv́*). This occurs in verbs with stems that contain a toneless CV root.

(244) a.	tùù-ngá-sh-à	‘we can grind’	/tu-ngá-sí-á/
b.	tùù-ngá-zw-à	‘we can bleed’	/tu-ngá-zu-á/
c.	tùù-ngá-y-à	‘we can go’	/tu-ngá-gí-á/
d.	tùù-ngá-lw-à	‘we can fight’	/tu-ngá-lu-á/

One process that we know applies to the forms in (244) is Word-final Shortening (first presented in §3.1.4), and repeated below.

(245) Word-final Shortening

$$\begin{array}{c} \sigma_w] \\ / \quad \backslash \\ \mu \quad \mu \rightarrow \emptyset \end{array}$$

As mentioned in both §3.1.6 and §5.1.10, there is evidence in Cilungu that there are actually two Word-final Shortening rules. One shortens a word-final syllable containing a root-initial mora and the other shortens a word-final syllable containing a non-root-initial mora. There are two independent reasons justifying positing these two rules, instead of a single one. First, as we will see below, the former rule (which is the relevant one for the data in (244)), must apply after Fusion, while the latter rule must precede it (cf. §9.7). Second, the former rule must always remove the second mora of the bimoraic word-final syllable (as reflected in the formalization of (245)), while this is not true of the first one.<sup>26</sup>

Below we provide a partial derivation of (244a) and compare it to that of (239a).

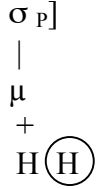
(246) a.	tu-nga-si-a	b.	tu-nga-si-a	U.R.
	$\begin{array}{cc}   &   \\ H & H \end{array}$		$\begin{array}{ccc}   &   &   \\ H & H & H \end{array}$	
	tu-nga-sh-aa		tu-nga-sh-a a	Gliding, CL & Palatalization
	$\begin{array}{cc}   &   \\ H & H \end{array}$		$\begin{array}{cc}   &   \\ H & HH \end{array}$	
			tu-nga-sh-aa	Fusion
			$\begin{array}{c} \backslash \quad // \\ H \end{array}$	
	tu-nga-sh-a		tu-nga-sh-a	Word-final Shortening
	$\begin{array}{cc}   & \\ H & H \end{array}$		$\begin{array}{c} \backslash \quad / \\ H \end{array}$	
	tu-nga-sh-a			General Doubling
	$\begin{array}{cc}   & / \\ H & H \end{array}$			

As can be seen Fusion will fuse all three H's in (246b) but will not affect (246a) since the two H's are not adjacent in the latter. Word-final Shortening then applies, removing the second mora in each case. General Doubling will then apply to (246a). The form in (246a) will surface correctly as *tùù-ngá-sh-á*. In order to insure

<sup>26</sup> When the word-final syllable does not include the root-initial mora, then a toneless mora is pruned over an H-toned one. If both are toneless, then the right one is pruned (see §5.1.1.3).

that (246a) surfaces as *tùù-ngá-shà*, we must posit a rule which delinks a phrase-final vowel when a floating H follows. This rule, formalized below.

(247) Pre Floating H Delinking<sup>27</sup>



This analysis correctly predicts that when forms such as those in (244) are non-phrase-final, that no delinking will occur and the final two syllables of the verb will surface as High. That this is true is seen below.

- |          |                     |                           |                      |                     |
|----------|---------------------|---------------------------|----------------------|---------------------|
| (248) a. | <i>tùù-ngá-sh-á</i> | <sup>1</sup> <i>sáaná</i> | ‘we can grind a lot’ | /tu-ngá-si-á sáaná/ |
| b.       | <i>tùù-ngá-zw-á</i> | <i>nìngó</i>              | ‘we can bleed well’  | /tu-ngá-zu-á ñingó/ |

The above forms are still distinct from the non-phrase-final pronunciations of analogous forms with H-toned roots as seen below.

- |          |                     |              |                             |                     |
|----------|---------------------|--------------|-----------------------------|---------------------|
| (249) a. | <i>tùù-ngá-sh-á</i> | <i>sáaná</i> | ‘we can leave a lot’        | /tu-ngá-sí-á sáaná/ |
| b.       | <i>tùù-ngá-zw-á</i> | <i>níngó</i> | ‘we can make porridge well’ | /tu-ngá-zú-á ñingó/ |

The H on the FV of (249a) will fuse with the H on the initial mora of the following word, while in (249b) it will spread onto the following toneless mora.

Next, let us consider forms with V-initial roots containing H-toned and toneless roots respectively.

- |          |                                     |                                |                      |
|----------|-------------------------------------|--------------------------------|----------------------|
| (250) a. | <i>yàà-ng-óómól-àn-á</i>            | ‘they can pull e.o. down’      | /ya-ngá-ómol-an-á/   |
| b.       | <i>yàà-ng-íimb-íl-àn-á</i>          | ‘they can sing for each other’ | /ya-ngá-imb-il-an-á/ |
| c.       | <i>yàà-ng-íimb-í<sup>1</sup>l-á</i> | ‘they can sing for’            | /ya-ngá-imb-il-á/    |
| d.       | <i>tùù-ng-éél-é<sup>1</sup>l-á</i>  | ‘we can fish for’              | /tu-ngá-él-il-á/     |
- 
- |          |                              |                               |                      |
|----------|------------------------------|-------------------------------|----------------------|
| (251) a. | <i>tùù-ng-éél-èèngààny-á</i> | ‘we can consider’             | /tu-ngá-elengany-á/  |
| b.       | <i>yàà-ng-íimb-íl-àn-á</i>   | ‘they can dig for each other’ | /ya-ngá-imb-il-an-á/ |
| c.       | <i>tùù-ng-éélèk-á</i>        | ‘we can cook’                 | /tu-ngá-elek-á/      |
| d.       | <i>tùù-ng-éél-èl-á</i>       | ‘we can winnow for’           | /tu-ngá-el-el-á/     |

In the verbs with H-toned roots (250) General Doubling applies in each case, spreading the H on the TAM prefix to the following mora, even if this causes an OCP violation (250c-d). In the forms in (251a-b) the H on the TAM prefix spreads to the tautosyllabic mora via General Doubling and then spreads that H to the following mora via Heterosyllabic Doubling. In (251c-d) General Doubling applies, but Heterosyllabic Doubling does not. These forms, as well as a number of others to be presented below, show that while General Doubling applies even if it creates an OCP violation, Heterosyllabic Doubling will not spread a multiply-linked H to a following

<sup>27</sup> This rule will apply whether the H on the phrase-final mora is singly or multiply linked. See section 9.7 for further discussion and examples of singly-linked cases.

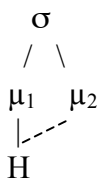
heteromorphemic mora if this would cause an OCP violation. This correctly predicts that the forms in (250b) and (251b) are homophonous, while the forms in (250d) and (251d) are not.

Next, let us consider cases where the root is H-toned and the stem is of the shape CVVCVCV.

- (252)
- |    |  |                            |                       |
|----|--|----------------------------|-----------------------|
| a. | tùù-ngá-bééndá <sup>1</sup> m-á                  | ‘we can incline’           | /tu-ngá-béndam-a/     |
| b. | tùù-ngá-mú- <sup>1</sup> léét-é <sup>1</sup> l-á | ‘we can bring for him/her’ | /tu-ngá-mu-léet-il-a/ |
| c. | tùù-ngá-yá-swéél-é <sup>1</sup> l-á              | ‘we can fish for them’     | /tu-ngá-yá-súel-il-á/ |

As can be seen here the root-initial H spreads not only to the following tautosyllabic mora, but to the following heterosyllabic mora as well, even though this causes an OCP violation. The spreading behavior of the H in these forms, then, differs from that exhibited by the H on the TAM prefix in (251c-d). I would like to propose that Heterosyllabic Doubling never spreads a multiply-linked H onto a following mora if that would cause an OCP violation. This accounts straightforwardly for the pattern in (251c-d), and so another explanation must be found for the pattern in (252). To account for this, one of two approaches could be pursued. First, one could simply set up H-toned stems beginning /CVV/ as having the H associated to both morae in the root-initial syllable. Second, one could posit a rule, applying before General Doubling, which will spread the root-initial H onto an immediately following tautomorphemic mora.

(253) Tautomorphemic CVV Spread



( $\mu_1$  and  $\mu_2$  are tautomorphemic)

Under both approaches General Doubling will then spread the multiply-linked H onto the short penult, since this rule applies even when an OCP violation results. I adopt the Tautomorphemic CVV Spread here, which is defended in some detail in §10.6.2. What we will ultimately see, however, is that this rule applies in certain VF TAMs and not others. Specifically, it applies when the FV is /-á/, but not, as we will see below, when the stem ends in /-ìl-é/ (cf. §5.2.2).

While we have seen that the tonology of the 3 sg. SM (as well as the Class 4 and Class 9 SM) differs from that of non 3 sg. forms in many tense/aspects, in the Potential it actually behaves exactly the same as the other subject markers in surfacing as low (and not having any visible effect on the tonology of the TBUs which follow it.) This can be seen below.

(254) Toneless-initial macrostem

- |    |  |                                  |
|----|--|----------------------------------|
| a. | ìì-ngá-zìik-w-á                        | ‘it (C9) can be buried’          |
| b. | àà-ngá-súkil-il-á                      | ‘he/she can accompany’           |
| c. | àà-ngá-mú-fùl-á                        | ‘he/she can wash him/her’        |
| d. | àà-ngá-mú-zìik-il-á                    | ‘he/she can bury for him/her’    |
| e. | àà-ngá-mú- <sup>1</sup> páápáàtik-il-á | ‘he/she can flatten for him/her’ |

(255) H-initial macrostem

- |    |                                  |                              |
|----|----------------------------------|------------------------------|
| a. | ìì-ngá-lás-w-á                   | ‘they (C4) can be hit’       |
| b. | àà-ngá-súl-í <sup>1</sup> l-á    | ‘he/she can sculpt for’      |
| c. | àà-ngá-sópólòl-á                 | ‘he/she can untie’           |
| d. | àà-ngá-yá-súl-í <sup>1</sup> l-á | ‘he/she can sculpt for them’ |

I therefore assume that either all SMs have a lexical allomorph which is toneless which is used in this context (e.g. before a H-toned TAM prefix), or that if the SM does have a High (either floating or linked) some morphologically conditioned rule insures it surfaces as low in this context. (Cf. §10.7.1)

The negative of the Potential was given to me by my consultants in two different ways. The first way is illustrated below.

(256) Negative of Potential; toneless macrostem

- |    |                                |                              |                           |
|----|--------------------------------|------------------------------|---------------------------|
| a. | tù-táá-ngá-zìik-á              | ‘we cannot bury’             | /tu-tá-n’gá-zìik-á/       |
| b. | tù-táá-ngá-mú-zìik-il-á        | ‘we cannot bury for him/her’ | /tu-tá-n’gá-mu-zìik-il-á/ |
| c. | tù-táá-ngá-fúl- <sup>1</sup> á | ‘we cannot wash’             | /tu-tá-n’gá-ful-á/        |

(257) Negative of Potential; H-initial macrostem

- |    |                                    |                        |                        |
|----|------------------------------------|------------------------|------------------------|
| a. | tù-táá-ngá-sópólòl-á               | ‘we cannot untie’      | /tu-tá-n’gá-sópolol-á/ |
| b. | yà-táá-ngá-yá-lás-á                | ‘they cannot hit them’ | /ya-tá-n’gá-yá-lás-á/  |
| c. | tù-táá-ngá-léét-é <sup>1</sup> l-á | ‘we cannot bring for’  | /tu-tá-n’gá-léet-il-á/ |
| d. | yà-táá-ngá-lás-í <sup>1</sup> l-á  | ‘they cannot hit for’  | /ya-tá-n’gá-lás-il-á/  |

Here the negative is formed by adding the negative prefix /tá-/. Since the Potential prefix does not induce any downstep or Falling tone on the previous vowel, the nasal in this prefix must also be H-toned, i.e. /n’gá-/. (It is not the only H-toned pre-consonantal nasal in Cilungu as this is true of the 1 sg. SM /n-/ as well.) I therefore assume that the UR of this prefix is /n’gá-/ where a H is linked to both the mora associated with the nasal and the mora associated with the vowel.

It should be noted that the negative forms given above in (256)-(257) were noted by my consultant to be typical of “older speakers.” The more modern usage is given below.<sup>28</sup>

- (258) a. tù-táá-ng-é tú-mú-zìik-il-é                      ‘we can not bury for him/her’  
b. tù-táá-ng-é tú-mú-<sup>1</sup>léét-él-é                      ‘we cannot bring for him/her’

What we see above is a compound structure, the first word of which is /SM-tá-n’gá-é/, and the second word of which is the Subjunctive form (§5.3.9). This form as well as other compound verb TAMs will be presented and discussed in detail later in chapter 8.

<sup>28</sup> My consultant has indicated that the FV in the negative exemplified in (256)-(257) can also be pronounced as /a/—i.e. *tù-tá-á-ng-á* ... is also possible.

Given the fact that the UR of the Potential prefix is being set up as /n'gá-/ in the negative Potential forms, what of its UR in the affirmative Potential forms? One possibility is to set up the prefix as /n'gá-/ in all forms. This predicts that the H from the /n'/ would produce a rise on the SM in the affirmative forms after Nasal Demorification and compensatory lengthening, yet what surfaces is a level Low and not a Rise. To account for this we would need an additional rule to resolve all such word-initial rises to a level Low. (Cf. §10.4.4 on the distribution of rising tones.) A second possibility is that this prefix exhibits lexical allomorphy such that /ngá-/ is used in affirmative forms and /n'gá-/ is used in negative ones. (It might even be possible to consider this as bi-moraic where affirmative /n-/ or negative /n'/ combines with /gá-/.) While I must leave this an open question, for concreteness, I adopt the second analysis here.

Affirmative and negative subject relative forms of the Potential are given below.

#### (259) Affirmative Relatives

a. í-víi-ngá-fú <sup>1</sup> l-á	'those (C8) who can wash'	/í-ví-ngá-ful-á/
b. í-víi-ngá-mú-zìik-il-á	'those (C8) who can bury for him/her'	/í-ví-ngá-mu-zìik-il-á/
c. á-à-ngá-fú <sup>1</sup> l-á	'one(s) who can wash'	/á-á-ngá-ful-á/
d. á-à-ngá-lás-á	'one(s) who can hit'	/á-á-ngá-lás-á/
e. á-à-ngá-lás-í <sup>1</sup> l-á	'one(s) who can hit for'	/á-á-ngá-lás-il-á/
f. á-à-ngá-mú- <sup>1</sup> l-á	'one(s) who can hit for him/her'	/á-á-ngá-mu-lás-il-á/

#### (260) Negative Relatives

a. í-ví- <sup>1</sup> tá-á-ngá-zìik-á	'those (C8) who cannot bury'	/í-ví-tá-n'gá-zìik-á/
b. áà-táá-ngá-zìik-á	'one(s) who cannot bury'	/á-á-tá-n'gá-zìik-á/
c. áà-táá-ngá-mú-zìik-á	'one(s) who cannot bury him/her'	/á-á-tá-n'gá-mu-zìik-á/
d. áà-táá-ngá-lás-á	'one(s) who cannot hit'	/á-á-tá-n'gá-lás-á/
e. áà-táá-ngá-mú- <sup>1</sup> l-á	'one(s) who cannot bring for him/her'	/á-á-tá-n'gá-mu-lás-il-á/

The tonology of the first two syllables of these relative forms are accounted for in the same way we accounted for relative forms in the TAMs with no MH in §5.1. Relative SM Delinking (122) will apply in (259a-b) and (260a), after which General Doubling will spread the H of the SM into the following syllable. For the remainder of the forms, as was the case in all the TAMs in section 5.1 (with the exception of the Present Progressive) the 3 sg. and 3 pl. relative subject markers are both /á-/. The H on this relative SM /á-/ cannot spread due to the H on the following mora /tá-/, and subsequently deletes via Onsetless SM Delinking (104).

### 5.2.2 Yesterday Past

The next TAM with a H-toned FV to be discussed is the Yesterday Past. The time frame for events described by this TAM is not strictly confined to events taking place the day before but can sometimes extend to events taking place from approximately 1-3 days ago. Its morphological structure is given in (261).

#### (261) Morphological structure of Yesterday Past: SM – á – (OM) – VR – (EXT) – il-é

This is the first TAM we have examined in which the FV has not been /-a/. A question that arises is whether the [ile] ending in this TAM (as well as others to be seen below) is monomorphemic or bimorphemic.



Arguments for each approach were presented in section 4.1 where it was concluded that while there were perhaps not knock-down arguments either way, the preponderance of the evidence weighed in favor of analyzing it as bimorphemic and so it will be indicated as such here.

We begin by examining forms with toneless macrostems.

(262) Yesterday Past forms with toneless macrostems

a.	tw-áá-sí-ìl-é	‘we ground’	/tú-á-si-ìl-é/
b.	tw-áá-fúz-ìl-é	‘we washed’	/tú-á-ful-ìl-é/
c.	tw-áá-lém-ìl-é	‘we grabbed’	/tú-á-lem-ìl-é/
d.	tw-áá-zíis-ìl-é	‘we buried’	/tú-á-ziik-ìl-é/
e.	tw-áá-mú-zìis-ìl-é	‘we buried him/her’	/tú-á-mu-ziik-ìl-é/

As can be seen, each form surfaces with a H-toned FV. The H on the TAM prefix /á-/ fuses with the H on the preceding SM and this H spreads onto the following TBU—undergoing binary spreading since it is not the rightmost H in the word. As was the case with the Potential, the tone pattern of the verb is the same whether it is phrase-final or non-phrase-final.

(263) a.	tw-áá-fúz-ìl-é níngó	‘we washed well	/tú-á-ful-ìl-é níngó/
b.	tw-áá-lém-ìl-é Chóólà	‘we grabbed Chola’	/tú-á-lem-ìl-é Choola/
c.	tw-áá-zíis-ìl-é sàaná	‘we buried a lot	/tú-á-ziik-ìl-é sáaná/

In chapter 4 we outlined in some detail how the process of imbrication works. Below, I show a few forms with imbricated (toneless) roots.

(264) a.	yá-á-fúl-ìil-é	‘they washed for’	/yá-á-ful-il-ìl-é/
b.	yá-á-fúl-ìin-é	‘we washed each other’	/yá-á-ful-an-ìl-é/
c.	yá-á-fúl-ìik-é	‘they were washed’	/yá-á-ful-ik-ìl-é/

The H on the FV surfaces as High, while the H on the TAM prefix /á-/ undergoes binary spreading, exactly as was the case in the non-imbricated forms above.

Let us now consider forms with H-toned roots.

(265) a.	tw-áá-súz-í <sup>1</sup> l-é	‘we sculpted’	/tú-á-súl-ìl-é/
b.	tw-áá-lém-í <sup>1</sup> l-é	‘we planted’	/tú-á-lém-ìl-é/
c.	yá-á-lás-í <sup>1</sup> l-é	‘they hit’	/tú-á-lás-ìl-é/

The H on the TAM prefix /á-/ fuses with the H on the following root-initial mora and this H undergoes binary spreading, causing a downstep between the penultimate and final morae.

Below are cases of macrostems containing a toneless OM and H-toned root, where the H on /á-/ undergoes binary spreading causing a downstep before the root-initial H.

(266) a.	tw-áá-mú- <sup>1</sup> lúm-í <sup>1</sup> l-é	‘we bit him/her’	/tú-á-mu-lúm-ìl-é/
b.	tw-áá-mú- <sup>1</sup> lás-í <sup>1</sup> l-é	‘we hit him/her’	/tú-á-mu-lás-ìl-é/

Next are verbs containing a H-toned OM before a toneless root (267), and H-toned root (268).

- |       |    |                                 |                  |                     |
|-------|----|---------------------------------|------------------|---------------------|
| (267) | a. | tw-áá-yá-fúz-il-é               | ‘we washed them’ | /tú-á-yá-ful-ìl-é/  |
|       | b. | tw-áá-yá-zìis-il-é              | ‘we buried them’ | /tú-á-yá-ziik-ìl-é/ |
| (268) | a. | tw-áá-yá-lás-í <sup>1</sup> l-é | ‘we hit them’    | /tú-á-yá-lás-ìl-é/  |
|       | b. | tw-áá-yá-lúm-í <sup>1</sup> l-é | ‘we bit them’    | /tú-á-yá-lúm-ìl-é/  |

In (267) the H on the SM, TAM prefix and OM fuse and then undergo binary spreading. In (268) the H on the SM, TAM prefix, OM and root all fuse and then undergo binary spreading.

When the stem contains only a H-toned CV root, the FV surfaces as Low due to the process of Phrase-final Downstep Deletion (243) presented in the previous section (5.2.1).

- |       |    |               |            |                |
|-------|----|---------------|------------|----------------|
| (269) | a. | tw-áá-sí-ìl-è | ‘we left’  | /tú-á-sí-ìl-é/ |
|       | b. | yá-á-lí-ìl-è  | ‘they ate’ | /tú-á-lí-ìl-é/ |

Now let us consider examples of H-toned roots which imbricate.

- |       |    |                       |                     |                          |
|-------|----|-----------------------|---------------------|--------------------------|
| (270) | a. | tw-áá-lás-ìin-é       | ‘we hit each other’ | /tú-á-lás-an-ìl-é/       |
|       | b. | tw-áá-lúm-ìil-é       | ‘we bit for’        | /tú-á-lúm-il-ìl-é/       |
|       | c. | tw-áá-léet-ìil-é      | ‘we brought for’    | /tú-á-léet-il-ìl-é/      |
|       | d. | tw-áá-sópólw-ìil-é    | ‘we untied’         | /tú-á-sópolol-ìl-é/      |
|       | e. | tw-áá-páápàatik-ìil-é | ‘we flattened for’  | /tú-á-páapaatik-il-ìl-é/ |

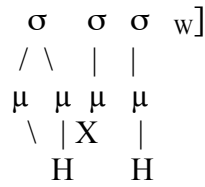
Here again the H on the SM, TAM prefix and root fuse and then undergo binary spreading. In short, I assume that imbrication applies, altering the segmental structure (though not the mora count) of the verb, after which the normal, productive rules of the tonology (e.g. fusion and spreading) apply.

It was shown above in (252) that in Potential forms with H-toned roots of the stem shape /CṿvCvCṿ/ there was evidence of a rule of Tautomorphemic CVV Spread (253) which spread the root H to the following tautomorphemic mora so that General Doubling could spread it to the penult even though an OCP violation resulted. This must be contrasted with forms containing the same stem shape in the Yesterday Past, where the H does not spread to the penult, as seen below.

- |       |    |                                  |                      |                     |
|-------|----|----------------------------------|----------------------|---------------------|
| (271) | a. | tw-áá-swééz-il-é                 | ‘we fished’          | /tú-á-súel-ìl-é/    |
|       | b. | tw-áá-mú- <sup>1</sup> léés-il-é | ‘we brought him/her’ | /tú-á-mu-léet-ìl-é/ |
|       | c. | tw-áá-yá-súúz-il-é               | ‘we forgot them’     | /tú-á-yá-súul-ìl-é/ |

The generalization seems to be that the spreading of the root H in a /CṿvCvCṿ/ stem spreads to the penult when the FV is /-a/, but not when it is /-e/. It is not entirely clear how this should be formalized. One way would be to annotate the rule of Tautomorphemic CVV Spread (253), such that the FV /-a/ had to be present for it to be triggered. But we will see some evidence below to suggest that it might be preferable to allow Tautomorphemic CVV Spread to be completely general and then posit a “Penult H Retraction” rule to retract the H off the penult when the FV was /-e/. This is formalized and illustrated below.

(272) Penult H Retraction



(Applies only in TAMs ending in *-il-e*)

(273) tú-á-súel-il-é	U.R.
tw-á á-swééz-il-é	Gliding, CL & CM
tw-á á-swééz-il-é	Fusion
tw-á á-swéééz-il-é	Tautosyllabic CVV Spread
tw-á á-swéééz-ìl-é	General Doubling
tw-á á-swéééz-il-é	Penult H Retraction

Let us now consider the 3 sg. forms which, as we will see, exhibit interesting differences in their tonal pattern. In the forms below, all containing toneless roots, we note that in all but a few cases, the FV surfaces as Low instead of High.

(274) Bisyllabic macrostem

a. w-àà-sí-il-è	‘he/she ground’	/u-á-si-ìl-é/
b. w-àà-lw-ìl-è	‘he/she fought’	/u-á-lu-ìl-é/
c. w-àà-sí-il-è sàaná	‘he/she ground a lot’	/u-á-si-ìl-é sàaná/

(275) Macrostem beginning short-short

a. w-àà-fúz-í <sup>1</sup> l-é	‘he/she wash’	/u-á-ful-ìl-é/
b. w-àà-lús-í <sup>1</sup> l-é	‘he/she wove’	/u-á-luk-ìl-é/
c. w-àà-súkíl-ìil-è	‘he/she accompanied’	/u-á-ful-ìl-é/
d. w-àà-mú-lúk-ìil-è	‘he/she wove for him/her’	/u-á-mu-luk-il-ìl-é/
e. w-àà-mú-fúz-il-è nìngó	‘he/she washed him/her well’	/u-á-mu-ful-ìl-é nìngó/

(276) Macrostem beginning short-long

a.	w-àà-mú-sí-ìl-è	‘he/she ground him/her’	/u-á-mu-si-ìl-é/
b.	w-àà-fúl-ìl-è	‘he/she washed for’	/u-á-ful-il-il-e/
c.	w-àà-sákw-ìl-è	‘he/she killed’	/u-á-sakul-ìl-é/
d.	w-àà-mú-zìis-ìl-è	‘he/she buried him/her’	/u-á-mu-ziik-ìl-é/
e.	w-àà-mú-ziik-ìl-è	‘he/she buried for him/her’	/u-á-mu-ziik-il-il-e/

(277) Macrostem beginning with long syllable

a.	w-àà-zìis-ìl-è	‘he/she buried’	/u-á-ziik-ìl-é/
b.	w-àà-ziik-ìl-è Chòòlà	‘he/she buried for Chola’	/u-á-ziik-il-il-e Choola/
c.	w-àà-swéèz-ìl-è	‘he/she brewed’	/u-á-suel-ìl-é/
c.	w-àà-swéèl-ìl-è	‘he/she brewed for’	/u-á-suel-il-il-e/
d.	w-àà-lòndòlw-ìl-è	‘he/she accompanied’	/u-á-londolol-ìl-é/
e.	w-àà-mw-ìmb-ìl-è	‘he/she dug for him/her’	/u-á-mu-imb-il-il-é/

There are several strikingly unusual things about these 3 sg. forms. First, the subject marker is not /a-/ as we have seen in all 3 sg. forms up to this point, but /u-/. As discussed in §3.7, the 3 sg. marker is /u-/ before a monomoraic vowel-initial TAM prefix (where the only such cases in Cilungu are TAM prefixes which are segmentally /a/), and /a-/ elsewhere. In the forms above, then, underlying /u-a/ with gliding and CL becomes [waa]. However, the TAM prefix /á-/ as well as the FV were both posited as H for the non 3 sg. forms. Yet the word-initial syllable (which contains the mora of the TAM prefix) always surfaces as Low in the 3 sg. cases. Finally, with the sole exception of the forms in (275a-b) the FV surfaces as Low in the 3 sg. forms.

Before formulating an analysis of the above forms, let us briefly survey the tonal behavior of forms with differing SMs in this TAM. The class 1/2 forms are given in (278) while those with a SM in classes 3-15 are given in (279).

(278) a.	n-áá-fúz-ìl-é	‘I washed’	/ń-á-ful-ìl-é/
b.	w-áá-fúz-ìl-é	‘you (sg.) washed’	/ú-á-ful-ìl-é/
c.	w-àà-fúz-ìl-é	‘he/she washed’	/u-a-ful-ìl-é/
d.	tw-áá-fúz-ìl-é	‘we washed’	/tú-á-ful-ìl-é/
e.	mw-áá-fúz-ìl-é	‘you (pl.) washed’	/mú-á-ful-ìl-é/
f.	yá-á-fúz-ìl-é	‘they washed’	/yá-á-ful-ìl-é/

(279) a.	w-áá-fúz-ìl-é	‘it (C3) washed’	/gú-á-ful-ìl-é/
b.	y-àà-fúz-ìl-è	‘they (C4) washed’	/i-á-ful-ìl-é/
c.	ly-áá-fúz-ìl-é	‘it (C5) washed’	/lí-á-ful-ìl-é/
d.	yá-á-fúz-ìl-é	‘it (C6) washed’	/yá-á-ful-ìl-é/
e.	ch-áá-fúz-ìl-é	‘it (C7) washed’	/cí-á-ful-ìl-é/
f.	vy-áá-fúz-ìl-é	‘they (C8) washed’	/ví-á-ful-ìl-é/
g.	y-àà-fúz-ìl-è	‘it (C9) washed’	/i-á-ful-ìl-é/
h.	zy-áá-fúz-ìl-é	‘they (C10) washed’	/ví-á-ful-ìl-é/
i.	lw-áá-fúz-ìl-é	‘it (C11) washed’	/lú-á-ful-ìl-é/
j.	ká-á-fúz-ìl-é	‘it (C12) washed’	/ká-á-ful-ìl-é/
k.	tw-áá-fúz-ìl-é	‘they (C13) washed’	/tú-á-ful-ìl-é/

l. w-áá-fúz-il-é	‘it (C14) washed’	/gú-á-ful-il-é/
m. kw-áá-fúz-il-é	‘it (C15) washed’	/kú-á-ful-il-é/

The pattern that emerges is that the class 4 (279b) and class 9 (279g) SMs /i-/ pattern with the class 1 3 sg. SM /u-/ in this TAM (as well as a number of others as we will see below) in that 1) the first syllable surfaces as level Low and 2) the FV surfaces as Low.<sup>29</sup> Forms with all other SMs surface with a level H on the first syllable and a H on the FV. While the rules presented up to this point straightforwardly predict the tone patterns of the latter group, we must now account for those in the former group.

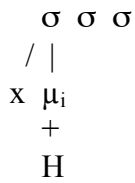
I would like to propose that the TAM prefix /á-/ and the FV are both always underlyingly H-toned in the Yesterday Past. However, I set up the /u-/ allomorph of the 3 sg, as well as the class 4 and class 9 /i-/ as toneless. (Or alternatively, if they are underlyingly H-toned there is an early rule which deletes or delinks the H from these three SMs in this TAM and some others to be noted below.) But this analysis currently predicts that the forms in (274)-(277) (as well as those in (279b,g)) should begin with a Rising tone, yet they do not. We know that this cannot be due to a general process which changes a Rise to a level Low as there are surface rises. Some of these are repeated below.

(280) a.	yá-kú-mw-íimb-à	‘they are singing about him/her’	/yá-ku-mu-imb-a/
b.	yá-kú-mw-èél-él-à	‘they are fishing for him/her’	/yá-ku-mu-él-il-a/
c.	tú-mà-á-zíik-à	‘these days we bury’	/tú-ma-áa-ziik-a/
d.	tú-kà-á-zíik-il-à	‘we will continue to bury for’	/tú-ka-áa-ziik-il-a/
e.	tú-là-á-zíik-il-à	‘we will be burying for’	/tú-la-áa-ziik-il-a/

To account for the forms with 3sg/C4/C9 SMs, one of two approaches might be taking. The purely phonological account would be to propose a rule which resolves a word-initial rise on a pre-macrostem syllable to a level Low. (Cf. §10.4.4 for cases of word-initial rises within a macrostem, as well as a discussion of the general distribution of Rising tones.) Unfortunately, we will see evidence below from the relative forms of this TAM (as well as others to be presented below) which make such an account untenable, since in those cases the H on /á-/ must also delink even though it is not in word-initial position. We therefore adopt a more morphological account, positing a rule which delinks the H from the /á-/ TAM prefix. Given that this delinking only occurs in the 3 sg. (as well as C4 & C9), when the preceding SM is toneless and not when an immediately preceding H-toned SM fuses with it, we must further specify that the H linked to /á-/ is not linked to any previous TBU. Additionally, we will see evidence below in §5.2.6 that the delinking only occurs in pre-penult syllables.

<sup>29</sup> The fact that the 3 sg as well as the class 4 and class 9 SMs behave differently from all others was shown to also be the case in the TAMs presented in section 5.1. Cf. §5.1.1.6 and 5.1.1.7. It was suggested that this might ultimately be due to their being onsetless.

(281) /á-/ Delinking<sup>30</sup>



( $\mu_i$  is the TAM prefix /á-/)

This rule will follow General Doubling and precede Heterosyllabic Doubling. The rule will make the correct predictions, regardless of whether the macrostem begins with a short or long vowel, as seen in the partial derivations below of (277a) and (276d).<sup>31</sup>

(282)	/u-á-ziik-ìl-é/	/u-á-mu-ziik-il-é/	Input
	w-aá-ziik-ìl-é	w-aá-mu-ziis-il-é	Gliding & CL
	w-aá-zíik-ìl-é	w-aá-mú-ziis-il-é	General Doubling
	w-aa-zíik-ìl-é	w-aa-mú-ziis-il-é	/á-/ Delinking
	n/a	w-aa-mú-zíis-il-é	Heterosyllabic Doubling

The H sponsored by the TAM prefix /á-/ undergoes binary rather than unbounded spreading due to the presence of the H-toned FV. But as this H tone often deletes we must formalize a rule to accomplish this. We know from the examples above that this delinking only applies when certain SMs are present, specifically the 3 sg., the Class 4 or the Class 9 SM. We will also see that this process only occurs in TAMs where the /á-/ prefix is present. But why does it apply in all the forms in (274)-(277), except for (275a-b)? Based on these forms, it seems that the H on the FV deletes unless the spreading rules create a downstep before it. Before formalizing this process which I will refer to as “FV Delinking”, however, we must first examine forms which have a H on the macrostem initial TBU. We start with those where the first V of the root is short.

(283) a.	w-àà-lás-í'l-é	‘he/she hit’	/u-á-lás-ìl-é/
b.	w-àà-sópólw-ìil-è	‘he/she untied’	/u-á-sópolol-ìl-é/
c.	w-àà-sálw-ìil-è	‘he/she fried’	/u-á-sálul-ìl-é/
d.	w-àà-lás-íl-è sààná	‘he/she hit a lot’	/u-á-lás-ilé sààná/

The tone pattern of the forms above are identical to those with toneless roots of the same segmental shape in (275)-(276). This correctly predicts homophonous pairs like the following:

<sup>30</sup> Alternatively, the rule could be simplified to simply delinking the H from /á-/ if we added the morphological conditioning that the 3sg/C4/C9 SM is present. It is quite possible that historically this rule did in fact originate as one which resolved certain word-initial rises and then got generalized, via paradigm uniformity, to the relative cases.

<sup>31</sup> The tonology of the verb-final /il-e/ is ignored in (282) as this subject is taken up immediately below.

- (284) a. w-àà-lús-í'l-é 'he/she wove' /u-á-luk-ìl-é/  
 b. w-àà-lús-í'l-é 'he/she vomited' /u-á-lúk-ìl-é/

This is directly accounted for by the proposed rules, as seen below.

- (285) /u-á-luk-ìl-é/ /u-á-lúk-ìl-é/ Input  
 w-aá-lus-ìl-é w-aá-lús-ìl-é Gliding & CL  
 w-aá-lús-ìl-é Fusion  
 w-aá-lús-ìl-é w-aá-lús-ìl-é General Doubling  
 w-aa-lús-ìl-é w-aa-lús-ìl-é /á-/ Delinking  
 w-aa-lús-ìl-é n/a Heterosyllabic Doubling

Let us now consider macrostems beginning with a long High tone.

- (286) Macrostems beginning with H-toned roots – long

- a. w-àà-sí-ìl-é 'he/she left' /u-á-sí-ìl-é/  
 b. w-àà-léés-ìl-é 'he/she brought' /u-á-léet-ìl-é/  
 c. w-àà-swééz-ìl-é 'he/she fished' /u-á-súel-ìl-é/  
 d. w-àà-víimv-ìl-é 'he/she swelled' /u-á-vímb-ìl-é/  
 e. w-àà-swéél-ìl-é 'he/she fished for' /u-á-súel-ìl-ìl-é/  
 f. w-àà-páápáat-ìik-è 'he/she flattened' /u-á-páapaatik-ìl-é/

The tone patterns of the forms in (286) are different than their toneless counterparts of the same prosodic shape in (277). Derivations of (277c) and (286e) are provided below.

- (287) /u-á-suel-ìl-ìl-é/ /u-á-súel-ìl-ìl-é/ Input  
 u-á-suel-iil-é u-á-súel-iil-é Imbrication  
 w-aá-sweez-iil-é w-aá-sweez-iil-é Gliding, CL & Cons Mut  
 w-aá-swééz-iil-é w-aá-swééz-iil-é General Doubling  
 w-aa-swééz-iil-é w-aa-swééz-iil-é /á-/ Delinking  
 n/a w-aa-swééz-íil-é Heterosyllabic Doubling  
 w-aa-swéél-iil-e w-aa-swéél-íil-e FV Delinking

The forms in (286b-d), like those in (275a-b) surface with a H-toned FV. The question now arises as to how to formalize the rule of “FV Delinking”. In short, the rule of “FV Delinking” fails to apply if the H on the FV is 1) downstepped due to a H on the preceding TBU or 2) preceded by a short toneless syllable which in turn is preceded by a long level High. These can both be accounted for if we assume a “FV Delinking” rule which delinks a H from a FV as long as the preceding TBU is toneless and which applies before H Tone Retraction (272).

(288) FV Delinking

$$\begin{array}{c} \textcircled{\mu} \mu \text{ w] } \\ + \\ \text{H} \end{array}$$

(The rule applies only when the TAM prefix /á-/ is present, as well as a toneless SM)

(289) a.	u-á-lás-il-il-é	b.	u-á-lás-il-é	c.	u-á-léet-il-é	U.R.
	u-á-lás-iil-é					Imbrication
	w-aá-lás-iil-é		w-aá-lás-il-é		w-aá-lées-il-é	Gliding, CL, & CM
	w-aá-lás-iil-é		w-aá-lás-il-é		w-aá-lées-il-é	Fusion
					w-aá-lées-il-é	Tautosyllabic CVV Spread
	w-aá-lás-íil-é		w-aá-lás-íl-é		w-aá-lées-íl-é	General Doubling
	w-aa-lás-íil-é		w-aa-lás-íl-é		w-aa-lées-íl-é	/á-/ Delinking
	w-aa-lás-íil-e					FV Delinking
					w-aa-lées-il-é	Penult H Retraction

Forms beginning with H-toned OM are given below.

(290) Macrostem beginning with H-toned OM & toneless root

a.	w-àà-mú-sí-il-è	‘he/she ground you (pl.)’	/u-á-mú-si-ìl-é/
b.	w-àà-mú-fúz-il-è	‘he/she washed you (pl.)’	/u-á-mú-ful-ìl-é/
c.	w-àà-yá-lúk-il-è	‘he/she wove for them’	/u-á-yá-luk-il-ìl-é/
d.	w-àà-yá-zíis-il-è	‘he/she buried them’	/u-á-yá-ziik-ìl-é/
e.	w-àà-mú-swéèl-il-è	‘he/she brewed for you (pl.)’	/u-á-mú-suel-il-ìl-é/



(291) Macrostems with H-toned OM & H-toned root

a.	w-àà-mú-sí-ìl-è	‘he/she left you (pl.)’	/u-á-mú-sí-ìl-é/
b.	w-àà-mú-lás-ìl-è	‘he/she hit you (pl.)’	/u-á-mú-lás-ìl-é/
c.	w-àà-yá-lúk-ìl-è	‘he/she vomited on them’	/u-á-yá-lúk-ìl-ìl-é/
d.	w-àà-yá-léés-ìl-è	‘he/she brought them’	/u-á-yá-léet-ìl-é/
e.	w-àà-mú-swéél-ìl-è	‘he/she fished for you (pl.)’	/u-á-mú-súel-ìl-ìl-é/
f.	w-àà-yá-sópòlw-ìl-è	‘he/she untied them’	/u-á-yá-sópolol-ìl-é/
g.	w-àà-yá-páápàat-ìik-è	‘he/she flattened them’	/u-á-yá-páapaatik-ìl-é/

In (290) the H on the OM fuses with the H on the TAM marker and this fused H undergoes binary spreading. In (291) the root H is also part of the fusion. The analysis predicts that a toneless CVC root with the 3 sg. toneless OM /mu-/ will surface homophonously with the corresponding form with the 2 pl. OM /mú-/. That this is true can be seen below.

(292)	/u-á-mu-ful-ìl-é/	/u-á-mú-ful-ìl-é/	Input
	w-aá-mu-fuz-ìl-é	w-aá-mú-fuz-ìl-é	Gliding, CL & CM
	w-aá-mú-fuz-ìl-é	w-aá-mú-fúz-ìl-é	General Doubling
	w-aa-mú-fuz-ìl-é	w-aa-mú-fúz-ìl-é	/á-/ Delinking
	w-aa-mú-fúz-ìl-é	n/a	Heterosyllabic Doubling
	w-aa-mú-fúz-ìl-e	w-aa-mú-fúz-ìl-e	Delinking
	w-àà-mú-fúz-ìl-è	w-àà-mú-fúz-ìl-è	
	‘he/she washed him/her’	‘he/she washed you (pl.)’	

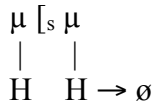
Finally, let us consider macrostems which begin with a toneless OM followed by a H-toned root.

(293) Macrostems with toneless OM & H-toned root

a.	w-àà-mú-sí-ìl-è	‘he/she left him/her’	/u-á-mu-sí-ìl-é/
b.	w-àà-mú-lás-ìl-è	‘he/she hit him/her’	/u-á-mu-lás-ìl-é/
c.	w-àà-mú-lúk-ìl-è	‘he/she vomited on him/her’	/u-á-mu-lúk-ìl-ìl-é/
d.	w-àà-mú-léés-ìl-è	‘he/she brought him/her’	/u-á-mu-léet-ìl-é/
e.	w-àà-mú-swéél-ìl-è	‘he/she fished for him/her’	/u-á-mu-súel-ìl-ìl-é/
f.	w-àà-mú-sópòlw-ìl-è	‘he/she untied him/her’	/u-á-mu-sópolol-ìl-é/
g.	w-àà-mú-páápàat-ìik-è	‘he/she flattened him/her’	/u-á-mu-páapaatik-ìl-é/

The tone pattern of these forms turns out to be identical to their counterparts with toneless roots. (Cf. (275d-e), (276d-e)). To account for this the root H in (293) must be deleted. One way to account for this is to posit a rule, applying after Fusion and /á-/ Delinking, which deletes a verbal root H when it is preceded by a singly-linked H. The rule is formalized below, and then exemplified.

(294) Verb Root H Deletion



(295) a.	/u-á-mu-ful-il-é/	b.	/u-á-mu-lás-il-é/	c.	/u-á-mú-lás-il-é/	Input
	w-aá-mu-ful-il-é		w-aá-mu-lás-il-é		w-aá-mú-lás-il-é	Gliding & CL
					w-aá-mú-lás-il-é	Fusion
	w-aá-mú-ful-il-é		w-aá-mú-lás-il-é		w-aá-mú-lás-il-é	General Doubling
	w-aa-mú-ful-il-é		w-aa-mú-lás-il-é		w-aa-mú-lás-il-é	/á-/ Delinking
			u-a-mú-las-il-é			Verb Root H Deletion
	u-a-mú-fùl-il-é		u-a-mú-lás-il-é			Heterosyllabic Doubling
	u-a-mú-fùl-il-e		u-a-mú-lás-il-e			FV Delinking

Let us now examine the negative of the Yesterday Past. We begin with toneless macrostems.

(296) a.	tù-tá-á-fúz-il-é	‘we didn’t wash’	/tu-tá-á-ful-ìl-é/
b.	tù-tá-á-zìis-il-é	‘we didn’t bury’	/tu-tá-á-ziik-ìl-é/
c.	tù-tá-á-súkìl-ìil-é	‘we didn’t accompany’	/tu-tá-á-sukil-il-ìl-é/
(297) a.	à-tá-á-fúz-il-é	‘he/she didn’t wash’	/a-tá-á-ful-ìl-é/
b.	à-tá-á-zìis-il-é	‘he/she didn’t bury’	/a-tá-á-ziik-ìl-é/
c.	à-tá-á-súkìl-ìil-é	‘he/she didn’t accompany’	/a-tá-á-sukil-il-ìl-é/

Unlike their affirmative counterparts, the rules of /á-/ Delinking and FV Delinking do not apply in negative 3 sg. forms. This is accounted for by formalizing these two rules such that they are triggered by a H-toned /á-/ prefix which is preceded by a tautosyllabic toneless TBU. Since the /á-/ in the negative forms has fused with the preceding negative prefix /tá-/, neither of these rules are triggered.

The following are examples of forms with a toneless OM and a H-toned root. Their tonology behaves exactly as expected.

(298) a.	à-tá-á-mú- <sup>1</sup> lás-í <sup>1</sup> l-é	‘he/she didn’t hit him/her’	/tu-tá-á-mu-lás-ìl-é/
b.	tù-tá-á-mú- <sup>1</sup> léét-ìil-é	‘we didn’t bring for him/her’	/tu-tá-á-mu-léet-il-ìl-é/

The following are examples of forms with H toned roots and no OM.

(299) H-initial macrostems

a.	à-tá-á-lás-í'l-é	‘he/she didn’t hit’	/a-tá-á-lás-ìl-é/
b.	à-tá-á-lás-ìl-é	‘he/she didn’t hit for’	/a-tá-á-lás-il-ìl-é/
c.	tù-tá-á-léés-il-é	‘he/she didn’t bring’	/tu-tá-á-léet-ìl-é/
d.	à-tá-á-swéél-ìl-é Chóólà	‘he/she didn’t fish for Chola’	/a-tá-á-súel-il-ìl-é Choola/
e.	tù-tá-á-páápáat-ìk-é	‘he/she didn’t flatten’	/tu-tá-á-páapaatik-ìl-é/

In each case the H’s on the negative prefix, the TAM prefix and the root-initial mora all fuse and the root H undergoes binary spreading. As can be seen below, if a H-toned OM is present, it will also undergo fusion with the other surrounding H’s.

(300) a.	à-tá-á-yá-lás-í'l-é	‘he/she didn’t hit them’	/a-tá-á-yá-lás-ìl-é/
b.	à-tá-á-yá-lás-ìl-é	‘he/she didn’t hit for them’	/a-tá-á-yá-lás-il-ìl-é/
c.	tù-tá-á-yá-léét-ìl-é	‘he/she didn’t bring for them’	/a-tá-á-yá-léet-il-ìl-é/

Let us now examine relatives forms in the Yesterday Past. Let us first examine 3 pl. forms (as well as others with onsetful SMs).

(301) Toneless root

a.	í-vy-àà-fùz-ìl-é	‘those (C8) which washed’	/í-ví-á-ful-ìl-é/
b.	í-vy-àà-sì-ìl-é	‘those (C8) who ground’	/í-ví-á-sì-ìl-é/
c.	í-c-àà-zìis-il-w-é	‘that (C7) which was buried’	/í-cí-á-ziik-il-u-é/
d.	á-àà-sì-ìl-é	‘those who ground’	/á-bá-á-sì-ìl-é/
e.	á-àà-fùz-ìl-é	‘those who washed’	/á-bá-á-ful-ìl-é/
f.	á-àà-zìis-ìl-é	‘those who buried’	/á-bá-á-ziik-ìl-é/
g.	á-àà-mù-zìis-il-é	‘those who buried him/her’	/á-bá-á-mu-ziik-ìl-é/

(302) H-toned root

a.	í-vy-á'á-lús-í'l-é	‘those (C8) which vomited’	/á-ví-á-lúk-ìl-é/
b.	í-vy-á'á-mú-'léés-il-é	‘those (C8) who brought him/her’	/í-ví-á-mu-léet-ìl-é/
c.	í-c-á'á-póny-í'l-é	‘that (C7) which fell’	/á-cí-á-poñ-ìl-é/
d.	á-á'á-lás-í'l-é	‘those who hit’	/á-bá-á-lás-ìl-é/
e.	á-á'á-léét-ìl-é	‘those who brought for’	/á-bá-á-léet-il-ìl-é/
f.	á-á'á-sópólw-ìl-é	‘those who untied’	/á-bá-á-sópolol-ìl-é/
g.	á-í'á-ímv-í'l-é	‘those who sang’	/á-bá-á-imb-ìl-é/
h.	á-á'á-yá-lás-í'l-é	‘those who hit them’	/á-bá-á-yá-lás-ìl-é/
i.	á-á'á-mú-'léét-ìl-é	‘those who brought for him/her’	/á-bá-á-mu-léet-il-ìl-é/

As mentioned in §5.1.1.9, there are two lexical allomorphs of the 3 pl. relative prefix: /á-/ and /bá-/. The first is generally used when a vowel follows and the second when a C follows. Since the SM is followed by a vowel (/á-/ in this TAM, /bá-/ is used as the SM. This not only accounts for the tone patterns of these forms, but also accounts for the fact that the vowel deletion precipitated by a root-initial /i/ (as in (302g)) is prevented from affecting the relative prefix /á-/ due to the presence of the following /b/.

The tonology of the forms in (302) is accounted for given the rules of Relative SM Delinking, General Doubling, and Fusion. This is illustrated below for the form in (302a).

(303)	i-vi-a-luk-il-e	U.R.
	$\begin{array}{ccccccc}   &   &   &   & &   & \\ H & H & H & H & & H & \end{array}$	
	i-vi-a-lus-il-e	Relative SM Delinking & CM
	$\begin{array}{ccccccc}   & &   &   & &   & \\ H & H & H & H & & H & \end{array}$	
	i-vi-a-lus-il-e	Fusion
	$\begin{array}{ccccccc}   & & \backslash / & &   & & \\ H & H & H & & H & & \end{array}$	
	i-vi-a-lus-il-e	General Doubling
	$\begin{array}{ccccccc}   & / & \backslash &   & / &   & \\ H & H & & H & & H & \end{array}$	

What is somewhat curious is that the rule of Intrasyllabic Downstep Retraction (58) has not applied, as the fall from H to downstepped H is allowed to surface. This rule and its application in a Contrastive Habitual form is given below.

(304) Intrasyllabic Downstep Retraction

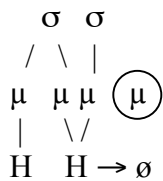
$$\begin{array}{ccc} \sigma & & \sigma \\ | & & / \backslash \\ \mu & \mu & \mu \dots [_{ms} \\ | & X & | \\ H & & H \end{array}$$

(305)	tu-ma-aa-ziik-a	U.R.
	$\begin{array}{cc}   &   \\ H & H \end{array}$	
	tu-ma-aa-ziik-a	General Doubling & Unbounded Spreading
	$\begin{array}{cc}   & / \quad   / \\ H & H \end{array}$	
	tu-ma-aa-ziik-a	Intrasyllabic Downstep Retraction
	$\begin{array}{cc}   &   / \\ H & H \end{array}$	
	tú-màá-zíik-à	
	‘these days we bury’	

While it is an open question as to how to best account for the fall from H to L in (305) as contrasted with the fall from H to downstepped H in (303), the rule of Intrasyllabic Downstep Retraction, as it is formalized in (304) does actually make the correct prediction if we assume that the presence of the floating H in (303) prevents the rule from applying.

Let us now turn to the forms in (301). In (301a-c) we would have expected the second syllable to be a fall from H to downstepped H and for the /á-/ on the TAM prefix to spread onto a following toneless TBU, exactly as happens in (302). Yet, what we find phonetically is a fall from High to Low in the second syllable which is followed by all Low TBUs until the H-toned FV. One way to understand what is going on here is that Cilungu simply does not distinguish between a C<sup>1</sup>VC<sup>1</sup>VC<sup>0</sup> sequence and a C<sup>1</sup>VC<sup>0</sup>VC<sup>0</sup> sequence. We will see below (cf. §5.3.5) that these two must in fact be neutralized as the output of the two underlying sequences are homophonous. I therefore account for the deletion of the H on the TAM prefix in the forms in (301) by the rule of Fall Simplification formalized below.

(306) Fall Simplification



This rule must be ordered after fusion, since we know that it will not apply in the non-relative cases where a H-toned OM precedes the TAM prefix. This is illustrated below.

(307)	/ví-á-ful-il-é/	/í-ví-á-ful-il-é/	U.R.
		í-vi-á-ful-iz-é	Relative SM Delinking
	vy-á-á-fuz-il-é	í-vy-a-á-fuz-il-é	Gliding, CL & CM
	<u>vy-áá-fuz-il-é</u>		Fusion
	<u>vy-áá-fúz-il-é</u>	í-vy-á-á-fúz-il-é	General Doubling
	n/a	<u>í-vy-áá-fuz-il-é</u>	Fall Simplification

Let us now consider the 3 sg. (and Class 4 and Class 9) relative forms of the Yesterday Past.

(308) 3 sg. forms with toneless root

a.	ú-w-áà-sí-ìl-è	‘one who ground’	/ú-u-á-si-ìl-é/
b.	ú-w-áà-fúz-í <sup>1</sup> l-é	‘one who washed’	/ú-u-á-ful-ìl-é/
c.	ú-w-áà-fúl-ìil-è	‘one who washed for’	/ú-u-á-ful-il-ìl-é/
d.	ú-w-áà-zíis-il-è	‘one who buried’	/ú-u-á-ziik-ìl-é/
e.	ú-w-áà-lòndòlw-ìil-è	‘one who explained’	/ú-u-á-londolol-ìl-é/
f.	ú-w-áà-mú-sí-ìl-è	‘one who ground him/her’	/ú-u-á-mu-si-ìl-é/
g.	ú-w-áà-mú-fúz-ìl-è	‘one who washed him/her’	/ú-u-á-mu-ful-ìl-é/
h.	ú-w-áà-mú-zíis-il-è	‘one who buried him/her’	/ú-u-á-mu-ziik-ìl-é/
i.	í-y-áà-zíis-il-w-è	‘they (C4) which were buried’	/i-i-á-ziik-ìl-u-é/
j.	í-y-áà-fúz-ìl-w-è	‘they (C4) which were washed’	/i-i-á-ful-ìl-u-é/

(309) 3 sg. forms with H-toned root

a.	ú-w-áà-sí-ìl-è	‘one who left’	/ú-u-á-sí-ìl-é/
b.	ú-w-áà-lás-í <sup>1</sup> l-é	‘one who hit’	/ú-u-á-lás-ìl-é/
c.	ú-w-áà-léés-ìl-è	‘one who brought’	/ú-u-á-léet-ìl-é/
d.	ú-w-áà-páápáàt-ìik-è	‘one who flattened’	/ú-u-á-páapaatik-ìl-é/
e.	ú-w-áà-yá-lás-ìl-è	‘one who hit them’	/ú-u-á-yá-lás-ìl-é/
f.	ú-w-áà-mú-léés-ìl-è	‘one who brought you (pl.)’	/ú-u-á-mú-léet-ìl-é/
g.	ú-w-áà-mú-lás-ìl-è	‘one who hit him/her’	/ú-u-á-mu-lás-ìl-é/
h.	ú-w-áà-mú-léèt-ìil-è	‘one who brought for him/her’	/ú-u-á-mu-léet-il-ìl-é/
i.	í-y-áà-léés-ìl-w-è	‘they (C4) which were brought’	/i-i-á-léet-ìl-u-é/

The 3 sg. forms begin underlyingly as /ú-u-á/. We know from the non-relative cases that before a vowel-initial prefix the 3 sg. selects the /u-/ allomorph instead of the usual /a-/. Since the relative (copy) prefix is always H-toned, it will be /ú-/. The tonology within the macrostem of these forms is identical to those in the non-relative forms above. Correctly ordered, the rules postulated above make the correct predictions, as seen below.

(310)	a.	/ú-u-á-ful-il-é/	b.	/ú-u-á-mu-lás-il-é/	c.	/ú-u-á-lás-il-é/	Input
		ú-w-a á-fuz-il-é		ú-wa-á-mu-lás-il-é		ú-wa-á-lás-il-é	Gliding, CL & CM
						ú-wa-á-lás-il-é	Fusion
		ú-w-á á-fúz-il-é		ú-w-á á-mú-lás-il-é		ú-w-á á-lás-il-é	General Doubling
		ú-wá-a-fúz-il-é		ú-wá-a-mú-lás-il-é		ú-wá-a-lás-il-é	/á-/ Delinking
							Fall Simplification
				ú-wá-a-mú-las-il-é			Verb Root H Deletion
		ú-wá-a-fúz-il-é		ú-wá-a-mú-lás-il-é		ú-wá-a-lás-il-é	Heterosyllabic Doubling
		n/a		ú-wá-a-mú-lás-il-e		n/a	FV Delinking

As long as /á-/ Delinking applies before Fall Simplification, the former will correctly bleed the latter. Examples of negative relatives are given below.

(311) Negative Relatives

a.	á-à-tá-á-ziis-il-é	‘one(s) who didn’t bury’	/á-á-tá-á-ziik-ìl-é/
b.	á-à-tá-á-mú-ziis-il-é	‘one(s) who didn’t bury him/her’	/á-á-tá-á-mu-ziik-ìl-é/
c.	á-à-tá-á-mú- <sup>1</sup> lás-í <sup>1</sup> l-é	‘one(s) who didn’t hit him/her’	/á-á-tá-á-mu-lás-ìl-é/
d.	í-ví- <sup>1</sup> tá-á-póny-í <sup>1</sup> l-é	‘the things which didn’t fall’	/í-ví-tá-á-póñ-ìl-é/

As can be seen, the 3 sg. and 3 pl. forms are homophonous. This is because the selection of /a-/ vs. /u-/ for the 3 sg. SM depends on what sound immediately follows it. In general, /u-/ is used when the following sound is a vowel, which is the case in the affirmative relatives, and /a-/ is used when the following sound is a consonant, which is the case in the negative relatives. As has been the case with other relatives, the 3 pl. relative marker is /á-/ when the immediately following sound is a consonant.

### 5.2.3 Yesterday Past Progressive

Let us now turn to the Yesterday Past Progressive. This TAM is formed using the same /á-/ TAM prefix as the Yesterday Past, but uses the /-ang/ suffix and Final Vowel /-á/, rather than /-il-é/. This morphological structure is given below.

(312) Morphological structure: SM – á – (OM) – VR – (EXT) – ang – á

The tonology of Yesterday Past Progressive forms generally mirrors that of the Yesterday Past Progressive, just presented and analyzed in section 5.2.2. A few representative forms are given below.<sup>32</sup>

(313) Toneless macrostem

a. tw-áá-sh-ààng-á	‘we were grinding’	/tú-á-si-ang-á/
b. tw-áá-fúl-ààng-á	‘we were washing’	/tú-á-ful-ang-á/
c. tw-áá-zíik-ààng-á	‘we were burying’	/tú-á-ziik-ang-á/
d. tw-áá-mú-zíik-il-ààng-á	‘we were burying for him/her’	/tú-á-mu-ziik-il-ang-á/

(314) Toneless OM & H-toned root

a. tw-áá-mú- <sup>1</sup> lás-il-ààng-á	‘we were hitting for him/her’	/tú-á-mu-lás-il-ang-á/
b. tw-áá-mú- <sup>1</sup> léét-él-ààng-á	‘we were bringing for him/her’	/tú-á-mu-léet-il-ang-á/

(315) H-toned root

a. tw-áá-lás-ààng-á	‘we were hitting’	/tú-á-lás-ang-á/
b. tw-áá-léét-ààng-á	‘we were bringing’	/tú-á-léet-ang-á/

(316) H-toned OM

a. tw-áá-yá-zíik-ààng-á	‘we were burying them’	/tú-á-yá-ziik-ang-á/
b. tw-áá-yá-léét-él-ààng-á	‘we were bringing for them’	/tú-á-yá-léet-il-ang-á/
c. tw-áá-mú-lúk-il-ààng-á	‘we were vomiting on you (pl.)’	/tú-á-mú-lúk-il-ang-á/

As was the case in the Potential and the Yesterday Past, when there is a string of adjacent H’s, they will all fuse, and the rightmost one undergoes bounded spreading.

Let us now consider the 3 sg. forms of the Yesterday Past Progressive.

(317) Toneless Root: Bisyllabic Macrostem

a. w-àà-sh-ààng-à	‘he/she was grinding’	/u-á-si-ang-á/
b. w-àà-zíik-ààng-à	‘he/she was burying’	/u-á-ziik-ang-á/
c. w-àà-súkíl-il-ààng-à	‘he/she was accompanying’	/u-á-sukil-il-ang-á/
d. w-àà-mú-lúk-il-ààng-à	‘he/she was weaving for him/her’	/u-á-mu-luk-il-ang-á/
e. w-àà-mú-zíik-ààng-à	‘he/she was burying him/her’	/u-á-mu-ziik-ang-á/
f. w-àà-fúl-il-ààng-à Chòòlà	‘he/she was washing for Chola’	/u-á-ful-il-ang-á Chola/

The 3 sg. forms, like their Yesterday Past counterparts (274)-(277), exhibit the effects of 3 sg. /á/ Delinking as well as FV Delinking. Additional representative forms of this TAM are given below.

<sup>32</sup> I note that all extensions except one precede this TAM suffix /-ang/. The one exception is the passive /-u/ which follows it. E.g. tw-áá-fúl-ààng-w-á ‘we were being washed’



(318) H-toned Root

a.	w-àà-lúk-ààng-à	‘he/she was vomiting’	/u-á-lúk-ang-á/
b.	w-àà-léét-ààng-à	‘he/she was bringing’	/u-á-léet-ang-á/
c.	w-àà-léét-él-ààng-à	‘he/she was bringing for’	/u-á-léet-il-ang-á/

(319) H-toned Root: H-toned OM

a.	w-àà-yá-lúk-íl-ààng-à	‘he/she was vomiting on them’	/u-á-yá-lúk-il-ang-á/
b.	w-àà-yá-léét-él-ààng-à	‘he/she was bringing for them’	/u-á-yá-léet-il-ang-á/

(320) H-toned OM, toneless root

a.	w-àà-yá-lúk-il-ààng-à	‘he/she was weaving for them’	/u-á-yá-luk-il-ang-á/
b.	w-àà-yá-zíik-il-ààng-à	‘he/she was burying for them’	/u-á-yá-ziik-il-ang-á/

(321) H-toned Root: toneless OM

a.	w-àà-mú-lúk-il-ààng-à	‘he/she was vomiting on him/her’	/u-á-mu-lúk-il-ang-á/
b.	w-àà-mú-léet-ààng-à	‘he/she was bringing him/her’	/u-á-mu-léet-il-ang-á/

These forms exhibit the same tonology as their counterparts in the Yesterday Past (§5.2.2) and thus the reader is referred to the analysis presented there. Since the penult is long, 3 sg. FV Deletion will always apply. The forms in (321) necessitate the Root H Deletion rule, motivated above for the forms in (293).

Representative negative forms are given below and exhibit the same tonology as their Yesterday Past counterparts.

(322) Toneless roots

a.	tù-tá-á-fúl-ààng-á	‘we were not washing’	/tu-tá-á-ful-ang-á/
b.	tù-tá-á-zíik-ààng-á	‘we were not burying’	/tu-tá-á-ziik-ang-á/
c.	tù-tá-á-yá-fúl-ààng-á	‘we were not washing them’	/tu-tá-á-yá-ful-ang-á/

(323) H-toned roots

a.	à-tá-á-lás-ààng-á	‘he/she was not hitting’	/a-tá-á-lás-ang-á/
b.	tù-tá-á-léet-ààng-á	‘we were not bringing’	/tu-tá-á-léet-ang-á/
c.	tù-tá-á-yá-léet-él-ààng-á	‘we were not bringing for them’	/tu-tá-á-yá-léet-il-ang-á/

Representative relative forms are given below and exhibit the same tonal behavior as their Yesterday Past counterparts.

(324) 3 pl. forms with toneless macrostem

a. á-áà-fùl-ààng-á	‘ones who were washing’	/á-bá-á-ful-ang-á/
b. á-áà-zìik-ààng-á	‘ones who were burying’	/á-bá-á-ziik-ang-á/
c. í-vy-àà-fùl-ààng-á	‘they (C8) who were washing’	/í-ví-á-ful-ang-á/

(325) 3 pl. forms with H-tone in macrostem

a. á-á <sup>1</sup> -á-lás-ààng-á	‘ones who were hitting there’	/á-bá-á-lás-ang-á/
b. í-vy-á-á-léet-ààng-á	‘ones (C8) who were bringing’	/í-ví-á-léet-ang-á/
c. á-á <sup>1</sup> -á-mú- <sup>1</sup> lás-ààng-á	‘ones who were hitting him/her’	/á-bá-á-mu-lás-ang-á/
d. á-á <sup>1</sup> -á-yá-zìik-ààng-á	‘ones who were burying’	/á-bá-á-yá-ziik-ang-á/
e. á-á <sup>1</sup> -á-yá-léet-ààng-á	‘ones who were bringing them’	/á-bá-á-yá-léet-ang-á/

(326) 3 sg. forms with toneless-initial macrostem

a. ú-w-àà-sh-ààng-à	‘one who was grinding’	/ú-u-á-si-ang-á/
b. ú-w-àà-fùl-ààng-à	‘one who was washing’	/ú-u-á-ful-ang-á/
c. ú-w-àà-zìik-ààng-à	‘one who was burying’	/ú-u-á-ziik-ang-á/
d. ú-w-àà-mú-zìik-ìl-ààng-à	‘one who was burying for him/her’	/ú-u-á-mu-ziik-il-ang-á/

(327) 3 sg. forms with H-initial macrostem

a. ú-w-àà-sh-áàng-à	‘one who was leaving’	/ú-u-á-sí-ang-á/
b. ú-w-àà-lás-ààng-à	‘one who was hitting’	/ú-u-á-lás-ang-á/
c. ú-w-àà-léet-ààng-à	‘one who was bringing’	/ú-u-á-léet-ang-á/
d. ú-w-àà-yá-léet-ààng-à	‘one who was bringing them’	/ú-u-á-yá-léet-ang-á/

The negative relative forms listed below behave identically to the negative relatives in the Yesterday Past: the 3 sg. and 3 pl. forms are homophonous and all have a H-toned FV.

(328) Negative relatives

a. á-à-tá-á-sh-ààng-á	‘one(s) who were not grinding’	/á-a-tá-á-si-ang-á/
b. á-à-tá-á-fùl-ààng-á	‘one(s) who were not washing’	/á-a-tá-á-ful-ang-á/
c. á-à-tá-á-zìik-ààng-á	‘one(s) who were not burying’	/á-a-tá-á-ziik-ang-á/
d. á-à-tá-á-yá-zìik-ààng-á	‘one(s) who were not burying them’	/á-a-tá-á-yá-ziik-ang-á/
e. á-à-tá-á-léet-ààng-á	‘one(s) who were not bringing’	/á-a-tá-á-léet-ang-á/
f. á-à-tá-á-yá-léet-ààng-á	‘one(s) who were not bringing them’	/á-a-tá-á-yá-léet-ang-á/
g. á-à-tá-á-mú- <sup>1</sup> léet-ààng-á	‘one(s) who were not bringing him/her’	/á-a-tá-á-mu-léet-ang-á/

## 5.2.4 Recent Past

There is a variation of the Yesterday Past tense which has a semantic emphasis that the action has taken place recently.<sup>33</sup> This is indicated by the presence of the tense/aspect morpheme /cí-/ which follows /á-. This /cí-/ is identical both tonally and segmentally to the Class 7 object marker prefix, but as a tense/aspect prefix can co-occur with any object marker (including the Class 7 marker /cí-/). The morphological structure of this TAM is given below.

(329) Morphological structure of Past: SM – á – cí – (OM) – VR – (EXT) – il-é

The tonology of verbs in this TAM with non onsetful subjects is identical to that of the Yesterday Past (§5.2.2). This can be seen in the examples below in (330)-(331), and is also illustrated by the homophonous pair in (332).

(330) Verbs with toneless roots

- |                          |                                  |                                 |
|--------------------------|----------------------------------|---------------------------------|
| a. tw-áá-cí-sí-il-é      | ‘we recently ground’             | /tú-á-cí-si- <u>il</u> -é/      |
| b. tw-áá-cí-zíis-il-é    | ‘we recently buried’             | /tú-á-cí-ziik- <u>il</u> -é/    |
| c. tw-áá-cí-mú-zíis-il-é | ‘we recently buried for him/her’ | /tú-á-cí-mu-ziik- <u>il</u> -é/ |
| d. tw-áá-cí-yá-zíis-il-é | ‘we recently buried for them’    | /tú-á-cí-yá-ziik- <u>il</u> -é/ |

(331) Verbs with H-toned roots

- |   |                                |                                    |
|---|--------------------------------|------------------------------------|
| a. tw-áá-cí-lás-í <sup>1</sup> l-é                  | ‘we recently hit               | /tú-á-cí-lás- <u>il</u> -é/        |
| b. tw-áá-cí-mú- <sup>1</sup> lás-í <sup>1</sup> l-é | ‘we recently hit him/her’      | /tú-á-cí-mu-lás- <u>il</u> -é/     |
| c. tw-áá-cí-yá-léét-ìil-é                           | ‘we recently brought for them’ | /tú-á-cí-yá-léet-il- <u>il</u> -é/ |

- |                            |  |                             |
|----------------------------|--|-----------------------------|
| (332) a. tw-áá-cí-fúz-il-é | ‘we washed it (C7)’ (Yesterday Past)       | /tú-á-cí-ful- <u>il</u> -é/ |
| b. tw-áá-cí-fúz-il-é       | ‘we recently washed’ (no object specified) | /tú-á-cí-ful- <u>il</u> -é/ |

Now let us turn to the 3 sg. forms, which exhibit an interesting difference with respect to their Yesterday Past counterparts. We begin with those with toneless roots.

<sup>33</sup> The Yesterday Past has a stricter time frame, meaning yesterday or up to a few days ago. The Recent Past can describe actions of yesterday to indefinitely further back in time. This seems somewhat similar to the English ‘just’. In a sentence like *he just washed his face* most speakers would interpret that as an action in the immediate past—perhaps within the last hour. But one can also say *But he just bought that car a year or two ago* where *just* can appropriately refer to something quite far back in time if the meaning in the predicate is appropriate (in this case an action that takes place seldomly).

(333) Toneless roots with no object marker <sup>34</sup>

a.	w-àà-cí-sí- <sup>1</sup> íl-è	‘he/she recently ground’	/u-á-cí-si-il-e +H/
b.	w-àà-cí-fú- <sup>1</sup> z-íl-è	‘he/she recently washed’	/u-á-cí-ful-il-e +H/
c.	w-àà-cí-sú- <sup>1</sup> kíl-ííl-è	‘he/she recently accompanied’	/u-á-cí-sukil-il-il-e +H/
d.	w-àà-cí-zìis-íl-è	‘he/she recently buried’	/u-á-cí-ziik-il-e +H/
e.	w-àà-cí-zìis-íl-w-è	‘he/she was recently buried’	/u-á-cí-ziik-il-u-e +H/
f.	w-àà-cí-lòondólw-ííl-è	‘he/she recently explained’	/u-á-cí-londolol-il-e +H/

(334) Toneless roots with toneless OM

a.	w-àà-cí-mú-fùz-íl-è	‘he/she recently washed him/her’	/u-á-cí-mu-ful-il-e +H/
b.	w-àà-cí-mú-fùl-ííl-è	‘he/she recently washed for him/her’	/u-á-cí-mu-ful-il-il-e +H/
c.	w-àà-cí-mú-zìis-íl-è	‘he/she recently buried him/her’	/u-á-cí-mu-ziik-il-e +H/
d.	w-àà-cí-kú-zìik-ííl-è	‘he/she recently buried for you (sg.)’	/u-á-cí-ku-ziik-il-il-e +H/
e.	w-àà-cí-mú-sùkíl-ííl-è	‘he/she recently accompanied him/her’	/u-á-cí-mu-sukil-il-il-e +H/
f.	w-àà-cí-mú-lòondólw-ííl-è	‘he/she recently explained to him/her’	/u-á-cí-mu-londolol-il-e +H/
g.	w-àà-cí-mú-lòondólw-ólw-ííl-è	‘he/she recently explained for him/her’	/u-á-cí-mu-londolol-il-il-e +H/

(335) Toneless roots with H-toned OM

a.	w-àà-cí-mú-sí- <sup>1</sup> íl-è	‘he/she recently ground you (pl.)’	/u-á-cí-mú-si-il-e +H/
b.	w-àà-cí-yá-fú- <sup>1</sup> z-íl-è	‘he/she recently washed them’	/u-á-cí-yá-ful-il-e +H/
c.	w-àà-cí-yá-fùl- <sup>1</sup> ííl-è	‘he/she recently washed for them’	/u-á-cí-yá-ful-il-il-e +H/
d.	w-àà-cí-yá-zìis-íl-è	‘he/she recently buried them’	/u-á-cí-yá-ziik-il-e +H/
e.	w-àà-cí-yá-zìik-ííl-è	‘he/she recently buried for them’	/u-á-cí-yá-ziik-il-il-e +H/
f.	w-àà-cí-yá-sú- <sup>1</sup> kíl-ííl-è	‘he/she recently accompanied them’	/u-á-cí-yá-sukilil-il-e +H/
g.	w-àà-cí-yá-lòondólw-ííl-è	‘he/she recently explained to them’	/u-á-cí-yá-londolol-il-e +H/

The tonology of these forms is quite striking and unexpected. Under the assumption that they would behave like their Yesterday Past counterparts, we would have expected the H on /cí-/ to spread to the following toneless TBU, with all following TBUs surfacing as Low. (And indeed this is exactly the case in Yesterday Past forms with the class 7 OM /cí-/.) Instead what we see is evidence of the MH being realized on the second and subsequent TBUs of the stem up to the penlt. Two additional things should be noted here. First, just as was the case in the TAMs discussed in section 5.1 with toneless FVs where a H underwent unbounded spreading, it is only in phrase-final position when the spreading stops at the penult. If another word follows in the phrase, then the H (like the unbounded spreading cases in section 5.1) will in fact spread to the verb-final syllable, as seen below.

- (336) a. w-àà-cí-mú-fùz-íl-é <sup>1</sup>sáaná ‘he/she recently washed him/her a lot’ /u-á-cí-mu-ful-il-e +H/  
 b. w-àà-cí-kú-zìik-ííl-é ñiingó ‘he/she recently buried for you (sg.) well’ /u-á-cí-ku-ziik-il-il-e +H/

Secondly, when the stem is of the shape CVVCV, then the H is realized on the second mora of the stem (instead of the first mora of the second syllable of the stem).

<sup>34</sup> As mentioned earlier <+H> in the UR indicates that there is a Melodic High which docks onto the second and subsequent TBUs of the stem (either up to the penult or ultima). This is discussed in more detail below.

- (337) w-àà-cí-mú-si-il-è 'he/she recently ground him/her' /u-á-cí-mu-si-il-e/

We will see below in section 5.3 that there are a set of TAMs where the Melodic High suffix, instead of being realized on only the FV—something that has been the case up to now in the set of tense/aspects that we are currently discussing—is realized on the second and following TBUs of the stem. In the vast majority of these TAMs to be discussed below, however, this MH docking pattern is exhibited by all forms in that tense/aspect, i.e. affirmative, negative, 3 sg., 3 pl., relative, non-relative. What makes the Recent Past interesting is that this H on second and subsequent TBU pattern is found on only a small subset of the forms within the TAM—in this case the 3 sg. ones.

Let us now turn to 3 sg. Recent Past forms with a H-toned root.

- (338) a. w-àà-cí-sí-il-è 'he/she recently left' /u-á-cí-sí-il-e +H/  
 b. w-àà-cí-lús-il-è 'he/she recently vomited' /u-á-cí-lúk-il-e +H/  
 c. w-àà-cí-léés-il-è 'he/she recently brought' /u-á-léet-il-e +H/  
 d. w-àà-cí-sópólw-íil-è 'he/she recently untied' /u-á-cí-sópolol-il-e +H/  
 e. w-àà-cí-páápáát-íik-è 'he/she recently flattened' /u-á-cí-páapaatik-il-e +H/  
 f. w-àà-cí-mú-léet-íil-è 'he/she recently brought for him/her' /u-á-cí-mu-léet-il-il-e +H/  
 g. w-àà-cí-yá-léet-íil-è 'he/she recently brought for them' /u-á-cí-yá-léet-il-il-e +H/

As can be seen, the MH is present in these forms as well. In each case I assume that it docks onto the second and subsequent TBUs up to the penult. In addition, it fuses with the root H (something always true of the MH in the TAMs to be discussed in §5.3).

With regard to exactly how the melodic H is realized on this string of TBUs, I defer discussion of that to the next section (5.3). One thing that should be pointed out here, though, is that it does seem to be the presence of /cí-/ as a TAM prefix in the 3 sg. which triggers the insertion of this melodic H. This can be seen in the minimal pairs below.

- (339) a. w-àà-cí-zíis-il-è 'he/she recently buried' /u-á-cí-ziik-il-e +H/  
 b. w-àà-cí-zíis-il-è 'he/she buried it (C7)' (YP) /u-á-cí-ziik-ìl-é/  
 c. w-àà-cí-sópólw-íil-è 'he/she recently untied' /u-á-cí-sópolol-il-e +H/  
 d. w-àà-cí-sópólw-íil-è 'he/she untied it (C7)' (YP) /u-á-cí-sópolol-ìl-é/

As can be seen, the melodic H is inserted into the stem and realized on the peninitial stem syllable in the Recent Past forms in (339a,c), but not in the Yesterday Past forms with a C7 OM in (339b,d).

The negative forms of this TAM are given below.

- (340) a. tù-tá-á-cí-lòondólw-íil-è 'we didn't recently explain' /tu-tá-á-cí-londolol-il-e +H/  
 b. tù-tá-á-cí-mú-zíis-il-è 'we didn't recently bury for him/her' /tu-tá-á-cí-mu-ziik-il-e +H/  
 c. tù-tá-á-cí-yá-zíis-il-è 'we didn't recently bury for them' /tu-tá-á-cí-yá-ziik-il-e +H/
- (341) a. à-tá-á-cí-zíiz-il-è 'he/she didn't recently bury' /a-tá-á-cí-ziik-il-e +H/  
 b. à-tá-á-cí-mú-zíis-il-è 'he/she didn't recently bury him/her' /a-tá-á-cí-mu-ziik-il-e +H/  
 c. à-tá-á-cí-yá-zíis-il-è 'he/she didn't recently bury them' /a-tá-á-cí-yá-ziik-il-e +H/

- (342) a. tù-tá-á-cí-sópólw-ìil-é 'we didn't recently untie' /tu-tá-á-cí-sópolol-ìl-é/  
 b. tù-tá-á-cí-mú-<sup>1</sup>léés-il-é 'we didn't recently bring him/her' /tu-tá-á-cí-mu-léet-ìl-é/  
 c. tù-tá-á-cí-yá-léés-il-é 'we didn't recently bring them' /tu-tá-á-cí-yá-léet-ìl-é/
- (343) a. à-tá-á-cí-léét-ìil-é 'he/she didn't recently bring for' /a-tá-á-cí-léet-il-ìl-é/  
 b. à-tá-á-cí-mú-<sup>1</sup>léét-ìil-é 'he/she didn't recently bring for him/her' /a-tá-á-cí-mu-léet-il-ìl-é/  
 c. à-tá-á-cí-yá-léét-ìil-é 'he/she didn't recently bring for them' /a-tá-á-cí-yá-léet-il-ìl-é/

If the root is toneless, then the MH is realized from V2 to the penult (340)-(341). If the root is H-toned, then the MH is realized only on the FV (342)-(343)). (Again, the V2-PU pattern will be formally accounted for within the discussion of the Perfect in §5.3.7 which exhibits the same pattern.)

Let us now consider relatives with 3 sg. subjects.

- (344) a. ú-w-áà-cí-lá<sup>1</sup>mús-íl-è 'one who recently greeted' /ú-u-á-cí-lamuk-il-e +H/  
 b. ú-w-áà-cí-zìis-íl-è 'one who recently buried' /ú-u-á-cí-ziik-il-e +H/  
 c. ú-w-áà-cí-lòndólw-ííl-è 'one who recently explained' /ú-u-á-cí-londolol-il-e +H/
- (345) a. ú-w-áà-cí-mú-zìis-íl-è 'one who recently buried him/her' /ú-u-á-cí-mu-ziik-il-e +H/  
 b. ú-w-áà-cí-mú-zìik-ííl-è 'one who recently buried for him/her' /ú-u-á-cí-mu-ziik-il-il-e +H/  
 c. ú-w-áà-cí-mú-sùkíl-ííl-è 'one who recently accompanied him/her' /ú-u-á-cí-mu-sukil-il-il-e +H/
- (346) a. ú-w-áà-cí-yá-lòndólw-ííl-è 'one who recently explained to them' /ú-u-á-cí-yá-londolol-il-e +H/  
 b. ú-w-áà-cí-yá-zìik-ííl-è 'one who recently buried for them' /ú-u-á-cí-yá-ziik-il-il-e +H/
- (347) a. ú-w-áà-cí-sópólw-ííl-è 'one who recently untied' /ú-a-á-cí-sópolol-il-e +H/  
 b. ú-w-áà-cí-léét-ííl-è 'one who recently brought for' /ú-a-á-cí-léet-il-il-e +H/
- (348) a. ú-w-áà-cí-mú-<sup>1</sup>páápáát-íík-è 'one who recently flattened him/her' /ú-a-á-cí-mu-páapaatik-il-e +H/  
 b. ú-w-áà-cí-mú-<sup>1</sup>sópólw-ííl-è 'one who recently untied him/her' /ú-a-á-cí-mu-sópolol-il-e +H/
- (349) a. ú-w-áà-cí-yá-páápáát-íík-è 'one who recently flattened them' /ú-a-á-cí-yá-páapaatik-il-e +H/  
 b. ú-w-áà-cí-yá-sópólw-ííl-è 'one who recently untied them' /ú-a-á-cí-yá-sópolol-il-e +H/

As was the case with the non-relative 3 sg. forms, the melodic H docks onto V2 and then spreads to the penult. This is not the case in the non-3 sg. relatives with onsetful SMs as seen below.

(350) Toneless root

- a. á-á<sup>1</sup>á-cí-zìis-il-é 'ones who recently buried' /á-bá-á-cí-ziik-ìl-é/  
 b. á-á<sup>1</sup>á-cí-mú-zìis-il-é 'ones who recently buried him/her' /á-bá-á-cí-mu-ziik-ìl-é/  
 c. á-á<sup>1</sup>á-cí-yá-zìik-ìil-é 'ones who recently buried for them' /á-bá-á-cí-yá-ziik-il-ìl-é/  
 d. í-vy-á<sup>1</sup>á-cí-zìis-il-é 'ones (C8) who recently buried' /í-ví-á-cí-ziik-ìl-é/

(351) H-toned root

- |    |                           |  |                            |
|----|---------------------------|--|----------------------------|
| a. | á-á'á-cí-léés-í'l-é       | ‘ones who recently brought’              | /á-bá-á-cí-léet-ìl-é/      |
| b. | á-á'á-cí-páápáàt-ìik-é    | ‘ones who recently flattened’            | /á-bá-á-cí-páapaatik-ìl-é/ |
| c. | á-á'á-cí-yá-léés-í'l-é    | ‘ones who recently brought them’         | /á-bá-á-cí-yá-léet-ìl-é/   |
| d. | í-vyá'á-cí-mú-'léés-í'l-é | ‘ones (C8) who recently brought him/her’ | /á-bá-á-cí-mú-léet-ìl-é/   |

In each case in the examples above the MH is realized only on the FV.

Below are the negative relatives.

- |       |    |                            |  |                               |
|-------|----|----------------------------|--|-------------------------------|
| (352) | a. | á-à-tá-à-cí-zìis-ìl-è      | ‘one(s) who didn’t recently bury’          | /á-á-tá-á-cí-ziik-il-e +H/    |
|       | b. | á-à-tá-á-cí-mú-zìis-ìl-è   | ‘one(s) who didn’t recently bury him/her’  | /a-tá-á-cí-mu-ziik-il-e +H/   |
|       | c. | á-à-tá-á-cí-yá-zìis-ìl-è   | ‘one(s) who did not recently buried them’  | /á-á-tá-á-cí-yá-ziik-il-e +H/ |
| (353) | a. | á-à-tá-á-cí-léés-ìl-é      | ‘one(s) who didn’t recently bring          | /á-á-tá-á-cí-léet-ìl-é/       |
|       | b. | á-à-tá-á-cí-mú-'léét-ìil-é | ‘one(s) who didn’t recently bring him/her’ | /á-á-tá-á-cí-mu-léet-il-ìl-é/ |
|       | c. | á-à-tá-á-cí-yá-léét-ìil-é  | ‘one(s) who didn’t recently bring them/’   | /á-á-tá-á-cí-yá-léet-il-ìl-é/ |

Both the 3 sg. and 3 pl. relative SM is /á-/. As was true of the non-relative negatives, the FV is H-toned if the root is H-toned, but if the root is toneless then the MH exhibits the V2-penult pattern.

### 5.2.5 Recent Past Progressive

The Recent Past TAM discussed in section 5.2.4 can be made progressive by replacing the /-il-é/ ending with the progressive TAM suffix /-ang/ and the FV /-á/. Since the tonology exactly parallels that of the Yesterday Past Progressive (§5.2.3) I will not devote space here to providing examples in each of the affirmative and negative relative and non-relative categories. I do note that like the Yesterday Past Progressive, but unlike the Recent Past (5.2.4), the Recent Past Progressive never employs the Melodic High (e.g. seen in the examples of 3 sg. forms with OM in (334), (335)), despite the presence of the /cí-/ prefix. This last observation is illustrated below.

- |       |    |                           |                                     |                           |
|-------|----|---------------------------|-------------------------------------|---------------------------|
| (354) | a. | w-àà-cí-mú-fùl-ààng-á     | ‘we were recently washing him/her’  | /u-á-cí-mu-ful-ang-á/     |
|       | b. | w-àà-cí-yá-zíik-il-ààng-á | ‘we were recently burying for them’ | /u-á-cí-yá-ziik-il-ang-á/ |

### 5.2.6 Recent Perfect

The Recent Perfect describes events which have been accomplished within the past hour or two. The morphological structure of this TAM is summarized below.

- (355) Morphological structure of Recent Perfective: SM – á - (OM) – VR – (EXT) – á

Verbs with toneless roots with no OM, a toneless OM and a H-toned OM are shown in (356)-(358) respectively. Verbs with H-toned roots with no OM, a toneless OM and a H-toned OM are shown in (359)-(361) respectively.

- (356) a. tw-áá-fú<sup>1</sup>l-á ‘we have just washed’ /tú-á-ful-á/  
 b. tw-áá-zíik-á ‘we have just buried’ /tú-á-ziik-á/  
 c. tw-áá-súkil-il-á ‘we have just accompanied’ /tú-á-sukil-il-á/
- (357) a. tw-áá-mú-sì-il-á ‘we have just ground for him/her’ /tú-á-mu-si-il-á/  
 b. tw-áá-mú-fùl-á ‘we have just washed him/her’ /tú-á-mu-ful-á/  
 c. tw-áá-mú-ziik-il-á ‘we have just buried for him/her’ /tú-á-mu-ziik-il-á/
- (358) a. tw-áá-yá-ziik-il-á ‘we have just buried for them’ /tú-á-yá-ziik-il-á/  
 b. tw-áá-mú-sì-il-á ‘we have just ground for you (pl.)’ /tú-á-mu-si-il-á/  
 c. tw-áá-yá-súkil-il-á ‘we have just accompanied them’ /tú-á-yá-sukil-il-á/
- (359) a. tw-áá-sh-á ‘we have just left’ /tú-á-sí-á/  
 b. tw-áá-lúk-á ‘we have just vomited’ /tú-á-lúk-á/  
 c. tw-áá-léet-é<sup>1</sup>l-á ‘we have just brought for’ /tú-á-léet-il-a/  
 d. tw-áá-sópólòl-á ‘we have just untied’ /tú-á-sopolol-á/
- (360) a. tw-áá-mú-<sup>1</sup>sh-á ‘we have just left him/her’ /tú-á-mu-sí-á/  
 b. tw-áá-mú-<sup>1</sup>lás-á ‘we have just hit him/her’ /tú-á-mu-lás-á/  
 c. tw-áá-mú-<sup>1</sup>léet-é<sup>1</sup>l-á ‘we have just brought for him/her’ /tú-á-mu-léet-il-á/  
 d. tw-áá-mú-<sup>1</sup>sópólòl-á ‘we have just untied him/her’ /tú-á-mu-sopolol-á/
- (361) a. tw-áá-yá-lás-á ‘we have just hit’ /tú-á-yá-lás-á/  
 b. tw-áá-mú-sì-il-á ‘we have just left for you (pl.)’ /tú-á-mu-si-il-á/  
 c. tw-áá-yá-sópólòl-á ‘we have just untied them’ /tú-á-yá-sopolol-á/

The tonology of these forms is unremarkable. The H on the SM will fuse in every case with the following TAM prefix /á-/. Any additional H's which immediately follow, including OM's or roots or both (e.g. (361a)) will also fuse. If the fused H is followed by a toneless TBU, it will undergo bounded spreading.

Let us now turn to the 3 sg. forms. First we examine forms with no OM. Examples containing both toneless and H-toned roots are given below.

- (362) a. w-àá-sh-à ‘he/she has just ground’ /u-á-si-á/  
 b. w-àá-lém-à ‘he/she has just grabbed’ /u-á-lem-á/  
 c. w-àá-lém-é<sup>1</sup>l-á ‘he/she has just grabbed for’ /u-á-lem-il-á/  
 d. w-àá-swéèl-à ‘he/she has just brewed’ /u-á-suel-á/  
 e. w-àá-swéèl-èl-à ‘he/she has just brewed for’ /u-á-suel-il-á/  
 f. w-àá-súkil-il-à ‘he/she has just accompanied’ /u-á-sukil-il-á/
- (363) a. w-àá-sh-á ‘he/she has just left’ /u-á-sí-á/  
 b. w-àá-lém-à ‘he/she has just planted’ /u-á-lém-á/  
 c. w-àá-lém-é<sup>1</sup>l-á ‘he/she has just planted for’ /u-á-lém-il-á/  
 d. w-àá-swéél-é<sup>1</sup>l-á ‘he/she has just fished for’ /u-á-súel-il-á/  
 e. w-àá-swéél-à ‘he/she has just fished’ /u-á-súel-á/  
 f. w-àá-sópól-òl-à ‘he/she has just untied’ /u-á-sopolol-á/



As was the case with the other TAMs in this section employing the /á-/ TAM prefix, when this prefix is preceded by a toneless mora in the same syllable, then rule of 3 sg. /á-/ H Delinking (281) will apply after General Doubling. The forms in (362a) and (363a) are unique in the data above in that the word-initial syllable surfaces as a Rise instead of level Low. To account for this we formalized /á-/ Delinking rule (281) such that it only applies in pre-penult position. Derivations of (362a) and (363a) are given below in (365).

The tone patterns on the stems in (362) and (363) are the same as the ones found in the Yesterday Past (§5.2.2), i.e. the root H in the forms in (363) undergoes full binary spreading (i.e. General Doubling as well as Heterosyllabic Doubling) whereas the H contributed by the TAM prefix in the forms in (362) exhibits only Heterosyllabic Doubling on the surface, as General Doubling and /á-/ Delinking operated to shift the H from the TAM prefix to the stem-initial TBU.

The forms in (362a-b) and (363a-b) raise issues concerning the formalization of FV Delinking (288), repeated below.

(364) FV Delinking

$$\begin{array}{c} (\mu) \mu \text{ w}] \\ + \\ \text{H} \end{array}$$

(The rule applies only when the TAM prefix /á-/ is present, as well as a toneless SM)

To illustrate that this rule must be further refined or expanded, let us consider derivations of these forms below, up to the point where FV Delinking would apply.

(365)	a.	u-a-si-a	b.	u-a-si-a	c.	u-a-lem-a	d.	u-a-lem-a	UR
		$\begin{array}{c}   \quad   \\ H \quad H \end{array}$		$\begin{array}{c}   \quad   \quad   \\ H \quad HH \end{array}$		$\begin{array}{c}   \quad   \\ H \quad H \end{array}$		$\begin{array}{c}   \quad   \quad   \\ H \quad H \quad H \end{array}$	
		w-aa-sh-aa		w-aa-sh-aa		w-aa-lem-a		w-aa-lem-a	Gliding, CL, Palat
		$\begin{array}{c}   \quad   \\ H \quad H \end{array}$		$\begin{array}{c}   \quad   \quad   \\ H \quad HH \end{array}$		$\begin{array}{c}   \quad   \\ H \quad H \end{array}$		$\begin{array}{c}   \quad   \quad   \\ H \quad H \quad H \end{array}$	
				w-aa-sh-aa				w-aa-lem-a	Fusion
				$\begin{array}{c} \backslash \quad // \\ H \end{array}$				$\begin{array}{c} \backslash \quad   \quad / \\ H \end{array}$	
		w-aa-sh-a		w-aa-sh-a					Word-final Shortening
		$\begin{array}{c}   \\ H \quad H \end{array}$		$\begin{array}{c} \backslash \quad / \\ H \end{array}$					
		w-aa-sh-a				w-aa-lem-a			General Doubling
		$\begin{array}{c} \backslash \quad / \\ H \quad H \end{array}$				$\begin{array}{c}   \quad / \quad   \\ H \quad H \end{array}$			
		w-aa-sh-a							Pre Floating H Delinking
		$\begin{array}{c}   \\ H \quad H \end{array}$							
						w-aa-lem-a		w-aa-lem-a	/á-/ Delinking
						$\begin{array}{c}   \quad   \\ H \quad H \end{array}$		$\begin{array}{c} \backslash \quad / \\ H \end{array}$	

The rule of FV Delinking as currently formalized will not delink the H in any of the forms above, yet we know that the word-final H must be delinked in both (365c-d). Let us begin with (365c). In Cilungu there is a robust contrast in phrase-final HH<sup>1</sup>H and HHL (cf. §10.4.1). However, there is not any contrast between phrase-final LH<sup>1</sup>H and LHL. I therefore posit a rule of Post L Downstep Removal, which we will see is operative in other contexts as well, which have nothing to do with 3 sg. forms (cf. §7.4).

(366) Post L Downstep Removal

$$\begin{array}{c} \textcircled{\mu} \quad \mu \quad \mu \quad p] \\ | \quad + \\ H \quad H \end{array}$$

What remains to be accounted for then is the form in (365d). Since we know that a word-final LHH sequence is well formed (cf. §10.4.1), the delinking of the H from the FV must be due to the fact that it is a 3 sg. form. We must therefore add this as an additional environment to the FV Delinking rule. However, it is not the case that the H delinks from the FV whenever that H is multiply-linked, as the H does not delink in cases such as (365b). I therefore propose that FV Delinking be reformalized as follows to include two environments:

(367) FV Delinking

a.  $\begin{array}{c} \textcircled{\mu} \mu w] \\ + \\ H \end{array}$

b.  $\begin{array}{c} \sigma \quad \sigma \\ / \quad | \quad | \\ x \mu \quad \mu w] \\ \backslash X \\ H \end{array}$

The second part of the FV Delinking rule states that the H will delink from the FV when it is multiply-linked only if the penult is short. We will see further evidence for this immediately below.

Let us now consider some 3 sg. forms in the Recent Perfect which have V-initial roots.

- |          |              |                                 |               |
|----------|--------------|---------------------------------|---------------|
| (368) a. | w-ì-ík-á     | ‘he/she has just put’           | /u-á-ík-á/    |
| b.       | w-è-él-á     | ‘he/she has just fished         | /u-á-él-á/    |
| c.       | w-àà-mw-ík-á | ‘he/she has just put you (pl.)’ | /u-á-mú-ík-á/ |
| (369) a. | w-ì-ík-à     | ‘he/she has just come down’     | /u-á-ík-á/    |
| b.       | w-ì-ík-íl-à  | ‘he/she has just put for’       | /u-á-ík-íl-á/ |
| c.       | w-àà-mw-ík-à | ‘he/she has just put him/her’   | /u-á-mu-ík-á/ |

In 3 sg. forms in this TAM, whenever the H-toned FV is immediately preceded by a H-toned /VC/ root, which in turn is preceded by a H-toned mora, then the FV will surface as High (368). If such a root is not H-toned (369a) or does not immediately precede the FV (369b), or is not immediately preceded by a H-tone mora (369c), then the FV surfaces as Low. Below are derivations of (369a) and (368a,c)).

(370)	a.	u-a-ik-a     H H	b.	u-a-ik-a       HH H	c.	u-a-mu-ik-a         H H H H	UR
		w-i i-ik-a     H H		w-i i-ik-a       HH H		w-aa-mw -i ik-a         H HH H	Gliding, CL & Vowel Deletion
				w-i i- ik-a \\   / H		w-aa-mw-i ik-a \\     / H	Fusion
		w-i i-ik-a \\   / H H					General Doubling
					w-i i-mw-i ik-a \\   / H		/á-/ Delinking
		w-i i- ik-a \\   / H H					Phrase-final Downstep Deletion
		w-i-ik-a   H H		w-i-ik-a \\   / H			Trimoraic Pruning

FV Delinking

As seen, the FV Delinking rule does not apply in (370b-c). This is directed predicted by the formalization of this rule given in (367) since it only applies when the penult is short.

Let us now turn to 3 sg. forms containing an OM.

(371)	a.	w-àà-mú-sh-à	‘he/she has just ground him/her’	/u-á-mu-si-á/
	b.	w-àà-mú-fú <sup>l</sup> -á	‘he/she has just washed him/her’	/u-á-mu-ful-á/
	c.	w-àà-mú-lúk-il-à	‘he/she has just woven for him/her’	/u-á-mu-luk-il-á/
	d.	w-àà-mú-ziik-à	‘he/she has just buried him/her’	/u-á-mu-ziik-á/
	e.	w-àà-mú-ziik-il-à	‘he/she has just buried for him/her’	/u-á-mu-ziik-il-á/
	f.	w-àà-mú-súkil-il-à	‘he/she has just accompanied’	/u-á-mu-sukil-il-á/

- |          |                             |                                   |                    |
|----------|-----------------------------|-----------------------------------|--------------------|
| (372) a. | w-àà-mú-sh-à                | ‘he/she has just left him/her’    | /u-á-mu-sí-á/      |
| b.       | w-àà-mú-lá <sup>1</sup> s-á | ‘he/she has just hit him/her’     | /u-á-mu-lás-á/     |
| c.       | w-àà-mú-lás-il-à            | ‘he/she has just hit for him/her’ | /u-á-mu-lás-il-á/  |
| d.       | w-àà-mú-léèt-à              | ‘he/she has just brought him/her’ | /u-á-mu-léet-á/    |
| e.       | w-àà-mú-léèt-èl-à           | ‘he/she has just brought him/her’ | /u-á-mu-léet-il-á/ |
| f.       | w-àà-mú-sópòlòl-à           | ‘he/she has just untied him/her’  | /u-á-mu-sópolol-á/ |

As can be seen, the forms with toneless roots in (371) surface with the exact same tonal patterns as those with H-toned roots in (372). We saw this same pattern in the Yesterday Past (§5.2.2) and accounted for this there by the rule of Root H Deletion (294) which deleted a root H when it is preceded by a singly-linked H. The same rule applies here.

Let us consider the final set of verbs—those with an H-toned OM.

- |          |                             |                                    |                    |
|----------|-----------------------------|------------------------------------|--------------------|
| (373) a. | w-àà-yá-sh-à                | ‘he/she has just ground them’      | /u-á-yá-sí-á/      |
| b.       | w-àà-yá-lé <sup>1</sup> m-á | ‘he/she has just grabbed them’     | /u-á-yá-lem-á/     |
| c.       | w-àà-yá-lúk-il-à            | ‘he/she has just woven for them’   | /u-á-yá-luk-il-á/  |
| d.       | w-àà-mú-zíik-à              | ‘he/she has just buried you (pl.)’ | /u-á-mú-ziik-á/    |
| e.       | w-àà-yá-zíik-il-à           | ‘he/she has just buried for them’  | /u-á-yá-ziik-il-á/ |
- 
- |          |                                  |                                      |                      |
|----------|----------------------------------|--------------------------------------|----------------------|
| (374) a. | w-àà-yá-sh-á                     | ‘he/she has just left them’          | /u-á-yá-sí-á/        |
| b.       | w-àà-yá-lém-á                    | ‘he/she has just planted them’       | /u-á-yá-lém-á/       |
| c.       | w-àà-yá-lém-á <sup>1</sup> sáaná | ‘he/she has just planted them a lot’ | /u-á-yá-lém-á sáaná/ |
| d.       | w-àà-yá-lém-él-à                 | ‘he/she has just planted for them’   | /u-á-yá-lém-il-á/    |
| e.       | w-àà-yá-lééng-à                  | ‘he/she has just begged them’        | /u-á-yá-léng-á/      |
| f.       | w-àà-mú-lééng-él-à               | ‘he/she has begged for you’          | /u-á-mú-léng-il-á/   |

Of these forms, there is only one which surfaces with a downstep, (373b). Its counterpart with a H-toned root (374b) does not surface with a H-toned FV. In (373b), the H on the OM /yá-/ will spread to the following mora (on the root) creating a downstep, which protects the delinking of the FV. In (374b) the OM and the root are both linked to distinct H’s and then fuse, after which 3 sg. FV H Delinking will apply.

The negative of this TAM is the same as the negative of the Perfect which is presented and analyzed in section 5.3.8.

We now turn to the relatives of the Recent Perfect. We begin with the 3 sg. relatives, examples of which are given below.

(375) 3 sg. relatives with toneless macrostems

- |    |                               |  |                       |
|----|-------------------------------|--|-----------------------|
| a. | ú-w-áà-sí-il-à                | ‘one who has just ground for’          | /ú-u-á-sí-il-á/       |
| b. | ú-w-áà-lúk-à                  | ‘one who has just woven’               | /ú-u-á-luk-á/         |
| c. | ú-w-áà-zíik-à                 | ‘one who has just buried’              | /ú-u-á-ziik-á/        |
| d. | ú-w-áà-súkíl-il-à             | ‘one who was just accompanied’         | /ú-u-á-sukil-il-á/    |
| e. | ú-w-áà-mú-fú <sup>1</sup> l-á | ‘one who has just washed him/her’      | /ú-u-á-mu-ful-á/      |
| f. | ú-w-áà-mú-zíik-il-à           | ‘one who has just buried for him/her’  | /ú-u-á-mu-ziik-il-á/  |
| g. | ú-w-áà-mú-súkíl-il-à          | ‘one who has just accompanied him/her’ | /ú-u-á-mu-sukil-il-á/ |

(376) 3 sg. relatives with H-toned macrostems

a.	ú-w-áà-lúk-à	‘one who has just vomited’	/ú-u-á-lúk-á/
b.	ú-w-áà-swéél-à	‘one who has just fished’	/ú-u-á-súel-á/
c.	ú-w-áà-páápáatik-à	‘one who has just flattened’	/ú-u-á-páapaatik-á/
d.	ú-w-áà-mú-léet-él-à	‘one who has just brought for him/her’	/ú-u-á-mu-léet-il-á/
e.	ú-w-áà-yá-lé <sup>l</sup> m-á	‘one who has just grabbed’	/ú-u-á-yá-lem-á/
f.	ú-w-áà-yá-lém-à	‘one who has just planted’	/ú-u-á-yá-lém-á/
g.	ú-w-áà-yá-ziik-il-à	‘one who has just buried for them’	/ú-u-á-yá-ziik-il-á/
h.	ú-w-áà-yá-léet-él-à	‘one who has just brought for them’	/ú-u-á-yá-léet-il-á/

The tonology of these forms follow exactly the same pattern as those presented and accounted for in the Yesterday Past (§5.2.2) and therefore that analysis can be extended to these forms. In each case both /á-/ Delinking will apply. As we have seen above, 3 sg. FV H Delinking will apply in every case except those in which the FV is immediately preceded by a span of two or morae H-toned morae ((375e), (376e)).

The 3 pl. relatives (as well as other relatives with onsetful SMs) are given below.

(377) 3 pl. relatives with toneless macrostems

a.	á-á <sup>l</sup> -lé <sup>l</sup> m-á	‘ones who have just grabbed’	/á-bá-á-lem-á/
b.	á-à-ziik-á pò	‘ones who have just buried (loc.)’	/á-bá-á-ziik-á pó/
c.	á-à-sùkìl-il-á	‘ones who have just accompanied’	/á-bá-á-sukil-il-á/
d.	á-à-mù-lém-á	‘ones who have just grabbed him/her’	/á-bá-á-mu-lem-á/
e.	í-vy-á <sup>l</sup> -lé <sup>l</sup> m-á	‘those (C8) who have just grabbed’	/í-ví-á-lem-á/
f.	í-vy-áà-mù-lém-á	‘those (C8) who have just grabbed him/her’	/í-ví-á-mu-lem-á/

(378) 3 pl. relatives with H in macrostem

a.	á- <sup>l</sup> á-lém-á	‘ones who have just planted’	/á-bá-á-lém-á/
b.	á- <sup>l</sup> á-mú <sup>l</sup> -lém-á	‘one who have just planted him/her’	/á-bá-á-mu-lém-á/
c.	á- <sup>l</sup> á-mú <sup>l</sup> -lém-á	‘one who have just planted you’	/á-bá-á-mú <sup>l</sup> -lém-á/
d.	á- <sup>l</sup> á-páápáatik-á	‘ones who have just flattened’	/á-bá-á-páapaatik-á/
e.	í-vy-á <sup>l</sup> -lé <sup>l</sup> m-á	‘those (C8) who have just planted’	/í-ví-á-lém-á/
f.	í-vy-á <sup>l</sup> -swéél-à	‘those (C8) who have just fished’	/í-ví-á-súel-á/

The tonology of these forms follow exactly the same pattern as those presented and accounted for in the Yesterday Past (§5.2.2). The rule of Fall Simplification (306) will apply whenever the H on the TAM prefix /á-/ spreads to the following mora, but the mora to the right of that one is toneless (377b-d,f).

The negative relatives in this TAM are identical to the negative relatives of the Perfect, which are presented and analyzed in section 5.3.8.

## 5.2.7 Recent Perfect 2

The Recent Perfect can also take the Recent /cí-/ prefix, just as was the case with the Yesterday Past (cf. §5.2.2., §5.2.4), which emphasizes the recent nature of the action in question.

(379) Toneless macrostem

a.	tw-áá-cí-fù <sup>l</sup> -á	‘we have just washed’	/tú-á-cí-ful-á/
b.	tw-áá-cí-mú-zìik-á	‘we have just buried him/her’	/tú-á-cí-mu-ziik-á/
c.	tw-áá-cí-mú-sùkilil- á	‘we have just accompanied him/her’	/tú-á-cí-mu-sukil-il-á/

(380) H in macrostem

a.	tw-áá-cí-lás-á	‘we have just hit’	/tú-á-cí-lás-á/
b.	tw-áá-cí-mú- <sup>l</sup> sópólòl-á	‘we have just untied him/her’	/tú-á-cí-mu-sópolol-á/
c.	tw-áá-cí-yá-zìik-á	‘we have just buried them’	/tú-á-cí-yá-ziik-á/
d.	tw-áá-cí-ví-lás-á	‘we have just hit them (C8)’	/tú-á-cí-ví-lás-á/

These patterns are unremarkable. As was the case in the recent past, adjacent H’s fuse and the rightmost H in an underlying string of H’s will undergo binary spreading since the FV is H-toned.

Here are examples of forms with a 3 sg. SM.

(381) Toneless macrostem

a.	w-àà-cí-sh-à	‘he/she has just ground’	/u-á-cí-si-á/
b.	w-àà-cí-lém-à	‘he/she has just grabbed’	/u-á-cí-lem-á/
c.	w-àà-cí-sùkil-il-à	‘he/she has just accompanied’	/u-á-cí-sukil-il-á/
d.	w-àà-cí-mú-sùkil-il-à	‘he/she has just accompanied him/her’	/u-á-cí-mu-sukil-il-á/

(382) H in macrostem

a.	w-àà-cí-sh-á	‘he/she has just left (some)’	/u-á-cí-sí-á/
b.	w-àà-cí-lém-á	‘he/she has just planted’	/u-á-cí-lém-á/
c.	w-àà-cí-sópólòl-à	‘he/she has just untied’	/u-á-cí-sópolol-á/
d.	w-àà-cí-mú- <sup>l</sup> sópólòl-à	‘he/she has just untied him/her’	/u-á-cí-mu-sópolol-á/
e.	w-àà-cí-mú-sópólòl-à	‘he/she has just untied you (pl.)’	/u-á-cí-mú-sópolol-á/

We saw in the Recent Past (§5.2.4), that the /cí-/ prefix triggered the insertion of a Melodic High in 3 sg. forms with toneless roots and an OM. (This MH docked onto the second and subsequent TBUs of the stem.) But as can be seen above, such a MH is never attested in this TAM.

Finally, representative affirmative relative forms are given below. (The negative relative is the same as that of the Perfect which is presented and analyzed in section 5.3.8.)

(383) Affirmative relatives

a.	ú-w-áá-cí-mú-fùl-á	‘he/she who has just washed him/her’	/ú-u-á-cí-mu-ful-á/
b.	ú-w-áá-cí-sópólòl-á	‘he/she who has just untied’	/ú-u-á-cí-sópolol-á/
c.	á-á <sup>l</sup> -á-cí-swéél-á	‘those who have just brewed’	/á-bá-á-cí-suel-á/
d.	á-á <sup>l</sup> -á-cí-swéél-á	‘those who have just fished’	/á-bá-á-cí-súel-á/

### 5.3 Melodic H: Pattern II

As mentioned above, there are TAMs in which an additional H is contributed to the form. These divide into two groups. The first group, which we have just discussed (§5.2), realizes this H solely on the Final Vowel. We now turn to the second type where the additional H is realized in a completely different way. As we will see below, in these TAMs, the additional H is realized on the second and subsequent TBUs of the verbal stem.

#### 5.3.1 Far Past

Let us begin by describing and analyzing the Far Past, a TAM which indicates that the action in question took place more than a few days ago. The morphological structure of the FP is given below.

(384) SM – a – (OM) – VR – (EXT) – il-e

Representative forms of the Far Past with toneless macrostems are given below. The forms in (385) have no OM while those in (386) have a toneless OM.

- |          |                          |                           |  |
|----------|--------------------------|---------------------------|--|
| (385) a. | tw-áá-sì-íl-é            | ‘we ground’               | /tú-a-si- <u>il</u> -e +H/ <sup>35</sup> |
| b.       | tw-áá-fùz-íl-é           | ‘we washed’               | /tú-a-ful- <u>il</u> -e +H/              |
| c.       | tw-áá-zìis-íl-é          | ‘we buried’               | /tú-a-ziik- <u>il</u> -e +H/             |
| d.       | tw-áá-swèèl-ííl-é        | ‘we brewed for’           | /tú-a-suel-il- <u>il</u> -e +H/          |
| e.       | tw-áá-sùkíl-ííl-é        | ‘we accompanied’          | /tú-a-sukil- <u>il</u> -e +H/            |
| f.       | tw-áá-lòndólw-ííl-é      | ‘we explained’            | /tú-a-londolol- <u>il</u> -e +H/         |
| (386) a. | tw-áá-mú-sì-íl-é         | ‘we ground him/her’       | /tú-a-mu-si- <u>il</u> -e +H/            |
| b.       | tw-áá-mú-fùz-íl-é        | ‘we washed him/her’       | /tú-a-mu-ful- <u>il</u> -e +H/           |
| c.       | tw-áá-mú-lùk-í-íl-é      | ‘we weaved for him/her’   | /tú-a-mu-luk-il- <u>il</u> -e +H/        |
| d.       | tw-áá-mú-zìis-íl-é       | ‘we buried him/her’       | /tú-a-mu-ziik- <u>il</u> -e +H/          |
| e.       | tw-áá-mú-swèèl-ííl-é     | ‘we brewed for him/her’   | /tú-a-mu-suel-il- <u>il</u> -e +H/       |
| f.       | tw-áá-mú-lòndólw-ííl-é   | ‘we explained to him/her’ | /tú-a-mu-londolol- <u>il</u> -e +H/      |
| (387) a. | tw-áá-zìis-íl-é sáaná    | ‘we buried a lot’         | /tú-a-ziik- <u>il</u> -e +H sáaná/       |
| b.       | tw-áá-zìis-íl-é nìngó    | ‘we buried well’          | /tú-a-ziik- <u>il</u> -e +H nìngó/       |
| c.       | tw-áá-swèèl-ííl-é Chóólà | ‘we brewed for Chola’     | /tú-a-suel-il- <u>il</u> -e +H Choola/   |

As is apparent, the melodic H in these forms is realized in a very different way than it was in the TAM discussed in section 5.2. Instead of being realized on just the FV, the melodic H in the Far Past is realized on the second and subsequent TBUs of the stem. A unified account of this would be to assume that the MH has a single underlying representation, namely a floating H contributed by the morphology whose position is to the right of the root H. In both the case of the TAMs discussed in section 5.2, as well as those discussed here in section 5.3, I assume a rule which docks this floating H to the FV. The crucial difference between the TAMs in §5.2 and those in §5.3, then, is not in the input representation of the MH, but rather in whether it spreads leftward to the peninitial TBU of the stem or not. While this process is discussed in more detail in §5.4, I propose a rule of Leftward Spreading to V2 which will spread a H on the FV leftward to V2 under a number of

<sup>35</sup> The significance of <+H> in the UR is explained immediately below.



morphological as well as phonological conditions. Perhaps the most salient generalization is that this H *tends* to spread to V2 as long as there is not a H-toned TAM prefix present in the form (something true of all the TAMs presented in §5.2)—a type of OCP effect. With regard to the underlying representations presented in this work, as an aid to the reader the MH which docks onto the FV and then spreads leftward to V2 is represented differently than the one which does not spread (as exemplified in the TAMs in §5.2). The former is represented as <+H> as an indication that it is a floating H suffix. While, strictly speaking, the latter H which does not spread leftward is also a floating H suffix in the UR, it is represented here as <-á> (simply to differentiate it from the H that spreads).

Let us now address in a bit more detail the question as to which morae this floating melodic H docks onto. In general the H is realized on all morae of the stem except those which are part of the first syllable. The sole exception to this generalization is found in CVVCV stems ((385a), (386a)) where the H, in addition to being realized on the FV, is also realized on the second mora of the stem-initial syllable.<sup>36</sup> How might this be accounted for? Let us briefly consider two options.

Assuming a general rule which spreads the MH leftward to the left edge of the second syllable of the stem, one might posit some constraint weighing against a word-final H-toned syllable preceded by a long toneless one. This, however, would have to be peculiar to this group of tenses, as this pattern is amply attested in the TAMs discussed in 5.2 which subcategorize for a H-toned FV. E.g. Recent Perfective *tw-áá-mú-zìik-á* ‘we have just buried him/her’ (</tú-á-mu-ziik-á/)

Next, let us assume that the MH spreads leftward to the second mora of the stem. Under this assumption, the CVVCV stems require no additional explanation, but longer stems beginning with a long vowel in the initial syllable do. E.g. why do we get forms such as *tw-áá-mú-lòndólw-íil-é* (386f), and not *\*tw-áá-mú-lòndólw-íil-é?* While we will see in section 10.4.4 that there are certain places in the language where a Rising tone is resolved to a level Low, there does not seem to be any purely phonological way to unify these cases. Therefore, if we assume that the MH spreads to the second mora of the stem, in order to account for the cases above we must assume a rule which resolves a Rise to a Level low on a root-initial long vowel in pre-penult position.<sup>37</sup>

Let us now examine forms with H-initial macrostems.

- |          |                              |                      |                           |
|----------|------------------------------|----------------------|---------------------------|
| (388) a. | <i>tw-áà-sí-íl-é</i>         | ‘we left’            | /tú-a-sí-ìl-e +H/         |
| b.       | <i>tw-áà-lás-íl-é</i>        | ‘we hit              | /tú-a-lás-ìl-e +H/        |
| c.       | <i>tw-áà-léés-íl-é</i>       | ‘we brought’         | /tú-a-léet-ìl-e +H/       |
| d.       | <i>tw-áà-sópólw-íil-é</i>    | ‘we untied’          | /tú-a-sópolol-ìl-e +H/    |
| (389) a. | <i>tw-áá-mù-sí-íl-é</i>      | ‘Iwe left him/her’   | /tú-a-mu-sí-ìl-e +H/      |
| b.       | <i>tw-áá-mù-lás-íl-é</i>     | ‘we hit him/her’     | /tú-a-mu-lás-ìl-e +H/     |
| c.       | <i>tw-áá-mù-léés-íl-é</i>    | ‘we brought him/her’ | /tú-a-mu-léet-ìl-e +H/    |
| d.       | <i>tw-áá-mù-sópólw-íil-é</i> | ‘we untied him/her’  | /tú-a-mu-sópolol-ìl-e +H/ |

<sup>36</sup> This docking pattern is not unique to Cilungu, but is found in other Bantu languages as well, some closely related to Cilungu, e.g. Namwanga (Bickmore (2000a)), and some which are not, e.g. Ekegusii (Bickmore (1997)).

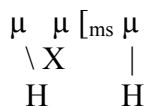
<sup>37</sup> As will be seen in the discussion of the H-toned roots to follow, if the rising tones in forms with toneless roots were resolved to a long High, then the stem tone pattern of those containing toneless roots would be identical to those containing H-toned roots. There is thus a functional advantage to resolving the Rise into a long L, as opposed to a long H.

- (390) a. tw-áà-yá-sí-<sup>1</sup>íl-é                      ‘we ground for them’                      /tú-a-yá-si-il-e +H/  
 b. tw-áà-yá-fúz-<sup>1</sup>íl-é                      ‘we washed them’                      /tú-a-yá-ful-il-e +H/  
 c. tw-áà-yá-zìis-íl-é                      ‘we buried them’                      /tú-a-yá-ziik-il-e +H/
- (391) a. tw-áà-yá-sí-íl-é                      ‘we left him/her’                      /tú-a-yá-sí-il-e +H/  
 b. tw-áà-yá-lás-íl-é                      ‘we hit them’                      /tú-a-yá-lás-il-e +H/  
 c. tw-áà-yá-léét-íil-é                      ‘we brought for them’                      /tú-a-yá-léet-il-il-e +H/

As can be seen above, every mora in a stem containing a H-toned root surfaces as High. I assume, of course, that the melodic H contributed by TAMs such as the Far Past is present in stems with H-toned roots, as well as those with toneless roots. So the question is this: how does the presence of a root-initial H and a following floating H translate into an all H-toned stem? The approach I adopt here is to have the rule of leftward spreading be one that spreads the MH to the second mora of the stem. This applies to forms with H-toned roots as well as to those with toneless roots. The rule of Fusion will then apply *after* leftward spreading and fuse the root-initial H and the MH into a single H, accounting for the lack of any downstep between the first and second morae of the stem.

In each of the forms with a H-initial macrostem, the initial syllable surfaces with a Fall. However, our current rules predict that the H in this TAM prefix should undergo General Doubling, producing a long H. As noted above (in §5.2.1), however, Cilungu conspicuously avoids a phonetic output which contains a long High followed by a downstep. When the productive rules of the phonology create such a configuration it must then be “repaired.” What is interesting is that it is repaired in different ways, depending on the morpho-phonological environment in which it is created. (This is discussed in additional detail in §10.5.) What we learn from the Far Past forms above is that when this configuration is created in a pre-macrostem syllable, the effects of General Doubling are essentially undone, so that a Fall results instead of a long level High. We will see evidence in §10.3.2, that it is preferable to let General Doubling apply and then removed the newly added link if it creates a long High in the pre-macrostem domain followed by a downstep. This is accomplished by the rule below.

(392) Pre-Macrostem H Falling



Below is a derivation of (388c)

- (393) tu-a-leet-il-e                      U.R.  
       |    |    |  
       H   H   H
- tu-a-leet-il-e                      MH Docking  
       |    |    |  
       H   H   H
- tw-aa-lees-il-e                      CM, Gliding & CL  
       |    |    |  
       H   H   H

tw-aa-leet-il-e      Leftward Spreading to V2

$\begin{array}{c} | \quad | \quad \backslash \quad \backslash \quad | \\ H \quad H \quad \quad H \end{array}$

tw-aa-leet-il-e      Fusion

$\begin{array}{c} | \quad \backslash \quad \backslash \quad // \\ H \quad \quad H \end{array}$

tw-aa-leet-il-e      General Doubling

$\begin{array}{c} // \quad \backslash \quad \backslash \quad // \\ H \quad \quad H \end{array}$

tw-aa-leet-il-e      Pre-Macrostem H Falling

$\begin{array}{c} | \quad \backslash \quad \backslash \quad / \quad / \\ H \quad \quad H \end{array}$

Now we turn to the 3 sg. forms. Far Past forms with toneless roots are given in (394)-(396), while those with H-toned roots are given in (397)-(399).

- |          |                    |                           |                           |
|----------|--------------------|---------------------------|---------------------------|
| (394) a. | w-àà-sì-ìl-é       | ‘he/she ground’           | /u-a-si-ìl-e +H/          |
| b.       | w-àà-lùs-ìl-é      | ‘he/she wove’             | /u-a-luk-ìl-e +H/         |
| c.       | w-àà-zìis-ìl-é     | ‘he/she buried’           | /u-a-ziik-ìl-e +H/        |
| d.       | w-àà-sùkìl-ìl-é    | ‘he/she accompanied’      | /u-a-sukil-il-ìl-e +H/    |
| (395) a. | w-àà-mù-sì-ìl-é    | ‘he/she ground him/her’   | /u-a-mu-si-ìl-e +H/       |
| b.       | w-àà-mù-zìis-ìl-é  | ‘he/she buried him/her’   | /u-a-mu-sukil-il-ìl-e +H/ |
| (396) a. | w-àà-yá-sí-ìl-é    | ‘he/she ground them’      | /u-a-yá-si-ìl-e +H/       |
| b.       | w-àà-yá-sùkìl-ìl-é | ‘he/she accompanied them’ | u-a-yá-sukil-il-ìl-e +H/  |
| (397) a. | w-àà-sí-íìl-é      | ‘he/she left’             | /u-a-sí-ìl-e +H/          |
| b.       | w-àà-lús-ìl-é      | ‘he/she vomited’          | /u-a-luk-ìl-e +H/         |
| c.       | w-àà-léés-ìl-é     | ‘he/she brought’          | /u-a-leet-ìl-e +H/        |
| (398) a. | w-àà-mù-sí-ìl-é    | ‘he/she ground him/her’   | /u-a-mu-sí-ìl-e +H/       |
| b.       | w-àà-mù-léés-ìl-é  | ‘he/she brought him/her’  | /u-a-mu-léet-ìl-e +H/     |
| (399) a. | w-àà-yá-lás-ìl-é   | ‘he/she hit them’         | /u-a-yá-lás-ìl-e +H/      |
| b.       | w-àà-yá-léés-ìl-é  | ‘he/she brought them’     | /u-a-yá-léet-ìl-e +H/     |

We can see above that the 3 sg. SM /u-/ is toneless, and does not contribute any H to the forms to which they attach. The tonology within the macrostems of these forms is identical to that found in the 3 pl. forms presented in (388)-(391). This contrasts with the 3 sg. forms in many of the TAMs presented in §5.2 where the H often delinked from the FV (288).

Let us now examine the negative of the Far Past. Forms with toneless roots are given below.

- (400) a. tù-tá-á-fùz-íl-é ‘we didn’t wash’ /tu-tá-a-ful-ìl-e +H/  
 b. à-tá-á-zìis-íl-é ‘he/she didn’t bury’ /a-tá-a-ziik-ìl-e +H/  
 c. tù-tá-á-mù-zìis-íl-é ‘we didn’t bury him/her’ /tu-tá-a-mu-ziik-ìl-e +H/  
 d. tù-tá-à-yá-zìis-íl-é ‘we didn’t bury them’ /tu-tá-a-yá-ziik-ìl-e +H/
- (401) a. tù-tá-à-sí-íl-é ‘we didn’t leave’ /tu-tá-a-sí-ìl-e +H/  
 b. tù-tá-à-lás-íl-é ‘we didn’t hit’ /tu-tá-a-lás-ìl-e +H/  
 c. à-tá-à-léés-íl-é ‘he/she didn’t bring’ /a-tá-a-léet-ìl-e +H/  
 d. tù-tá-á-mù-léés-íl-é ‘we didn’t bring him/her’ /tu-tá-a-mu-léet-ìl-e +H/  
 e. tù-tá-à-yá-léés-íl-é ‘we didn’t bring them’ /tu-tá-a-yá-léet-ìl-e +H/

Before the negative prefix /tá-/ , all SMs are toneless. The H on /tá-/ will undergo binary spreading unless first mora in the following (macrostem-initial) syllable is H-toned, in which case the rule of Pre-macrostem H Falling (392) applies.

Representative relatives in the Far Past are given below.

(402) Onsetless SM; Toneless root

- a. ú-w-áà-sì-íl-é ‘one who ground’ /ú-u-a-sì-ìl-e +H/  
 b. ú-w-áà-zìis-íl-é ‘one who buried’ /ú-u-a-ziik-ìl-e +H/  
 c. ú-w-áà-mù-zìis-íl-é ‘one who buried him/her’ /ú-u-a-mu-ziik-ìl-e +H/  
 d. í-y-áà-fùz-íl-w-é ‘the one (C9) which was washed’ /í-i-a-ful-ìl-u-e +H/

(403) Onsetless SM; H-toned root

- a. ú-w-áà-sí-íl-é ‘one who left’ /ú-u-a-sí-ìl-e +H/  
 b. ú-w-áà-léés-íl-é ‘one who brought’ /ú-u-a-léet-ìl-e +H/  
 c. ú-w-áà-mù-léet-ííl-é ‘one who brought for him/her’ /ú-u-a-mu-léet-ìl-e +H/

(404) Onsetful SM; Toneless root

- a. á-á-zìis-íl-é ‘ones who buried’ /á-bá-a-ziik-ìl-e +H/  
 b. í-vy-áà-mù-zìis-íl-é ‘ones (C8) who buried him/her’ /í-ví-a-mu-ziik-ìl-e +H/

(405) Onsetful SM; H-toned root

- a. á-á-mù-léet-ííl-é ‘ones who brought for him/her’ /á-bá-a-mu-léet-ìl-ìl-e +H/  
 b. í-vy-áà-léés-íl-é ‘ones (C8) who brought’ /á-bá-a-léet-ìl-e +H/

To account for these patterns I assume, as has been done for all relative forms, that where the SM bears a H tone (which is the case whenever it is onsetful), it will undergo Relative SM Delinking (122), after which the H on the relative prefix undergoes bounded spreading.<sup>38</sup>

Negative relatives are given below and conform to the tonal generalizations posited up to this point.

<sup>38</sup> See §10.4.6 for a discussion as to why the peninitial syllable in (404) and (405) is short.

(406) 3 sg/3 pl; Toneless root

a.	á-à-tá-á-sì-ìl-é	‘one(s) who didn’t grind’	/á-á-tá-a-sì-ìl-e +H/
b.	á-à-tá-á-fùz-ìl-é	‘one(s) who didn’t wash’	/á-á-tá-a-ful-ìl-e +H/
c.	á-à-tá-á-mù-fùz-ìl-é	‘one(s) who didn’t wash him/her’	/á-á-tá-a-mu-ful-ìl-e +H/
d.	á-à-tá-á-zìis-ìl-é	‘one(s) who didn’t bury’	/á-á-tá-ziik-ìl-e +H/
e.	á-à-tá-à-yá-fú <sup>1</sup> z-ìl-é	‘one(s) who didn’t wash them’	/á-á-tá-a-yá-ful-ìl-e +H/

(407) 3 sg/3 pl; H-toned root

a.	á-à-tá-à-sí-ìl-é	‘one(s) who didn’t leave’	/á-á-tá-sí-ìl-e +H/
b.	á-à-tá-à-lás-ìl-é	‘one(s) who didn’t hit’	/á-á-tá-lás-ìl-e +H/
c.	á-à-tá-à-léés-ìl-é	‘one(s) who didn’t bring’	/á-á-tá-léet-ìl-e +H/
d.	á-à-tá-à-yá-lás-ìl-é	‘one(s) who didn’t hit them’	/á-á-tá-yá-lás-ìl-e +H/

### 5.3.2 Far Past with ci-

In section 5.2 we saw that the Recent prefix /cí-/ could be added in certain TAMs to give the sense that the action had just recently happened. The same is true with the Far Past. The TAM prefix /cí-/ can be added to give the sense that the subject “had just” done the action. In section 5.2.4 we noted that the presence of /cí-/ usually affected the form tonally in a predictable way—although this was not always the case (e.g. in the 3 sg. forms). When /cí-/ is added to the Far Past affixes /a-/ and /-il-e/, it behaves completely predictably with regard to tone and therefore only a few representative forms are given below. Affirmative main clause forms with 1 pl. subjects are given in (408), while 3 sg. forms are given in (409).

(408) a.	tw-áà-cí-zíis-ìl-é	‘we had just buried’	/tú-a-cí-ziik-ìl-e +H/
b.	tw-áà-cí-léés-ìl-é	‘we had just brought’	/tú-a-cí-léet-ìl-e +H/
c.	tw-áà-cí-mú- <sup>1</sup> léét-íìl-é	‘we had just brought for him/her’	/tú-a-cí-mu-léet-il-ìl-e +H/
d.	tw-áà-cí-yá-léét-íìl-é	‘we had just brought for them’	/tú-a-cí-yá-léet-il-ìl-e +H/
(409) a.	w-àà-cí-fú <sup>1</sup> z-ìl-é	‘he/she had just washed’	/u-a-cí-ful-ìl-e +H/
b.	w-àà-cí-zìis-ìl-é	‘he/she had just buried’	/u-a-cí-ziik-ìl-e +H/
c.	w-àà-cí-léés-ìl-é	‘he/she had just brought’	/u-a-cí-léet-ìl-e +H/

Negative forms are given below.<sup>39</sup>

(410) a.	tù-tá-à-cí-zìis-ìl-é	‘we no longer bury’	/tu-tá-a-cí-ziik-ìl-e +H/
b.	tù-tá-à-cí-léés-ìl-é	‘we no longer bring’	/tu-tá-a-cí-léet-ìl-e +H/

3 sg. relatives, 3 pl. relatives, and negative relatives are given below.

<sup>39</sup> The translation of these negatives is certainly not semantically simply the negation of the affirmative forms in (408)-(409). The meaning of a form such as the one in (410a) *tù-tá-à-cí-zìis-ìl-é* can mean ‘we no longer bury,’ ‘these days we don’t bury,’ ‘of late, we don’t bury.’

- |       |    |                       |                                   |                            |
|-------|----|-----------------------|-----------------------------------|----------------------------|
| (411) | a. | ú-w-áà-cí-zìis-íl-é   | ‘one who had just buried’         | /ú-u-a-cí-ziik-ìl-e +H/    |
|       | b. | ú-w-áà-cí-léés-íl-é   | ‘one who had just brought’        | /ú-u-a-cí-léet-ìl-e +H/    |
| (412) | a. | á-áà-cí-zìis-íl-é     | ‘ones who had just buried’        | /á-bá-a-cí-ziik-ìl-e +H/   |
|       | b. | á-áà-cí-léés-íl-é     | ‘ones who had just brought’       | /á-bá-a-cí-léet-ìl-e +H/   |
| (413) | a. | á-à-tá-à-cí-zìis-íl-é | ‘one(s) who no longer bury’       | /á-á-tá-a-yá-ziik-ìl-e +H/ |
|       | b. | á-à-tá-à-yá-léés-íl-é | ‘one(s) who no longer bring them’ | /á-á-tá-yá-léet-ìl-e +H/   |

### 5.3.3 Far Past Progressive

When the progressive suffix /-ang/ (cf. §5.2.3, §5.2.5) and FV /-a/ are used in conjunction with the Far Past prefix /a-/, the Far Past Progressive is expressed. Its morphological structure is given below.

#### (414) Morphological structure of Far Past Progressive

SM – a - (OM) – VR – (EXT) – ang - a

Examples of forms with toneless roots are given in (415) while those with H-toned roots are given in (416).

- |       |    |                      |                            |                         |
|-------|----|----------------------|----------------------------|-------------------------|
| (415) | a. | tw-áá-zìik-ááng-á    | ‘we were burying’          | /tú-a-ziik-ang-a +H/    |
|       | b. | tw-áá-mù-zìik-ááng-á | ‘we were burying him/her’  | /tú-a-mu-ziik-ang-a +H/ |
|       | c. | tw-áà-yá-zìik-ááng-á | ‘we were burying them’     | /tú-a-yá-ziik-ang-a +H/ |
|       | d. | w-àà-zìik-ááng-á     | ‘he/she was burying’       | /u-a-ziik-anga-a +H/    |
| (416) | a. | tw-áà-léét-ááng-á    | ‘we were bringing’         | /tú-a-léet-ang-a +H/    |
|       | b. | tw-áá-mù-léét-ááng-á | ‘we were bringing him/her’ | /tú-a-mu-léet-ang-a +H/ |
|       | c. | tw-áà-yá-léét-ááng-á | ‘we were bringing them’    | /tú-a-yá-léet-ang-a +H/ |
|       | d. | w-àà-léét-ááng-á     | ‘he/she was bringing’      | /u-a-léet-ang-a +H/     |

The tonology of these forms exactly parallels that of their Far Past (§5.3.1) counterparts and so will not be elaborated on here.

Representative examples of the negative and relative forms of this TAM, which also behave tonally exactly like their Far Past counterparts, are given in (417) and (418).

- |       |    |                       |                                       |                           |
|-------|----|-----------------------|---------------------------------------|---------------------------|
| (417) | a. | tù-tá-á-zìik-ááng-á   | ‘we were not burying’                 | /tu-tá-a-ziik-ang-a +H/   |
|       | b. | à-tá-á-mù-zìik-ááng-á | ‘he/she were not burying for him/her’ | /a-tá-a-mu-ziik-ang-a +H/ |
|       | c. | tù-tá-à-léét-ááng-á   | ‘we were not bringing’                | /tu-tá-a-léet-ang-a +H/   |
|       | d. | à-tá-à-yá-léét-ááng-á | ‘he/she were not bringing them’       | /a-tá-a-yá-léet-ang-a +H/ |
| (418) | a. | ú-w-áà-zìik-ááng-á    | ‘one who was burying’                 | /ú-u-a-ziik-ang-a +H/     |
|       | b. | ú-w-áà-léét-ááng-á    | ‘one who was bringing’                | /ú-u-a-léet-ang-a +H/     |
|       | c. | í-vy-áà-zìik-ááng-á   | ‘ones (C8) who were burying’          | /í-ví-a-ziik-ang-a +H/    |
|       | d. | á-áà-léét-ááng-á      | ‘ones who were bringing’              | /á-bá-a-léet-ang-a +H/    |
|       | e. | á-à-tá-á-zìik-ááng-á  | ‘one(s) who were burying’             | /á-á-tá-a-ziik-ang-a +H/  |
|       | f. | á-à-tá-à-léét-ááng-á  | ‘one(s) who were bringing’            | /á-á-tá-a-léet-ang-a +H/  |

### 5.3.4 Remote Future

The Remote Future refers to actions which are not imminent but which will take place further in the future. (For imminent actions, the Immediate Future (§5.1.6) is used.) It's morphological structure is given below.

(419) Morphological structure of Remote Future:

SM – la - (OM) – VR – (EXT) – a

Examples of Remote Future forms with toneless roots are given in (420)-(422), while those with H-toned roots are shown in (423)-(425).

- |          |   |                                |                         |
|----------|---|--------------------------------|-------------------------|
| (420) a. | tú-lá-sì-íl-á                                 | ‘we will grind for’            | /tú-la-si-il-a +H/      |
| b.       | tú-lá-fùl-á                                   | ‘we will wash’                 | /tú-la-ful-a +H/        |
| c.       | tú-lá-zìik-á                                  | ‘we will bury’                 | /tú-la-ziik-a +H/       |
| d.       | tú-lá-zìik-íl-á                               | ‘we will bury for’             | /tú-la-ziik-il-a +H/    |
| e.       | à-là-sh-á                                     | ‘he/she will grind’            | /a-la-si-a +H/          |
| f.       | à-là-zìik-á                                   | ‘he/she will bury’             | /a-la-ziik-a _H/        |
| g.       | à-là-sùkíl-íl-á                               | ‘he/she will accompany’        | /a-la-sukil-il-a +H/    |
| g.       | à-là-sùkíl-íl-w-á                             | ‘he/she will be accompanied’   | /a-la-sukil-il-u-a +H/  |
| (421) a. | tú-lá-mù-fùl-íl-á                             | ‘we will wash for him/her’     | /tú-la-mu-ful-il-a +H/  |
| b.       | tú-lá-mù-zìik-á                               | ‘we will bury him/her’         | /tú-la-mu-ziik-a +H/    |
| c.       | à-là-mù-zìik-íl-á                             | ‘he/she will bury for him/her’ | /a-la-mu-ziik-il-a +H/  |
| (422) a. | tú-lá- <sup>1</sup> yá-fùl- <sup>1</sup> íl-á | ‘we will wash for them’        | /tú-la-yá-ful-il-a +H/  |
| b.       | tú-lá- <sup>1</sup> yá-zì <sup>1</sup> ik-á   | ‘we will bury them’            | /tú-la-yá-ziik-a +H/    |
| c.       | à-là-yá-zìik-íl-á                             | ‘he/she will bury for them’    | /a-la-yá-ziik-il-a +H/  |
| (423) a. | tú-lá- <sup>1</sup> sí-íl-á                   | ‘we will leave for’            | /tú-la-sí-il-a +H/      |
| b.       | tú-lá- <sup>1</sup> lás-á                     | ‘we will hit’                  | /tú-la-lás-a +H/        |
| c.       | tú-lá- <sup>1</sup> léét-á                    | ‘we will bring’                | /tú-la-léet-a +H/       |
| d.       | à-là-léét-él-á                                | ‘he/she will bring for’        | /a-la-léet-il-a +H/     |
| e.       | à-l-ìimb-á                                    | ‘he/she will sing’             | /a-la-imb-a +H/         |
| (424) a. | tú-lá-mù-lás-íl-á                             | ‘we will hit for him/her’      | /tú-la-mu-lás-il-a +H/  |
| b.       | tú-lá-mù-léét-él-á                            | ‘we will bring for him/her’    | /tú-la-mu-léet-il-a +H/ |
| c.       | à-là-mù-swéél-él-á                            | ‘he/she will fish for him/her’ | /a-la-mu-súel-il-a +H/  |
| (425) a. | tú-lá- <sup>1</sup> yá-lás-íl-á               | ‘we will hit for them’         | /tú-la-yá-lás-il-a +H/  |
| b.       | à-là-yá-léét-él-á                             | ‘he/she will bring for them’   | /a-la-yá-léet-il-a +H/  |

First, as has been the case in most TAMs, onsetless SMs such as the 3 sg. are toneless while others (such as the 1 pl. used above) are H-toned. This H will spread to the following toneless TAM prefix /ku-/ regardless of whether it causes an OCP violation or not. The Melodic High docks in the usual way—it is realized on the second and subsequent TBUs of the stem, after which any Rise on a stem-initial syllable in pre-penult position

is simplified to toneless. As has been already noted, any H or H's which immediately precede this MH will fuse with it.

Let us briefly consider the case where the root is vowel-initial and toneless. Examples are given below.

- (426) a. à-l-iik-á 'he/she will go down' /a-la-ik-a +H/  
 b. tú-l-iik-á 'we will go down' /tú-la-ik-a +H/

What these examples show is the left-edge docking site for the Melodic High is calculated with respect to the left stem edge on the moraic tier and is not simply based on the prosodic shape of the output. For instance, while we get à-là-zìik-á 'he/she will bury', it is not the case that the MH is simply linked to the second mora of a long penult in all cases. Were this the case we would expect \*à-l-iik-á 'he/she will go down' and \*tú-l-i'ik-á 'we will go down', but instead the penult is a level Low in the former and a Fall from H to downstepped H in the latter. This is predicted if the MH is realized on the second and subsequent TBUs of the stem, where the left edge of the stem on the moraic tier is the mora linked to the vowel in /ik/ 'go down'. The second stem TBU in this case, is then the FV and that is the only vowel to which the MH is linked.

Representative forms of the negative of this TAM are given below.

- (427) a. tù-tá-lá-zìik-íl-á 'we will not bury for' /tu-tá-la-ziik-il-a +H/  
 b. à-tá-lá-zìik-íl-á 'he/she will not bury for' /a-tá-la-ziik-il-a +H/  
 c. tù-tá-lá-léét-él-á 'we will not bring for' /tu-tá-la-léet-il-a +H/  
 d. à-tá-lá-léét-él-á 'he/she will not bring for' /a-tá-la-léet-il-a +H/

As we have seen a number of times before, the SM surfaces as Low before the H-toned negative /tá-/. The tonology parallels that of the affirmative forms and thus merits not further discussion.

Relative forms are presented below.

- (428) a. í-ví-là-fùl-á 'those (C8) which will wash' /í-ví-la-ful-a +H/  
 b. í-ví-là-pón-á 'those (c-8) which will fall' /í-ví-la-pón-a +H/
- (429) a. á-à-là-zìik-íl-á 'one(s) who will bury for' /á-a-la-ziik-il-a +H/  
 b. á-à-là-léét-él-á 'one(s) who will bring for' /á-a-la-léet-il-a +H/  
 c. í-i-là-fùl-w-á 'that (C9) which will be washed' /í-i-la-ful-u-a +H/
- (430) a. á-à-tá-lá-zìik-íl-á 'one(s) who will not bury for' /á-a-tá-la-ziik-il-a +H/  
 b. á-à-tá-lá-léét-él-á 'one(s) who will not bring for' /á-a-tá-la-léet-il-a +H/

The forms in (428) surface as expected. Relative SM Delinking (122) will apply, followed by the general doubling of the H on the relative prefix. We have assumed up to this point that the 3 pl. is set up as /á-/ (identical to the 3 sg.) before a C-initial morpheme. If, however, we set up the 3 pl. as /á-/ in (429), we incorrectly derive \*á-à-là-zìik-íl-á for (429a), which is the result of the H on the SM /á-/ undergoing bounded spreading and then undergoing Onsetless SM Delinking —something we saw in the Present Progressive relatives, two of which are repeated below.

- (431) a. á-à-kú-fùl-à 'the one who is washing' /á-á-ku-ful-a/  
 b. á-à-kú-mú-zíik-à 'the one who is burying him/her' /á-á-ku-mu-ziik-a/



A significant difference between the Present Progressive and the Remote Future is that while there is good evidence to set up the 3 sg. SM as a H-toned /á-/ in the former, there is no evidence of a H on this SM in the latter. I assume this difference can and should be reflected in the UR of the relative forms. Still, assuming a UR for (429a) such as /á-a-la-ziik-il-a +H/, the tonal rules incorrectly predict the surface outcome \*á-á-lá-zìik-il-á. What actually occurs is that the H on the relative prefix does not spread at all. While it is not entirely clear to me how to best account for this, it seems possible to generalize that a H on a relative prefix simply never spreads onto a following tautosyllabic mora. (That it will spread to a heterosyllabic mora is clear from many forms, including those in (428).)

### 5.3.5 Remote Perfect

The Remote Perfect describes the fact that a certain action has already taken place and the time frame is generally at least a few days back. The morphological structure of this TAM is given below.

(432) Morphological structure of Remote Perfective:

SM – a - (OM) – VR – (EXT) - a

Representative forms with toneless roots and H-toned roots are given in (433)-(435) and (436)-(438) respectively.

- |          |                                  |                                       |                         |
|----------|----------------------------------|---------------------------------------|-------------------------|
| (433) a. | tw-áá-sh-àá                      | ‘we have already ground’              | /tú-a-si-a +H/          |
| b.       | tw-áá-si-íl-á                    | ‘we have already ground for’          | /tú-a-si-il-a +H/       |
| c.       | tw-áá-fùl-á                      | ‘we have already washed’              | /tú-a-ful-a +H/         |
| d.       | tw-áá-zìik-á                     | ‘we have already buried’              | /tú-a-ziik-a +H/        |
| e.       | tw-áá-sùkíl-íl-á                 | ‘we have already accompanied’         | /tú-a-sukil-il-a +H/    |
| f.       | w-àà-zìik-á                      | ‘he/she has already buried’           | /u-a-ziik-a +H/         |
| (434) a. | tw-áá-mù-fùl-íl-á                | ‘we have already washed for him/her’  | /tú-a-mu-ful-il-a +H/   |
| b.       | tw-áá-mù-zìik-á                  | ‘we have already buried him/her’      | /tú-a-mu-ziik-a +H/     |
| c.       | w-àà-mù-fùl-á                    | ‘he/she has already washed him/her’   | /u-a-mu-ful-a +H/       |
| (435) a. | tw-àà-yá-zì <sup>l</sup> ík-á    | ‘we have already buried them’         | /tú-a-yá-ziik-a +H/     |
| b.       | tw-àà-yá-zìik-íl-á               | ‘we have already buried for them’     | /tú-a-yá-ziik-il-a +H/  |
| c.       | tw-àà-yá-sù <sup>l</sup> kílíl-á | ‘we have already accompanied them’    | /tú-a-yá-sukil-il-a +H/ |
| d.       | w-àà-yá-fùl- <sup>l</sup> íl-á   | ‘he/she has already washed for them’  | /u-a-yá-ful-il-a +H/    |
| (436) a. | tw-àà-sh-á                       | ‘we have already left’                | /tú-a-sí-a +H/          |
| b.       | tw-àà-sí-íl-á                    | ‘we have already left for’            | /tú-a-sí-il-a +H/       |
| c.       | tw-àà-léét-á                     | ‘we have already brought’             | /tú-a-léet-a +H/        |
| d.       | tw-àà-sópólól-á                  | ‘we have already untied’              | /tú-a-sópolol-a +H/     |
| e.       | w-àà-léét-á                      | ‘he/she has already brought’          | /u-a-léet-a +H/         |
| (437) a. | tw-áá-mù-léét-él-á               | ‘we have already brought for him/her’ | /tú-a-mu-léet-el-a +H/  |
| b.       | w-àà-mù-lás-íl-á                 | ‘he/she has already hit for him/her’  | /u-a-mu-lás-il-a +H/    |

- (438) a. tw-àà-yá-lás-íl-á 'we have already hit for them' /tú-a-yá-lás-il-a +H/  
 b. w-àà-yá-lás-íl-á 'he/she has already hit for them' /u-a-yá-lás-il-a +H/

In general, these forms are unremarkable in their tonal behavior. The H on the 1 pl. SM will spread to the tautosyllabic mora, but this will be undone by Pre-macrostem H Falling (392) before a following H to avoid a long level H followed by a downstep. The melodic H fuses with any immediately preceding H tones. The 3 sg. selects /u-/ as the SM since a vowel follows.

Examples of the negative of this TAM are given below.

- (439) a. tù-tá-á-ziik-íl-á 'we haven't buried for' /tu-tá-a-ziik-il-a +H/  
 b. tù-tá-à-yá-ziik-íl-á 'we haven't buried for them' /tu-tá-a-yá-ziik-il-a +H/  
 c. à-tá-á-mú-ziik-á 'he/she hasn't buried him/her' /a-tá-a-mu-ziik-a +H/
- (440) a. tù-tá-à-léet-á 'we haven't brought' /tu-tá-a-léet-a +H/  
 b. tù-tá-á-mù-léet-él-á 'we haven't brought for him/her' /tu-tá-a-mu-léet-el-a +H/  
 c. à-tá-à-yá-léet-á 'he/she hasn't brought them' /a-tá-a-yá-léet-a +H/

As we have seen previously, all SMs are toneless before the negative /tá-/. The H on this negative prefix undergoes bounded spreading unless the macrostem begins with a H-toned TBU in which case the effects of General Doubling are undone by the rule of Pre-Macrostem H Falling (392).

Let us now turn to the relatives. Those with 3 sg. SMs are given in (441), and those with 3 pl. SMs are given in (442).

- (441) a. ú-w-àà-fùl-á 'one who has already washed' /ú-u-a-ful-a +H/  
 b. ú-w-àà-ziik-á 'one who has already buried' /ú-u-a-ziik-a +H/  
 c. ú-w-àà-lém-á 'one who has already planted' /ú-u-a-lém-a +H/  
 d. ú-w-àà-léet-á 'one who has already brought' /ú-u-a-léet-a +H/
- (442) a. á-àà-ziik-á 'ones who have already buried' /á-bá-a-ziik-a +H/  
 b. á-àà-mù-fùl-á 'ones who have already washed him/her' /á-bá-a-mu-ful-a +H/  
 c. í-vy-àà-lèm-á 'ones (C8) who have already grabbed' /í-ví-a-lem-a +H/  
 d. á-àà-páápáátík-á 'ones who have already flattened' /á-bá-a-páapaatik-a +H/  
 e. á-àà-yá-léet-á 'ones who have already brought them' /á-bá-a-yá-léet-a +H/  
 f. í-vy-àà-lém-á 'ones (C8) who have already planted' /í-ví-a-lém-a +H/

The tone patterns of these forms are as predicted. The H on the word-initial relative prefix will undergo bounded spreading. I note here that forms such as the one in (442b) surface homophonously to their Recent Perfect counterparts due to the rule of Fall Simplification (306). This is shown below.

(443)	a-ba-a-mu-ful-a           H   H   H	a-ba-a-mu-ful-a       H   H	U.R.
	a-ba-a-mu-ful-a   /   /   H   H   H	a-ba-a-mu-ful-a   /   H   H	General Doubling
	a-ba-a-mu-ful-a   /   H   H	a-ba-a-mu-ful-a   /   H   H	Fall Simplification
	á-áà-mù-fùl-á 'those who have just washed him/her'	á-áà-mù-fùl-á 'those who have already washed him/her'	

Negative relatives are given below.

- (444) a. á-à-tá-á-lèm-á 'one(s) who have not/never grabbed' /á-á-tá-a-lem-a +H/  
b. á-à-tá-á-mú-ziik-il-á 'one(s) who have not/never buried him/her' /á-á-tá-a-mu-ziik-il-a +H/  
c. á-à-tá-á-sùkíl-il-á 'one(s) who have not/never accompanied' /á-á-tá-a-sukil-il-a +H/  
d. á-à-tá-á-lòndólól-á 'one(s) who have not/never explained' /á-á-tá-a-londolol-a +H/
- (445) a. á-à-tá-à-lém-á 'one(s) who have not/never planted' /á-á-tá-a-lém-a +H/  
b. á-à-tá-à-swéél-á 'one(s) who have not/never fished' /á-á-tá-a-súel-a +H/  
c. á-à-tá-á-mú-<sup>1</sup>lém-á 'one(s) who have not/never planted him/her' /á-á-tá-a-mu-lém-a +H/  
d. á-à-tá-à-yá-lém-á 'one(s) who have not/never planted them' /á-á-tá-a-yá-lém-a +H/

These all surface as predicted. Both the 3 sg. and 3 pl. relative prefixes are underlyingly /a-/. The initial H will not spread as it is blocked by the OCP. The H on the negative prefix undergoes binary spreading unless that would cause an OCP violation.

### 5.3.6 Negative of Persistent and Temporary Habitual

We noted above in section 5.1 that the negative of the Persistent (§5.1.10) and the negative of the Contrastive Habitual (§5.1.3) exhibited some tonal rules to be discussed in a later section. Representative examples of negative main clause forms are given in (446)-(447) and negative relatives in (448).<sup>40</sup>

- (446) a. tù-tá-à-cí-fù<sup>1</sup>l-á 'we no longer wash' /tu-tá-a-cí-ful-a +H/  
b. tù-tá-à-cí-mú-ziik-á 'we no longer bury him/her' /tu-tá-a-cí-mu-ziik-a +H/  
c. tù-tá-à-cí-yá-sù<sup>1</sup>kíl-il-á 'we no longer accompany them' /tu-tá-a-cí-yá-sukil-il-a +H/

<sup>40</sup> The meaning of these is very close if not nearly identical to the analogous forms in the Far Past with ci- (§5.3.2)

- (447) a. *tù-tá-à-cí-lúm-á* ‘we no longer bite’ /*tu-tá-a-cí-lúm-a +H/*  
 b. *tù-tá-à-cí-mú-<sup>1</sup>léét-á* ‘we no longer bring him/her’ /*tu-tá-a-cí-mu-léet-a +H/*  
 c. *tù-tá-à-cí-yá-léét-él-á* ‘we no longer bring for them’ /*tu-tá-a-ci-yá-léet-il-a +H/*
- (448) a. *á-à-tá-à-cí-swé<sup>1</sup>él-á* ‘those who no longer brew’ /*á-a-tá-a-cí-suel-a +H/*  
 b. *á-à-tá-à-cí-swéél-á* ‘those who no longer fish’ /*á-a-tá-a-cí-súel-a +H/*

The tonology of all these forms surfaces as expected, being the result of the tone rules posited above.

### 5.3.7 Perfect

The Perfect is used to express that an action has taken place.<sup>41</sup> Its morphological structure is given in below.

- (449) Morphological structure of Perfect:

SM – (OM) –  $\emptyset$  - VR – (EXT) – il-e

Representative examples of non-3 sg. forms with toneless roots are given in (450) and H-toned roots in (451).

- (450) Toneless Root

- a. *tú-sí-<sup>1</sup>íl-é* ‘we have ground’ /*tú-si-il-e +H/*  
 b. *tú-fúz-<sup>1</sup>íl-é* ‘we have washed’ /*tú-ful-il-e +H/*  
 c. *tú-zíis-íl-é* ‘we have buried’ /*tú-ziik-il-e +H/*  
 d. *tú-mú-zíis-íl-é* ‘we have buried him/her’ /*tú-mu-ziik-il-e +H/*  
 e. *tú-yá-fúz-<sup>1</sup>íl-é sáaná* ‘we have washed them a lot’ /*tú-yá-ful-il-e +H sáaná/*

- (451) H-toned Root

- a. *tú-sí-íl-é* ‘we have left’ /*tú-sí-il-e +H/*  
 b. *tú-lás-íl-é* ‘we have hit’ /*tú-lás-il-e +H/*  
 c. *tú-léés-í-íl-é Chóólà* ‘we have brought for Chola’ /*tú-léet-il-il-e +H Choola/*  
 d. *tú-mú-<sup>1</sup>lás-íl-é* ‘we have hit him/her’ /*tú-mu-lás-il-e +H/*  
 e. *tú-yá-léés-íl-é* ‘we have brought them’ /*tú-yá-léet-il-e +H/*

These are the first forms we have seen with no overt TAM prefix. As seen in (451a-c) a High on a SM will fuse with a following root H. If the High on the SM is followed by a toneless mora then it will undergo binary spreading. The Melodic High docks onto the second and subsequent TBUs as we have seen in the previous TAMs in this section.

Let us now turn to the 3 sg. forms.

<sup>41</sup> In certain cases Cilungu uses this TAM where the translation in English would be in the present. E.g. *tú-mány-<sup>1</sup>íl-é* ‘we know’

- |       |    |                                 |                                |                        |
|-------|----|---------------------------------|--------------------------------|------------------------|
| (452) | a. | à-sì-ìl-è                       | ‘he/she has ground’            | /a-si-ìl-e +H/         |
|       | b. | à-fùz-ìl-è                      | ‘he/she has washed             | /a-ful-ìl-e +H/        |
|       | c. | à-fùz-ìl-w-è                    | ‘he/she has been washed’       | /a-ful-ìl-u-e +H/      |
|       | d. | à-sùkìl-ì-ìl-è                  | ‘he/she has accompanied’       | /a-sukil-il-ìl-e H/    |
|       | e. | à-mù-zìis-ìl-è                  | ‘he/she has buried him/her’    | /a-mu-ziik-ìl-e +H/    |
|       | f. | à-zìis-ìl-é <sup>1</sup> sàaná  | ‘he/she has buried a lot’      | /a-ziik-ìl-e +H sàaná/ |
|       | g. | à-fùz-ìl-é nìingó               | ‘he/she has washed well’       | /a-ful-ìl-e +H ningó/  |
|       | h. | à-fùz-ìl-w-é <sup>1</sup> sàaná | ‘he/she has been washed a lot’ | /a-ful-ìl-e +H sàaná/  |
- 
- |       |    |                                   |                                    |                           |
|-------|----|-----------------------------------|------------------------------------|---------------------------|
| (453) | a. | à-sí-ìl-è                         | ‘he/she has left’                  | /a-sí-ìl-e +H/            |
|       | b. | à-lás-ìl-è                        | ‘he/she has hit’                   | /a-lás-ìl-e +H/           |
|       | c. | à-léés-ìl-è                       | ‘he/she has brought’               | /a-léet-ìl-e +H/          |
|       | d. | à-páápáát-íik-è                   | ‘he/she has flattened’             | /a-páapaatik-ìl-e +H/     |
|       | e. | à-yá-lás-ìl-è                     | ‘he/she has hit them’              | /a-yá-lás-ìl-e +H/        |
|       | f. | à-mù-páápáát-íik-è                | ‘he/she has flattened him/her’     | /a-mu-páapaatik-ìl-e +H/  |
|       | g. | à-mù-léés-ìl-é <sup>1</sup> sàaná | ‘he/she has brought him/her a lot’ | /a-mu-léet-ìl-e +H sàaná/ |

In previous TAMs we have seen that the 3 sg. SM is /u-/ before a V-initial TAM (/a-/) and /a-/ before a C-initial TAM. But, as noted above, the Perfect is the first TAM we have examined where the TAM prefix is null. The 3 sg. turns out to be consistently realized as toneless /a-/ in the Perfective.<sup>42</sup>

The tonology of the 3sg. forms is unexpected. Whereas there is evidence of a Melodic High, which we expect, that Melodic High does not dock onto all TBUs in the stem except the first one, which was the case in the non-3 sg. forms ((450) & (451)). Instead, the Melodic High is realized on the second and subsequent TBUs of the stem up to the penult when the verb is phrase-final ((452a-e), (453a-f)), and to the FV if the form is not phrase-final ((452f-h), (453g)). It should be noted that the behavior of the MH in these 3 sg. forms is identical to the one exhibited by 3 sg. forms in the Recent Past (cf. §5.2.4) and the analysis proposed here should be extended to those forms as well.

How, then, can one formally account for the difference between the 3 sg. and non-3 sg. forms? I would like to propose that the MH docks onto the FV in these 3 sg. forms just as it does in the non-3-sg. ones, and then spreads to V2. Subsequent to that leftward spreading a rule applies which will delink the H from the FV. It should be remembered here that we have already motivated a “FV Delinking” rule (288), but this was formalized to apply on in TAMs with a 3 sg. SM and the /á-/ TAM prefix. We will therefore need a separate rule to delink the H from the FV in the forms in (452)-(453), as well as the 3 sg. forms in the Recent Past (§5.2.4). But before formalizing this rule, let us first consider the negative Perfect forms.

It should be noted that forms presented below are used for both the negative of the Perfect as well as the negative of the Recent Perfect (a TAM where the MH was realized on the FV only, described in §5.2.6). We begin with forms with toneless roots.

- |       |    |                                 |                            |                          |
|-------|----|---------------------------------|----------------------------|--------------------------|
| (454) | a. | tù-tá-sí- <sup>1</sup> ìl-è     | ‘we haven’t ground’        | /tu-tá-si-ìl-e +H/       |
|       | b. | tù-tá-lús- <sup>1</sup> ìl-è    | ‘we haven’t woven’         | /tu-tá-luk-ìl-e +H/      |
|       | c. | yà-tá-lúk- <sup>1</sup> íil-è   | ‘they haven’t woven for’   | /tu-tá-luk-il-ìl-e +H/   |
|       | d. | à-tá-zìis-ìl-è                  | ‘he/she hasn’t buried’     | /tu-tá-ziik-ìl-e +H/     |
|       | e. | yà-tá-sú <sup>1</sup> kìl-íil-è | ‘they haven’t accompanied’ | /tu-tá-sukil-il-ìl-e +H/ |

<sup>42</sup> This is also true when the stem begins with a vowel, but since such forms introduce additional tonal and prosodic rules which would take us far afield here, I deal with them in a separate section (10.7.2).

- (455) a. tò-tá-mú-lùk-íìl-è 'we haven't woven for him/her' /tu-tá-mu-luk-il-ìl-e +H/  
 b. tò-tá-mú-ziis-ìl-è 'we haven't buried him/her' /tu-tá-mu-ziik-ìl-e +H/  
 c. tò-tá-mú-sùkíl-íìl-è 'we haven't accompanied' /tu-tá-mu-sukil-il-ìl-e +H/
- (456) a. tò-tá-yá-ziis-ìl-è 'we haven't buried them' /tu-tá-yá-ziik-ìl-e +H/  
 b. tò-tá-yá-sùkíl-íìl-è 'we haven't accompanied them' /tu-tá-yá-sukil-il-ìl-e +H/

As can be seen, the tone patterns exhibited by these forms are exactly the same as those exhibited by the affirmative 3 sg. ones in (452)-(453), as the MH is realized on V2-penult. This was also true of the negative Recent Past forms with toneless roots presented in §5.2.4.

Let us now turn to negative Perfect forms which contain H-toned roots.

- (457) a. tò-tá-lús-í'ìl-é 'we haven't vomited' /tu-tá-lúk-ìl-é/  
 b. tò-tá-léés-ìl-é 'we haven't brought' /tu-tá-léet-ìl-é/  
 c. à-tá-páápáat-iik-é 'he/she hasn't flattened' /a-tá-páapaatik-ìl-é/
- (458) a. tò-tá-mú-'lúk-ìl-é 'we haven't vomited on him/her' /tu-tá-mu-lúk-il-ìl-é/  
 b. tò-tá-mú-'léés-ìl-é 'we haven't brought him/her' /tu-tá-mu-léet-ìl-é/  
 c. tò-tá-mú-'páápáat-iik-é 'we haven't flattened him/her' /tu-tá-mu-páapaatik-ìl-é/
- (459) a. tò-tá-yá-léés-ìl-é 'we haven't brought them' /tu-tá-yá-léet-ìl-é/  
 b. tò-tá-yá-páápáat-iik-é 'we haven't flattened them' /tu-tá-yá-páapaatik-ìl-é/

As can be seen when the negative contains a H-toned root (and not simply an H in the macrostem (cf. (456)), the FV is H-toned, rather than the form taking the MH which docks onto the second and subsequent TBUs of the stem. This was also true of the negative Recent Past forms with H-toned roots presented in §5.2.4.

To sum up, then, the Perfect is an interesting TAM tonally in that it takes: 1) the V2-FV pattern in the affirmative non-3sg. forms ((450)-(451)), 2) the V2-penult pattern in the 3 sg. affirmative (452), (453)) as well as in negative forms with toneless roots ((454)-(456), and 3) the FV pattern in negative forms with H-toned roots ((457)-(459)).

To account for the delinking of the H on the FV in certain morphologically conditioned cases (so that the V2-Penult pattern is generated instead of the V2-FV one), I propose the rule below.

#### (460) TAM-specific FV Delinking

$\mu_w]$   
 +  
 H

(morphologically conditioning: only applies in Recent Past and Perfect in 1) affirmative forms with 3 sg. SM, and 2) negative forms with a toneless root.)

This rule will apply after MH docking and leftward spreading. It must apply before General Doubling, however, as the H (whose right edge is on the penult after (460) must spread to the FV when another word follows in the phrase (452f-h)-(453h).<sup>43</sup>

I note here that the Recent prefix /cí-/ can be added to the above negatives to add the sense that the action ‘has just’ happened (cf. §5.2.7 and §5.3.2 where /cí-/ has the same semantic effect). A few representative examples are given below.

- |       |    |                                    |  |   |
|-------|----|------------------------------------|--|---|
| (461) | a. | tù-tá-cí-lím- <sup>1</sup> íl-è    | ‘we haven’t just farmed’               | /tu-tá-cí-lim- <u>ìl</u> -é/                |
|       | b. | tù-tá-cí-mú-fùz-íl-è               | ‘we haven’t just washed him/her’       | /tu-tá-cí-mu-ful- <u>ìl</u> -é/             |
|       | c. | tù-tá-cí-sú <sup>1</sup> kíl-ííl-è | ‘we haven’t just accompanied’          | /tu-tá-cí-sukil- <u>il</u> - <u>ìl</u> -é/  |
| (462) | a. | tù-tá-cí-léés-í <sup>1</sup> l-é   | ‘we haven’t just brought’              | /tu-tá-cí-léet- <u>ìl</u> -é/               |
|       | b. | tù-tá-cí-sópólw-ìil-é              | ‘we haven’t just untied’               | /tu-tá-cí-sopolol- <u>ìl</u> -é/            |
|       | c. | à-tá-cí-yá-léet-ìl-lé              | ‘he/she has not just brought for them’ | /a-tá-cí-yá-léet- <u>il</u> - <u>ìl</u> -é/ |

Consistent with the negatives without /cí-/ , the MH docks onto V2-penult if the root is toneless and to the FV only if the root is H-toned.

Let us now turn to the relatives.

- |       |    |                               |                                       |   |
|-------|----|-------------------------------|---------------------------------------|---|
| (463) | a. | í-ví-zìis-íl-é                | ‘those (C8) who have buried’          | /í-ví-ziik- <u>ìl</u> -e +H/                      |
|       | b. | í-ví- <sup>1</sup> léés-íl-é  | ‘those (C8) who have brought’         | /í-ví-léet- <u>ìl</u> -e +H/                      |
|       | c. | í-ví-mù-léés-íl-é             | ‘those (C8) who have brought him/her’ | /í-ví-mu-léet- <u>ìl</u> -e +H/                   |
| (464) | a. | á-á-fùz-íl-é                  | ‘those who have washed’               | /á-bá-ful- <u>ìl</u> -e +H/                       |
|       | b. | á-á-zìis-íl-é                 | ‘those who have buried’               | /á-bá-ziik- <u>ìl</u> -e +H/                      |
|       | c. | á-á-mù-léés-íl-é              | ‘those who have brought him/her’      | /á-bá-mu-léet- <u>ìl</u> -e +H/                   |
|       | d. | á-á- <sup>1</sup> léés-íl-é   | ‘those who have brought’              | /á-bá-léet- <u>ìl</u> -e +H/                      |
|       | e. | á-á- <sup>1</sup> lás-íl-é    | ‘those who have hit’                  | /á-bá-lás- <u>ìl</u> -e +H/                       |
|       | f. | á-á- <sup>1</sup> kúz-ííz-y-é | ‘those who have raised’               | /á-bá-kúl- <u>ì</u> - <u>ìl</u> - <u>ì</u> -e +H/ |
| (465) | a. | á-à-fùz-íl-è                  | ‘the one who has washed’              | /á-a-ful- <u>ìl</u> -e +H/                        |
|       | b. | á-à-zìis-íl-è                 | ‘the one who has buried’              | /á-a-ziik- <u>ìl</u> -e +H/                       |
|       | c. | á-à-mù-léés-íl-è              | ‘the one who has brought him/her’     | /á-a-mu-léet- <u>ìl</u> -e +H/                    |
|       | d. | á-à-léés-íl-è                 | ‘the one who has brought’             | /á-a-léet- <u>ìl</u> -e +H/                       |
|       | e. | á-à-lás-íl-è                  | ‘the one who has hit’                 | /á-a-lás- <u>ìl</u> -e +H/                        |
|       | f. | á-à-kúz-ííz-y-è               | ‘the one who has rasied’              | /á-a-kúl- <u>ì</u> - <u>ìl</u> - <u>ì</u> -e +H/  |

<sup>43</sup> An alternative analysis was considered in which the morphological factors listed in (460) induced word-final extraprosodicity, forcing the MH to dock on the penult rather than the ultima. While this makes the same predictions as the given analysis in most cases and may in fact be a viable alternative, it potentially runs into problems in passive forms such as the one found in (452c). Assuming that the Passive is underlyingly moraic (cf. §10.1.3), then after the FV is made extraprosodic the MH would dock onto the Passive /-u/. After gliding, compensatory lengthening and Word-final Shortening, such forms would incorrectly surface with a H-toned ultima, i.e. \*à-fùz-ìl-w-é.

- |          |                |                                   |                     |
|----------|----------------|-----------------------------------|---------------------|
| (466) a. | í-ì-fùz-íl-è   | ‘the one (C9) which has washed’   | /í-i-ful-ìl-e +H/   |
| b.       | í-ì-lás-íl-è   | ‘the one (C9) which has hit’      | /í-i-lás-ìl-e +H/   |
| c.       | í-ì-lás-íl-w-è | ‘the one (C9) which has been hit’ | /í-i-lás-ìl-u-e +H/ |

The melodic H exhibits the same pattern in relatives as it did in the non-relatives. In (463) and (464) the MH docks onto the ultima and spreads to the pen-initial TBU of the stem, while this also occurs in (465) and (466) the MH is subsequently delinked from the FV by TAM-specific FV Delinking. With regard to the lack of spreading of the H on the relative prefix in (465) and (466), this is accounted for in the same way that it was in the Remote Future, viz. by assuming that General Doubling will be marked not to apply to a H on a relative prefix when the following mora is tautosyllabic. (The 3 sg. SM is toneless /a-/ just as it is in the non-relative forms.)

Negative relatives of forms with toneless and H-toned roots are given in (467) and (468) respectively.

- |          |                                   |                                     |                            |
|----------|-----------------------------------|-------------------------------------|----------------------------|
| (467) a. | í-ví- <sup>1</sup> tá-mú-fùz-íl-è | ‘those (C8) who haven’t washed him  | /í-ví-tá-mu-ful-ìl-e +H/   |
| b.       | á-à-tá-zìis-íl-è                  | ‘one(s) who haven’t buried’         | /á-a-ta-ziik-ìl-e +H/      |
| c.       | á-à-tá-mú-zìis-íl-è               | ‘one(s) who haven’t buried him/her’ | /á-a-tá-mu-ziik-ìl-e +H/   |
| d.       | á-à-tá-sú <sup>1</sup> kíl-ìl-è   | ‘one(s) who haven’t accompanied’    | /á-a-tá-sukil-ìl-ìl-e +H/  |
| e.       | á-à-tá-cí-mú-fùz-íl-è             | ‘one(s) who haven’t washed’         | /á-a-tá-cí-mu-ful-ìl-e +H/ |
|          |                                   |                                     |                            |
| (468) a. | á-à-tá-léés-íl-é                  | ‘one(s) who haven’t brought’        | /á-a-tá-léet-ìl-é/         |
| b.       | á-à-tá-páápáát-ìik-é              | ‘one(s) who haven’t flattened’      | /á-a-tá-páapaatik-ìl-é/    |
| c.       | á-à-tá-sópólw-ìil-é               | ‘one(s) who haven’t untied’         | /á-a-tá-sópolol-ìl-é/      |
| d.       | á-à-tá-cí-sópólw-ìil-é            | ‘one(s) who haven’t just untied’    | /á-a-tá-cí-sópolol-ìl-é/   |

Just as was the case in the non-relative negatives, the MH docks onto the penult and spreads to the pen-initial if the root is toneless, and is realized only on the FV if the root is H-toned.

### 5.3.8 Narrative Past

The Narrative Past form is used to recount a chain of events that happened in the past, usually more than a few days back. Its morphological structure is given below.

- (469) Morphological structure of Narrative Past:

SM - (OM) – ø - VR – (EXT) – a

Representative forms in this TAM with toneless roots are given in (470) and with H-toned roots in (471).

- (470) Toneless Roots

- |    |                            |                                  |                      |
|----|----------------------------|----------------------------------|----------------------|
| a. | tú-fú <sup>1</sup> l-á     | ‘and then we washed’             | /tú-ful-a +H/        |
| b. | tú-zí <sup>1</sup> ík-á    | ‘and then we buried’             | /tú-ziik-a +H/       |
| c. | tú-mú-fùl-á                | ‘and then we washed him/her’     | /tú-mu-ful-a +H/     |
| d. | tú-mú-zìik-íl-á            | ‘and then we buried for him/her’ | /tú-mu-ziik-il-a +H/ |
| e. | tú-yá-zí <sup>1</sup> ík-á | ‘and then we buried them’        | /tú-yá-ziik-a +H/    |
| f. | tú-yá-zìik-íl-á            | ‘and then we buried for them’    | /tú-yá-ziik-il-a +H/ |



(471) H-toned Roots

a.	tú-lás-á	‘and then we hit’	/tú-lás-a +H/
b.	tú-léét-á	‘and then we brought’	/tú-léet-a +H/
c.	tú-sópólól-á	‘and then we untied’	/tú-sópolol-a +H/
d.	tú-mú- <sup>1</sup> léét-á	‘and then we brought him/her’	/tú-mu-léet-a +H/
e.	tú-yá-léét-él-á	‘and then we brought for them’	/tú-yá-léet-el-a +H/

Like the Perfect described in the previous section, the Narrative Past has a null TAM prefix. In addition it has no TAM suffix, and takes the unmarked FV /-a/. The tonology of these forms behaves as expected. The melodic high docks on the second and subsequent TBUs of the stem after which adjacent H’s fuse and undergo binary spreading if there is a following toneless TBU.

One interesting thing about this TAM is that in addition to the 3 sg. prefix /a-/ as well as the class 4 & 9 /i-/ being toneless (as we have seen in many other TAMs) the other class 1 SMs are toneless as well.

(472)	a.	im-fùl-á	‘and then I washed’	/n-ful-a +H/
	b.	in-sùkíl-íl-á	‘and then I accompanied’	/n-sukil-il-a +H/
	c.	in-dás-á	‘and then I hit’	/n-lás-a +H/
	d.	in-sópólól-á	‘and then I untied’	/n-sópolol-a +H/
(473)	a.	ù-fùl-á	‘and then you (sg.) washed’	/u-ful-a +H/
	b.	ù-làmúk-á	‘and then you greeted’	/u-lamuk-a +H/
	c.	ù-lás-á	‘and then you hit’	/u-lás-a +H/
	d.	ù-sópólól-á	‘and then you untied’	/u-sópolol-a +H/
(474)	a.	à-fùl-á	‘and then he/she washed’	/a-ful-a +H/
	b.	à-sùkíl-íl-á	‘and then he accompanied’	/a-sukil-il-a +H/
	c.	à-yá-sú <sup>1</sup> kíl-íl-á	‘and then he accompanied them’	/a-yá-sukil-il-a +H/
	d.	à-lás-á	‘and then he/she hit’	/a-lás-a +H/
	e.	à-sópólól-á	‘and then he untied’	/a-sópolol-a +H/

As can be seen, all the class 1 SMs surface as toneless and do not seem to contribute any H to the form. In each case the MH docks onto the second and subsequent TBUs of the stem, just as it does in forms with H-toned SMs.

There is no morphological negative or relative of the Narrative Past (i.e. where the TAM prefix is null and the FV is /-a/). When asked for the negative and relative forms which most closely corresponded to the affirmative forms given above, my consultants gave the negative and relative of the Far Past (§5.3.1).

We have seen a number of TAMs which can be modified by the addition of the prefix /cí-/. In many cases this has added a sense of recentness to the action be expressed (cf. §§5.2.4, 5.2.7, 5.3.2, 5.3.7).<sup>44</sup> This prefix can be added to the Narrative Past to add the sense of ‘as soon as...’ Representative forms are given below.<sup>45</sup>

<sup>44</sup> This is not always the case, however, as /cí-/ is also used (albeit in combination with /líi-/) in the Persistentive (§5.1.10).

<sup>45</sup> Below, just the one-word verb forms are given, though my consultant indicates that in actual usage the adverb *silé* will generally follow which helps to emphasize the notion of ‘as soon as’.

- |       |    |                                  |                                   |                         |
|-------|----|----------------------------------|-----------------------------------|-------------------------|
| (475) | a. | ìn-cí-fú <sup>1</sup> l-á        | ‘as soon as I washed’             | /n-cí-ful-a +H/         |
|       | b. | ù-cí-fú <sup>1</sup> l-á         | ‘as soon as you washed’           | /u-cí-ful-a +H/         |
|       | c. | à-cí-fú <sup>1</sup> l-á         | ‘as soon as he/she washed’        | /a-cí-ful-a +H/         |
| (476) | a. | yá-cí-fú <sup>1</sup> l-á        | ‘as soon as they washed’          | /yá-cí-ful-a +H/        |
|       | b. | yá-cí-zí <sup>1</sup> ík-á       | ‘as soon as they buried’          | /yá-cí-ziik-a +H/       |
|       | c. | yá-cí-sú <sup>1</sup> kílíl-á    | ‘as soon as they accompanied’     | /yá-cí-sukil-il-a +H/   |
|       | d. | yá-cí-yá-zí <sup>1</sup> ík-íl-á | ‘as soon as they buried for them’ | /yá-cí-yá-ziik-il-a +H/ |
| (477) | a. | yá-cí-lás-á                      | ‘as soon as they hit’             | /yá-cí-lás-a +H/        |
|       | b. | yá-cí-lééng-á                    | ‘as soon as they begged’          | /yá-cí-léng-a +H/       |
|       | c. | yá-cí-sópólól-á                  | ‘as soon as they untied’          | /yá-cí-sopolol-a +H/    |
|       | d. | yá-cí-mú <sup>1</sup> -léét-á    | ‘as soon as they brought him/her’ | /yá-cí-mu-léet-a +H/    |

The forms in (475) illustrate that all the class 1 SMs remain underlyingly toneless when /cí-/ is added. The forms in (476) with toneless root and in (477) with H-toned roots behave as expected. The H on the SM will fuse with all immediately following H’s and the SM docks as expected.

### 5.3.9 Subjunctive

We now turn to the subjunctive. I will not attempt to provide an exhaustive description here as to when the subjunctive is used in discourse. Certainly one main use is following verbs of desire, hope or wish. Additionally it can be used as an Imperative or Hortative. Its morphological structure is given below.

(478) Morphological structure of Subjunctive:

SM - (OM) – ∅ - VR – (EXT) -e

(479) Toneless roots; no OM

- |    |                             |                     |                 |
|----|-----------------------------|---------------------|-----------------|
| a. | tú-fú <sup>1</sup> l-é      | ‘that we wash’      | /tú-ful-é/      |
| b. | tú-zí <sup>1</sup> ík-é     | ‘that we bury’      | /tú-ziik-é/     |
| c. | tú-zí <sup>1</sup> ík-íl-é  | ‘that we bury for’  | /tú-ziik-ìl-é/  |
| d. | tú-sú <sup>1</sup> kíl-íl-é | ‘that we accompany’ | /tú-sukil-ìl-é/ |

(480) Toneless roots; toneless OM

- |    |                                |                             |                       |
|----|--------------------------------|-----------------------------|-----------------------|
| a. | tú-mú-sì-íl-é                  | ‘that we grind for him/her’ | /tú-mu-si-il-e +H/    |
| b. | tú-mú-fùl-íl-é                 | ‘that we wash for him/her’  | /tú-mu-ful-il-e +H/   |
| c. | tú-mú-zí <sup>1</sup> ík-é     | ‘that we bury him/her’      | /tú-mu-ziik-e +H/     |
| d. | tú-mú-zí <sup>1</sup> ík-íl-é  | ‘that we bury for him/her’  | /tú-mu-ziik-il-e +H/  |
| e. | tú-mú-sú <sup>1</sup> kíl-íl-é | ‘that we accompany’         | /tú-mu-sukil-il-e +H/ |
| f. | yáá-n-zí <sup>1</sup> ík-íl-é  | ‘that they bury for me’     | /yá-n-ziik-il-e +H/   |

(481) Toneless roots; H-toned OM

a.	tú-yá-fú <sup>1</sup> l-é	‘that we wash them’	/tú-yá-ful-e +H/
b.	tú-yá-fúl- <sup>1</sup> íl-é	‘that we wash for them’	/tú-yá-ful-il-e +H/
c.	tú-yá-zí <sup>1</sup> ík-é	‘that we bury them’	/tú-yá-ziik-e +H/
d.	tú-yá-zîik-íl-é	‘that we bury for them’	/tú-yá-ziik-il-e +H/
e.	tú-yá-sú <sup>1</sup> kíl-íl-é	‘that we accompany them’	/tú-yá-sukil-il-e +H/

Like the Perfect and the Narrative Past, the subjunctive has a null TAM prefix. Like the Narrative Past, it has no TAM suffix, but unlike it, the Subjunctive selects the FV /-e/ and not /-a/. Tonally, the subjunctive is interesting in that it does not uniformly assign the melodic H in one particular pattern, i.e. always on V2-FV, or always just on the FV. It assigns the MH to V2-FV if there is an OM present (480)-(481), but if there is no OM, then only the FV is H-toned (479).

Let us now consider roots of the shape CV.

(482) a.	tú-sh-è	‘that we grind’	/tú-si-é/
b.	tú-lw-è	‘that we fight’	/tú-lu-é/

If the root is of the shape CV, then the H on the SM will spread onto the word-final syllable, creating a Fall from H to downstepped H. The final syllable shortens, after which Phrase-final Delinking (247) will apply, generating exactly the same patterns we found in Potential forms with a toneless CV root (244).

Another interesting thing about the Subjunctive is that all SMs are H-toned, even the 3 sg, and class 4 & 9 SMs, which in all other TAMs have surfaced as Low.

(483) Toneless Roots (3 sg.)

a.	á-fú <sup>1</sup> l-é	‘that he wash’	/á-ful-é/
b.	á-súkíl-íl-é	‘that he/she accompany’	/á-sukil-il-é/
c.	á-mú-zîik-é	‘that he/she bury him/her’	/á-mu-ziik-e +H/
d.	í-fúl- <sup>1</sup> w-é	‘that it (C9) be washed’	/í-ful-u-é/
e.	í-zîik-w-é	‘that they (C4) be buried’	/í-ziik-u-é/

Let us now turn to subjunctive forms with H-toned roots. First we consider forms with no object.

(484) H-toned root; no OM

a.	tú-ly-è	‘that we eat’	/tú-lí-é/
b.	tú-lá <sup>1</sup> s-é	‘that we hit’	/tú-lás-é/
c.	tú-lás-íl-é	‘that we hit for’	/tú-lás-il-é/
d.	tú-léèt-é	‘that we bring’	/tú-léet-é/
e.	tú-sópòlòl-é	‘that we untie’	/tú-sópolol-é/
f.	tú-páàpààtik-é	‘that we flatten for’	/tú-páapaatik-é/

Like the toneless forms with no OM, the MH is realized only on the FV. Yet what we see in the forms above is that the H on the verb root has been deleted, after which the H on the SM spreads onto the following (root-

initial) TBU. This predicts a complete neutralization between H-toned and toneless roots in this case, which is borne out by forms such as those below.

- |       |    |                        |                 |             |
|-------|----|------------------------|-----------------|-------------|
| (485) | a. | tú-sh-è                | ‘that we grind’ | /tú-si-é/   |
|       | b. | tú-sh-è                | ‘that we leave’ | /tú-sí-é/   |
|       | c. | tú-lú <sup>1</sup> k-é | ‘that we weave’ | /tú-luk-é/  |
|       | d. | tú-lú <sup>1</sup> k-é | ‘that we vomit’ | /tú-lúk-é/  |
|       | e. | tú-swéèl-é             | ‘that we brew’  | /tú-suel-é/ |
|       | f. | tú-swéèl-é             | ‘that we fish’  | /tú-súel-é/ |

Let us now turn to forms with H-toned roots and an OM.

(486) H-toned root, toneless OM

- |    |                               |                             |                      |
|----|-------------------------------|-----------------------------|----------------------|
| a. | tú-mú- <sup>1</sup> lās-é     | ‘that we hit him/her’       | /tú-mu-lās-e +H/     |
| b. | tú mú- <sup>1</sup> léét-él-é | ‘that we bring for him/her’ | /tú-mu-léet-il-e +H/ |

(487) H-toned root, H-toned OM

- |    |                 |                          |                      |
|----|-----------------|--------------------------|----------------------|
| a. | tú-yá-lās-é     | ‘that we hit them’       | /tú-yá-lās-e +H/     |
| b. | tú-yá-léét-él-é | ‘that we bring for them’ | /tú-yá-léet-il-e +H/ |

Just as was the case in the forms with toneless roots, when an OM is present the MH docks onto the second and subsequent TBUs of the stem (cf. (480)-(481)). With regard to the root H, as can be seen, while it was deleted in forms with a H-toned root and no OM (484), the root H is not deleted when preceded by an OM. To account for this tonal behavior I suggest that the Subjunctive triggers a special H deletion rule which deletes a root H (not OM) when it is immediately preceded by an H-toned subject marker (but not, e.g. an object marker). This is limited to Subjunctive as seen by the fact that it doesn’t happen, e.g., in the Narrative Past (§5.3.8) or the Perfect (§5.3.7), another TAM with no overt TAM prefix.

As can be seen below, this correctly predicts that when the “andative” ‘go and’ toneless prefix /ka-/ is added, the Subjunctive Root H Deletion rule will not apply (since /ka-/ intervenes between the SM and the root).

- |       |    |  |                                    |                       |
|-------|----|--|------------------------------------|-----------------------|
| (488) | a. | ú-ká-fùl-é                                   | ‘that you go and wash’             | /ú-ka-ful-e +H/       |
|       | b. | ú-ká-mù-fùl-íl-é                             | ‘that you go and wash for him/her’ | /ú-ka-mu-ful-il-e +H/ |
|       | c. | ú-ká- <sup>1</sup> yá-fùl- <sup>1</sup> íl-é | ‘that you go and wash for them’    | /ú-ka-yá-ful-il-e +H/ |
|       | d. | ú-ká- <sup>1</sup> lās-é                     | ‘that you go and hit’              | /ú-ka-lās-e +H/       |
|       | e. | ú-ká-mù-lās-íl-é                             | ‘that you go and hit for him/her’  | /ú-ka-mu-lās-il-e +H/ |
|       | f. | ú-ká- <sup>1</sup> yá-lās-íl-é               | ‘that you go and hit for them’     | /ú-ka-yá-lās-il-e +H/ |

The fact that the MH docks onto V2-FV in such forms shows that the only time the MH docks onto the FV only is when the SM immediately precedes the root (i.e. when there are no prefixes of any kind between the SM and the root).

Now let us turn to the negative subjunctive. Verbs with toneless roots are given in (489) while those with H-toned roots are given in (490).

(489) Subjunctive with toneless roots

a.	ù-tá-fùl- <sup>1</sup> íl-á	‘that you don’t wash for’	/u-tá-ful-il-a +H/
b.	tù-tá-zìik-íl-á	‘that we don’t bury for’	/tu-tá-ziik-il-a +H/
c.	tù-tá-sù <sup>1</sup> kílíl-á	‘that we don’t accompany’	/tu-tá-sukil-il-a +H/
d.	ù-tá-mú-lim-íl-á	‘that you don’t farm for him/her’	/tu-tá-lim-il-a +H/
e.	tù-tá-yá-zìik-íl-á	‘that we don’t bury them’	/tu-tá-yá-ziik-il-a +H/

(490) Subjunctive with H-toned roots

a.	tù-tá-léét-á	‘that we don’t bring’	/tu-tá-léet-a +H/
b.	tù-tá-lás-á	‘that we don’t hit’	/tu-tá-lás-a +H/
c.	tù-tá-sópólól-á	‘that we we don’t untie’	/tu-tá-sopolol-a +H/
d.	tù-tá-mú- <sup>1</sup> léét-él-á	‘that we don’t bring for him/her’	/tu-tá-mu-léet-el-a +H/
e.	tù-tá-yá-léét-él-á	‘that we don’t bring for them’	/tu-tá-yá-léet-el-a +H/

The first thing to be noted is that in the negative subjunctive forms, the FV is /a-/ and not /e-/, as it was in the affirmative forms. In the affirmative we saw that the rule which deletes a root High was triggered by a H-toned SM, but not an OM. The negative forms show that the H on the negative prefix /tá-/ does not trigger root H deletion as no root tone neutralization is exhibited. Additionally, it can be seen that regardless of whether an OM is present or not, the MH consistently docks onto the second and subsequent TBUs of the stem.

### 5.3.10 Imperative

We now turn to imperatives. Its morphological structure is given below in two parts; as the structure differs depending on whether there is an OM present or not.

(491) Morphological structure of Imperative:

- a. VR – (EXT) – a
- b. OM – VR – (EXT) – e

We first examine imperatives with toneless roots and no OM.

(492) a.	sh-àá	‘grind!’	/si-a +H/
b.	fùl-á	‘wash!’	/ful-a +H/
c.	zìik-á	‘bury!’	/ziik-a +H/
d.	zìik-íl-á	‘bury for!’	/ziik-il-a +H/
e.	sùkíl-íl-á	‘accompany!’	/sukil-il-a +H/

As can be seen, in imperatives with no OM and a toneless root, the FV is /-a/ and a melodic high docks onto the second and subsequent TBUs of the stem. In the case of a CV root (CV-V stem), the melodic H docks onto the FV and the resulting syllable surfaces as a Rise which does not shorten. (For a complete discussion on the distribution of Rising tones see section 10.4.4.)

The suffix /-ang/ can be added to give a continuative meaning as seen below.

- |       |                    |                      |                     |
|-------|--------------------|----------------------|---------------------|
| (493) | a. fùl-ááng-á      | ‘keep washing!’      | /ful-ang-a +H/      |
|       | b. zìik-ááng-á     | ‘keep burying!’      | /ziik-ang-a +H/     |
|       | c. sùkíl-íl-ááng-á | ‘keep accompanying!’ | /sukil-il-ang-a +H/ |

The passive of forms such as these has two possible variants as seen below.

- |       |                  |                      |                    |
|-------|------------------|----------------------|--------------------|
| (494) | fùl-ááng-w-á     | ‘keep being washed!’ | /ful-ang-u-a +H/   |
|       | ~ fùl-w-ááng-w-á |                      | /ful-u-ang-u-a +H/ |

If more than one person is being addressed, then the imperative plural suffix /-iini/ is used.<sup>46</sup>

- |       |                 |                    |                    |
|-------|-----------------|--------------------|--------------------|
| (495) | a. sì-íní       | ‘grind (pl.)!’     | /si-iini +H/       |
|       | b. fùl-íní      | ‘wash (pl.)!’      | /ful-iini +H/      |
|       | c. fùl-w-íní    | ‘be washed (pl.)!’ | /ful-u-iini +H/    |
|       | c. zìik-íní     | ‘bury (pl.)!’      | /ziik-iini +H/     |
|       | d. sùkíl-íl-íní | ‘accompany (pl.)!’ | /sukil-il-iini +H/ |

That both the Progressive /-ang/ and the plural imperative /-iini/ can co-occur is shown below.

- |       |                    |                               |                       |
|-------|--------------------|-------------------------------|-----------------------|
| (496) | a. fùl-ááng-íní    | ‘keep on washing (pl.)!’      | /ful-ang-iini +H/     |
|       | b. zìik-ááng-íní   | ‘keep on burying (pl.)!’      | /ziik-ang-iini +H/    |
|       | c. fùl-w-ááng-íní  | ‘keep on being washed (pl.)!’ | /ful-u-ang-iini +H/   |
|       | ~ fùl-ááng-w-íní   |                               | /ful-ang-u-iini +H/   |
|       | ~ fùl-w-ááng-w-íní |                               | /ful-u-ang-u-iini +H/ |

Let us now turn to imperatives with toneless roots which have an OM

- |       |                              |                         |                    |
|-------|------------------------------|-------------------------|--------------------|
| (497) | a. mù-fùl-íl-é               | ‘wash for him/her!’     | /mu-ful-il-e +H/   |
|       | b. mù-zìik-ááng-é            | ‘keep burying him/her!’ | /mu-ziik-ang-e +H/ |
|       | c. mù-sùkíl-íl-é             | ‘accompany him/her!’    | /mu-sukil-il-e +H/ |
|       | d. m-fùl-é                   | ‘wash me!’              | /n-ful-e +H/       |
|       | e. n-swèèl-él-é              | ‘brew for me!’          | /n-suel-e +H/      |
|       | f. yá-fùl- <sup>1</sup> íl-é | ‘wash for them!’        | /yá-ful-il-e +H/   |
|       | g. yá-zí <sup>1</sup> ík-é   | ‘bury them!’            | /yá-ziik-e +H/     |

When an OM is added to a toneless root, we see that the FV changes to /-e/, the same FV used in the subjunctive.

Let us now look at imperatives which have a H-toned root. We begin with those that have no OM.

<sup>46</sup> I note that one of my consultants also found it acceptable to place the passive /u/ just before the final TBU of the verb, e.g. *fùl-íin-w-í* ‘be washed (pl.)’. If we assume that the imperative plural suffix is monomorphemic, then this variant would indicate that the short passive is at least sometimes positioned prosodically, e.g. after the final C of the stem, and thus is sometimes truly an infix.

- |       |    |                       |                |                  |
|-------|----|-----------------------|----------------|------------------|
| (498) | a. | ly-á                  | ‘eat!’         | /lí-á/           |
|       | b. | lás-í <sup>l</sup> -á | ‘hit for!’     | /lás-il-á/       |
|       | c. | léét-à                | ‘bring!’       | /léet-á/         |
|       | d. | sópólòl-ààng-á        | ‘be untying!’  | /sópolol-ang-á/  |
|       | e. | páápáàtik-il-á        | ‘flatten for!’ | /páapaatik-il-á/ |

Whereas imperatives with no OM with toneless roots took the Melodic High on the second and subsequent TBUs of the stem, the imperatives with no OM with H-toned roots have a High on the FV.

One additional interesting aspect of the realization of imperatives with H-toned roots concerns bisyllabic stems with a short V in the first syllable. Examples of how these are realized are given below.

- |       |    |         |                |                    |
|-------|----|---------|----------------|--------------------|
| (499) | a. | lás-à   | ‘hit!’         | /lás-á/            |
|       | b. | lúk-à   | ‘vomit!’       | /lúk-á/            |
|       | c. | lém-à   | ‘plant!’       | /lém-á/            |
|       | d. | lúm-w-à | ‘get bitten!’  | /lúm-u-á/          |
|       | e. | kóm-y-à | ‘make strong!’ | /kóm- <u>i</u> -á/ |
|       | f. | písh-à  | ‘drive!’       | /pít- <u>i</u> -á/ |

Whereas our current rules would predict that these forms should surface as all-H, the final syllable surfaces as Low. We must posit a morphologically conditioned rule which deletes or delinks the H on the FV in the Imperative when it is immediately preceded by a root H. The rule could actually be purely phonological if the trigger of FV H Deletion is a word-initial root H.

When verbs such as those in (499) are not phrase-final, the H does spread to the final syllable as is the case with verbs with no melodic High.

- |       |    |                            |                     |                 |
|-------|----|----------------------------|---------------------|-----------------|
| (500) | a. | lás-á <sup>l</sup> sáàná   | ‘hit a lot!’        | /lás-á sáaná/   |
|       | b. | lás-á nìngó                | ‘hit well!’         | /lás-á ningó/   |
|       | c. | lúm-w-á <sup>l</sup> sáàná | ‘get bitten a lot!’ | /lúm-u-á sáaná/ |

When the plural suffix /-iini/ is added to a H-toned root, the entire verb surfaces as High.

- |       |    |                |                  |                     |
|-------|----|----------------|------------------|---------------------|
| (501) | a. | sópólól-ííní   | ‘untie (pl.)!’   | /sópolol-iini +H/   |
|       | b. | bélééng-ííní   | ‘read (pl.)!’    | /béleeng-iini +H/   |
|       | c. | páápáátik-ííní | ‘flatten (pl.)!’ | /páapaatik-iini +H/ |

To account for this I propose that the plural suffix is toneless and carries a MH which docks onto the second and subsequent TBUs of the stem. This contrasts with the FV /-a/ which is H-toned when added to a H-toned root in the infinitive (499).

Let us now examine imperatives with H-toned roots that also have an OM.

(502)	a.	mù-sh-é	‘leave him/her!’	/mu-sí-e +H/
	b.	mù-lás-é	‘hit him/her!’	/mu-lás-e +H/
	c.	mù-léét-é	‘bring him/her!’	/mu-léet-e +H/
	d.	mù-sópólól-é	‘untie him/her!’	/mu-sópolol-e +H/
	e.	yá-lás-é	‘hit them!’	/yá-lás-e +H/
	f.	yá-léét-é	‘bring them!’	/yá-léet-e +H/
	g.	yá-sópólól-ááng-é	‘be untying them!’	/yá-sópolol-ang-e +H/

Whereas imperatives with a H-toned root and no OM had the MH realized on only the FV (498), when an OM is present, the MH is realized on V2-FV.

For verbs which are underlyingly vowel-initial, some, though not all, can optionally appear with an initial [y]. This is shown below.

(503) Verbs which can optionally appear with word-initial [y]

a.	(y)èl-á	‘winnow!’
b.	(y)èng-á	‘smelt!’
c.	(y)àsh-á	‘light!’
d.	(y)ànz-á	‘spread!’
e.	(y)àlúk-á	‘betray!’
f.	(y)ázw-à	‘help!’
g.	(y)él-à	‘fish!’
h.	(y)ézy-à	‘try!’
i.	(y)óp-à	‘fear!’

(504) Verbs which do not appear with word-initial [y]

a.	èlék-á	‘cook!’
b.	ùm-á	‘beat!’
c.	òmb-á	‘clap!’
d.	òch-á	‘burn!’
e.	úm-à	‘become dry!’
f.	úzy-à	‘ask!’
g.	úvw-à	‘listen!’
h.	ót-à	‘warm yourself!’
i.	ów-à	‘swim!’

It is not immediately clear how exactly to account for these. There is a tendency to optionally include [y] when the root begins with an unrounded vowel (i.e. /i, e, a/), but not when it begins with a rounded one (i.e. /u, o/), though this correlation is not perfect.<sup>47</sup>

<sup>47</sup> The verbs in (503) represent the views of one of my two main consultants. The other main consultant felt that that the only cases where he would use the [y] were on verbs beginning with /a/. My consultants also indicated that the inclusion of the [y] would be more typical of older speakers, whereas younger ones might not use it at all. (And just for the record, the first consultant of which I speak here is in fact older than the second consultant.)



The andative prefix /ka-/ used in the Subjunctive (§5.3.9) to add the meaning ‘go and...’ can be used in the Imperative as well. Representative examples are shown below.

- (505)
- |    |                  |                            |                      |
|----|------------------|----------------------------|----------------------|
| a. | kà-ziik-é        | ‘go and bury!’             | /ka-ziik-e +H/       |
| b. | kà-mù-swèèl-él-é | ‘go and brew for him/her!’ | /ka-mu-suel-il-e +H/ |
| c. | kà-mù-làmúk-é    | ‘go and greet him/her!’    | /ka-mu-lamuk-e +H/   |
| d. | kà-lás-é         | ‘go and hit!’              | /ka-lás-e +H/        |
| e. | kà-léét-é        | ‘go and bring!’            | /ka-léet-e +H/       |
| f. | kà-yá-sópólól-é  | ‘go and tie them!’         | /ka-yá-sopolol-e +H/ |

The presence of the prefix /ka-/ triggers the FV as /-e/, just as the presence of an OM did. We generalize then that the presence of any prefix on the root will require the FV /-e/. We note also note that in the imperative with a CVCV stem, the H on the FV does not delete. This was also true of imperatives with CVCV roots that had an OM (i.e. the FV surfaced as High in those forms too). Again, then, the generalization seems to be that the rule which deletes the H on the FV is blocked if any prefix (OM or /ka-/) is present. (Alternatively one could maintain that the H on the FV of an imperative with a CVCV stem and H-toned root only deletes if the FV is /-a/, but never when it is /-e/.)

The following table summarizes the tonology of imperatives.

(506) MH Pattern attested in Imperatives

	No Prefix (FV: /-a/)	Prefix (FV: /-e/)
toneless root	V2-FV	V2-FV
H-toned root	FV	V2-FV

To express a negative imperative, the negative subjunctive is used (see §5.3.9). To express the negative of the ka-Stem imperatives, the negative of the subjunctive of the verb *ú-kú-y-á* ‘to go’ is used followed by the subjunctive of the verb in question with /ka-/.

(507) Negative of Go and Verb

- |    |                     |                       |                               |
|----|---------------------|-----------------------|-------------------------------|
| a. | ù-tá-y úú-ká-fùl-é  | ‘don’t go and wash!’  | /u-tá-gi-e +H ú-ka-ful-e +H/  |
| b. | ù-tá-y úú-ká-léét-é | ‘don’t go and bring!’ | /u-tá-gi-e +H ú-ka-léet-e +H/ |

## 5.4 Summary and Analysis of MH Docking and Spreading

Now that we have examined each (single-word) TAM in Cilungu, we summarize in (508) the various ways in which the MH has been realized.

- (508)
- No MH
  - MH on FV
  - MH on V2-FV
  - MH on V2-penult

Below we list the TAMs and the various MH patterns that they exhibit.

(509) a. TAMs presented in §5.1	No MH
b. TAMs presented in §5.2 (except Rec Past)	MH on FV
c. TAMs presented in §5.3 (except Perf, Subj, Imper)	MH on V2-FV
d. Subjunctive (§5.3.9), Imperative (§5.3.10)	MH varies: FV or V2-FV
e. Recent Past (§5.2.4)	MH varies: FV or V2-penult
f. Perfect (§5.3.7)	MH varies: V2-FV, FV, or V2-penult

The first important thing to be noted is that the various TAMs within each group listed in (509a-c) do not seem to have anything in common semantically. Thus, it does not seem possible to assign the MH any consistent meaning that it contributes the form.

With regard to the TAM suffixes, there are only partial generalizations. For instance, while it is true that all non-melodic TAMs take the FV /-a/, and never /-il-e/ or /-e/, there are both FV and V2-FV TAMs that also take /-a/. And while no non-melodic TAM takes /-il-e/, this can occur on both V2-FV and FV TAMs.

Let us now turn to the TAM prefixes. As is the case with other Bantu languages, there does not seem to be any way to predict, on the basis of the segmental or tonal characteristics of the TAM prefix, which TAMs take a melodic H and which ones do not. However, there does seem to be a correlation between the tonal status of the TAM prefix and the MH pattern that results. In each of the TAMs in which the MH is realized on the FV, the TAM prefix is H-toned, while this is generally not true of the TAMs presented in (509c) where either the TAM prefix is most often toneless or absent altogether. (The one exception to this generalization is the presence of the Recent /ci-/ TAM prefix shown in §5.3.2.) This allows for an analysis whereby the MH is always floating in the input and then docks and spreads in various ways, ultimately determined by a mix of phonological and morphological factors. Thus, if we assume that the MH is underlyingly floating in the TAMs in (509b-c), we can posit a rule which docks this MH onto the FV in both cases. A subsequent rule will then spread this H leftward to V2, but will be blocked in the event that a H-toned TAM prefix is present, and this rule will apply before Fusion since the MH which spreads to V2 productively fuses with an adjacent H which either immediately precedes or follows.

Clearly this rule of “Leftward Spreading to V2” is motivated in some fashion by the OCP. However, it is clear that the motivation synchronically cannot be a purely phonetic one since, given the presence of various toneless and H-toned OM, there will be cases where the H on the FV spreads to V2 even when an OCP violation actually occurs (e.g. *tú-lá-’yá-sú’kíl-il-á* ‘we will accompany them’) and other cases where the FV will not spread to V2 even though doing so would not create an OCP violation (e.g. *tùù-ngá-mú-sùkíl-il-á* ‘we can accompany him/her’). Cilungu can be interestingly compared with Ekegusii in this regard. Bickmore (1999, 2000) shows that Ekegusii (E.42) a Bantu language spoken in Kisii, Kenya, also has both the FV as well as the V2-FV realizations of the MH. It is argued there that in all cases the MH initially docks onto the FV and that a rule of Leftward Unbounded Spreading to V2 may then follow. But in the case of Ekegusii whether this leftward spreading rule applies or not is argued to be completely phonologically conditioned, i.e. the rule spreads the MH from the FV to V2 in all cases except where such spreading would cause an OCP violation.<sup>48</sup> Thus, in comparison to the more purely phonological effect of the OCP in Ekegusii, this effect is more morphologized in Cilungu where the rule is conditioned on the simple presence or absence of a H-toned TAM prefix.

Let us now turn to the two TAMs listed in (509c): the Subjunctive and Imperative. In the Subjunctive the V2-FV pattern obtains when the verb contains an OM, and the FV obtains when there is no OM. In the

<sup>48</sup> It is shown that this OCP violation must be with a linked H, since the MH does fuse with a root-initial H as it does in so many languages, including Cilungu. The reader is referred to the references in the text for further elaboration on the Ekegusii tonal system.

Imperative, the V2-FV pattern obtains in all cases except when there is no OM and the root is H-toned. In this latter case the FV pattern obtains. What these two TAMs show is that ultimately the Leftward Spreading to V2 rule must not only be sensitive to the presence and absence and tone of the TAM prefix, but it must also be sensitive in certain cases to the presence or absence of an OM and to the tone of the root. This is summarized below.

(510) Elements which block Leftward Spreading to V2

- a. Presence of H-toned TAM prefix
- b. Presence of SM (always H-toned) immediately before stem in Subjunctive (i.e. lack of OM)
- c. Word and stem-initial H-toned mora in Imperative (i.e. lack of OM, presence of root H)

While these three blocking configurations are certainly morphological in modern Cilungu, it is striking that they all have in common the presence of a H tone before the stem, something unsurprising given the known cross-linguist effects of the OCP.

Let us now turn to the two TAMs listed in (509e-f). It could be argued that the default MH pattern in the Recent Past is the FV one—e.g. such occurs in the affirmative forms with H-toned SMs. But in affirmative forms with toneless SMs and in negative forms with toneless roots the MH is realized on the second and subsequent morae of the stem up to (and including) the penult (V2-PU). In the Perfect we find the same V2-PU pattern in affirmative forms with toneless SMs and the same patterns in the negative: VF if the verb has a H-toned root and V2-PU if the form has a toneless root. What makes the Perfect interestingly different from the Recent Past is that affirmative forms with H-toned SMs exhibit the V2-FV pattern. For these cases I assume the MH docks onto the FV (as it always does) and that a subsequent rule of “TAM-specific FV Delinking” which delink the H from the FV in the appropriate morphological contexts.

The first thing that should be said is that these last two TAMs show that additional factors can help to determine the realization of the MH, viz. the tone of the SM and whether the form is affirmative or negative. The list of factors which we have seen up to this point are given below.

(511) Summary of factors which play a role in the realization of the MH:<sup>49</sup>

- a. Tone of TAM prefix
- b. Presence of OM
- c. Tone of Root
- d. Affirmative vs. Negative
- e. Tone of SM

## 5.5 Reduplication

As is well known, Bantu languages are often rich sources of reduplication and the study of this morphological process (both within and outside of Bantu) has yielded profitable theoretical dividends. Reduplication often interacts with other morphological and phonological processes in a variety of interesting and complex ways. I do not pretend to give an exhaustive description and analysis of reduplication here,

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<sup>49</sup> We will see that there is one additional factor—whether the form is verbal or nominal. The melodic H which docks onto verbal infinitives and nouns is discussed in detail in chapters 6 and 7.

recognizing it as a profitable area of further study. Still, I feel that the limited examples offered here provide a solid, if circumscribed, foundation on which future studies could be built.

Reduplication in verbs adds the notion of repeated action in Cilungu. Morphologically, the element which is reduplicated is generally the stem. In the discussion which follows, of the two elements which combine to form the reduplication, in most cases it is in fact difficult to provide conclusive arguments as to which element is the base and which is the reduplicant. Since most reduplication within Bantu has been shown to be of the prefixing variety (Downing 2003) I will assume this to be the case in Cilungu.

We first illustrate reduplication by presenting the form below in the Present Progressive with a toneless root.

- (512) a. tú-kú-fúl-á-fúl-à ‘we are washing repeatedly’ /tú-ku-ful-a-ful-a/  
 b. tú-kú-súkílíl-á-súkílíl-à ‘we are accompanying repeatedly’ /tú-ku-ful-a-ful-a/
- (513) a. tú-kú-mú-sh-áá-sh-á ‘we are grinding him repeatedly’ /tú-ku-mu-si-a-si-a/ <sup>50</sup>  
 b. tú-kú-mú-fúl-á-fúl-à ‘we are washing him/her repeatedly’ /tú-ku-mu-ful-a-ful-a/  
 c. tú-kú-mú-lém-á-lém-à ‘we are grabbing him/her repeatedly’ /tú-ku-mu-lem-a-lem-a/
- (514) a. tú-kw-íík-á-íík-à ‘we are descending repeatedly’ /tú-ku-ik-a-ik-a/  
 b. tú-kú-úm-á-úúm-à ‘we are beating repeatedly’ /tú-ku-um-a-a-um-a/

In the forms in (513) it can be seen that only the stem is reduplicated. The forms in (514) are interesting in that base contains not only the two morae which are underlyingly part of the stem but a third mora as well. In each case the vowel at the beginning of the reduplicant is predictably long and I assume there must be some rule or constraint which requires identity of certain aspects of the base and reduplicant.

There are, however, a few exceptions to the generalization that what duplicates is the stem found in the non-reduplicated form. First, if the verbal stem is monosyllabic, then the stem is reduplicated twice, as shown below. (The final V is long in the first two instances as /si-a/ > syaa > shaa is only shortened word-finally. <sup>51</sup>)

- (515) a. tú-kú-sh-áá-sh-áá-sh-á ‘we are grinding repeatedly’ cf. tú-kú-sh-á  
 b. tú-kú-lw-áá-lw-áá-lw-á ‘we are fighting repeatedly’ cf. tú-kú-lw-á

If the root is vowel-initial with no object marker, then only the stem reduplicates as seen in (514). However, if a vowel-initial root has an OM, then either the stem or macrostem can reduplicate as seen below. <sup>52</sup>

- (516) a. yá-kú-mú-úm-á-mú-úm-à ‘they are beating him/her repeatedly’ /yá-ku-mu-um-a-um-a/  
 b. yá-kú-mú-úm-á-úúm-à ‘they are beating him/her repeatedly’ /yá-ku-mu-um-a-um-a/

Let us now turn to the tonology of reduplicated forms. We begin with the TAMs with no melodic H, of which the above forms are exemplars. The tonology of these forms is quite straightforward. The macrostem is

<sup>50</sup> One of my consultants felt it was also possible to include the OM just in the case that the root was monosyllabic. E.g. a second possible pronunciation of (513a) would be *tú-kú-mú-sh-áá-mú-shá*.

<sup>51</sup> This contrasts with the short passive and short causative where the following V is found short both within the reduplicated form as well as at the end. E.g. *yá-kú-fúl-w-á-fúl-w-á* ‘they are being washed repeatedly’ (< /yá-ku-ful-u-a-ful-u-a/), *yá-kú-písh-á-písh-á* ‘they are repeatedly driving’ (< /yá-ku-pít-i-a-pít-i-a/)

<sup>52</sup> If the OM is the 1 sg. /n-/ then only the stem and not the macrostem reduplicates. E.g. *yá-kúú-n-jímb-á-imb-à* ‘they are digging me up repeatedly’ (\**yá-kúú-n-jímb-áá-n-jímb-à*)

underlyingly toneless and the reduplication does not add any new High. The sole H in the form, on the SM, spreads as predicated in an unbounded fashion up to the penult (or to the FV if it is preceded by an underlying /u/ or /i/ which glides (§5.1.1.3)).

Let us now turn to Present Progressive forms with a H in the macrostem. First, let us consider a toneless root with a H-toned OM.

- (517) a. tú-kú-<sup>1</sup>yá-lém-á-lém-à      ‘we are grabbing them repeatedly’      /tú-ku-yá-lem-a-lem-a/  
 b. tú-kú-<sup>1</sup>yá-fúl-á-fúl-à      ‘we are washing them repeatedly’      /tú-ku-yá-ful-a-ful-a/

Here, the H on /yá/, the only H in the macrostem, predictably undergoes unbounded spreading to the penult.

Below are reduplicated forms with H-toned roots and no OM.

- (518) a. tú-kú-<sup>1</sup>lás-á-lás-à      ‘we are hitting repeatedly’      /tú-ku-lás-a-las-a/  
 b. yá-kú-<sup>1</sup>póny-á-póny-à      ‘they are dropping repeatedly’      /yá-ku-pón-<sub>i</sub>-a-pon-<sub>i</sub>-a/  
 c. yá-kú-<sup>1</sup>léét-á-léét-à      ‘they are bringing repeatedly’      /yá-ku-léet-a-leet-a/  
 d. yá-kú-<sup>1</sup>swéél-á-swéél-à      ‘they are fishing repeatedly’      /yá-ku-súel-a-suel-a/  
 e. tú-kú-<sup>1</sup>símúl-á-símúl-à      ‘we are running repeatedly’      /tú-ku-símul-a-simul-a/  
 f. yá-kú-<sup>1</sup>pálám-á-pálám-à      ‘they are approaching repeatedly’      /yá-ku-pálam-a-palama-a/  
 g. yá-kú-<sup>1</sup>bééndám-á-bééndám-à      ‘they are inclining repeatedly’      /yá-ku-béndam-a-bendam-a/  
 h. yá-kú-<sup>1</sup>bélééng-á-bélééng-à      ‘they are reading repeatedly’      /yá-ku-bélang-a-beleng-a/

What we see here is that the new stem (composed of the reduplicant plus the base) has a single H on the initial TBU. This could be accounted for in one of two ways. First, we could assume that both the segments as well as the lexical tone of the base is copied onto the reduplicant, after which some process deletes the second of the two lexical H’s. The other possible analysis would be to assume that the lexical H of a verb root is actually floating underlyingly and docks onto the root-initial TBU by rule. We could then assume that reduplication in the above forms simply copies the segmental material, after which the lexical H docking rule applies. Either of these analyses are consistent with the forms below which have a H-toned root as well as an OM.

- (519) a. tú-kú-<sup>1</sup>mù-lúm-á-lúm-à      ‘we are biting him/her repeatedly’      /tú-ku-mu-lúm-a-lum-a/  
 b. tú-kú-<sup>1</sup>yá-lúm-á-lúm-à      ‘we are biting them repeatedly’      /tú-ku-yá-lúm-a-lum-a/  
 c. tú-kú-<sup>1</sup>yá-léét-á-léét-à      ‘we are bringing them repeatedly’      /tú-ku-yá-léet-a-leet-a/

While the forms above suggest that the reduplicated forms have a single root tone (which undergoes the productive rules of spreading) forms with longer stems show some tonal variability as shown below:

- (520) a. tú-kú-<sup>1</sup>sópólól-á-sópólól-à      ‘we are untying repeatedly’      /tú-ku-sópolol-a-sópolol-a/  
       ~ tú-kú-<sup>1</sup>sópólól-á-<sup>1</sup>sópólól-à  
 b. tú-kú-<sup>1</sup>páápáátík-á-páápáátík-à      ‘we are flattening repeatedly’      /tú-ku-páapaatik-a-páapaatik-a/  
       ~ tú-kú-<sup>1</sup>páápáátík-á-<sup>1</sup>páápáátík-à

As can be seen, when the stem is relatively long, we find a lexical H tone on the initial mora of the root in the base as well as the reduplicant. It might be possible to analyze these cases as the language (optionally)

turning such as long reduplicated form into two prosodic words. This would in fact explain, in the second variant, why the first H (in the reduplicant) spreads in an unbounded fashion to the FV in the reduplicant, whereas if this were all one prosodic word we would expect the first root H to undergo binary rather than unbounded spreading.

Now let us turn to verbs with a MH on the FV. We begin with forms which have bisyllabic bases containing toneless roots.

- (521) a. yàà-ngá-lúk-à-lúk-á ‘they can weave repeatedly’ /ya-ngá-luk-a-luk-á/  
 b. yàà-ngá-fúl-à-fúl-á ‘they can wash repeatedly’ /ya-ngá-ful-a-ful-á/
- (522) a. yàà-ngá-swéèl-à-swéèl-á ‘they can brew repeatedly’ /ya-ngá-suel-a-suel-á/  
 b. yàà-ngá-zíik-à-zíik-á ‘they can bury repeatedly’ /ya-ngá-ziik-a-ziik-á/  
 c. yàà-ngá-sí-il-à-sí-il-á ‘they can grind for repeatedly’ /ya-ngá-si-il-a-si-il-á/

What we find in each of the forms above is that the H on the FV in the base does not get copied onto the reduplicant.

Let us now consider forms with toneless roots containing bases which are greater than two syllables.

- (523) a. yàà-ngá-lúk-il-á-lúk-il-á ‘they can weave for repeatedly’ /ya-ngá-luk-il-á-luk-il-á/  
 b. yàà-ngá-swéèl-èl-á-swéèl-èl-á ‘they can brew for repeatedly’ /ya-ngá-suel-il-á-suel-il-á/  
 c. yàà-ngá-símùl-á-símùl-á ‘they can run repeatedly’ /ya-ngá-simul-á-simul-á/  
 d. yàà-ngá-súkìl-il-á-súkìl-il-á ‘they can accompany repeatedly’ /ya-ngá-sukil-il-á-sukil-il-á/  
 e. yàà-ng-íimb-il-àn-á-íimb-il-àn-á ‘they can dig for e.o. repeatedly’ /yá-ngá-imb-il-an-á-imb-il-an-á/

As can be seen, in the forms above (where the base is greater than two syllables) the H on the FV is in fact copied onto the reduplicant.<sup>53</sup>

Let us now examine the tonal patterns in verbs (in TAMs with a H on the FV) with H-toned roots.

- (524) a. yàà-ngá-lúk-á-lúk-á ‘they can vomit repeatedly’ /ya-ngá-lúk-a-luk-á/  
 b. yàà-ngá-lás-á-lás-á ‘they can hit repeatedly’ /ya-ngá-lás-a-las-á/
- (525) a. yàà-ngá-léét-á-léet-á ‘they can bring repeatedly’ /ya-ngá-leet-a-leet-á/  
 b. yàà-ngá-swéél-á-swéèl-á ‘they can fish repeatedly’ /ya-ngá-súel-a-suel-á/
- (526) a. yàà-ngá-lém-él-à-lém-él-á ‘they can plant for repeatedly’ /ya-ngá-lém-il-a-lem-il-á/  
 b. yàà-ngá-léét-él-à-léet-él-á ‘they can bring for repeatedly’ /ya-ngá-leet-il-a-leet-il-á/  
 c. yàà-ngá-símùl-à-símùl-á ‘they can run repeatedly’ /ya-ngá-símul-a-simul-á/

The forms above are similar to the Present Progressive ones presented in (518) in that the root H is present just on the reduplicant. As was true in the Potential forms with toneless roots presented in (521) and (522) the H on the FV is present on the base, but not the reduplicant. Now let us consider forms with H-toned roots with longer bases.

<sup>53</sup> While these are the preferred pronunciations, both of my consultants also find acceptable the pronunciation where the H on the FV is not copied onto the reduplicant. E.g. yàà-ngá-swéèl-èl-à-swéèl-èl-á ‘they can brew repeatedly for’ (523b).

- (527) a. yàà-ngá-léét-él-àn-á-léét-él-àn-á ‘they can bring for each other rep’ /ya-ngá-léet-il-an-á-léet-il-an-á/  
 b. yàà-ngá-béléèng-á-béléèng-á ‘they can read repeatedly’ /ya-ngá-béleèng-á-béleèng-á/  
 c. yàà-ngá-sópólòl-á-sópólòl-á ‘they can untie repeatedly’ /ya-ngá-sópolol-á-sópolol-á/  
 d. yàà-ng-ímb-il-àn-á-ímb-il-àn-á ‘they can sing for e.o. repeatedly’ /yá-ngá-ímb-il-an-á-ímb-il-an-á/  
 e. sópólòl-á-sópólòl-á ‘untie repeatedly!’ /sópolol-á-sópolol-á/

In the forms with longer bases in (527) we see evidence of full tonal copying, as both the H on the FV and the root H appear in both the base and the reduplicant.<sup>54</sup>

To summarize, in the Potential forms with both toneless and H-toned roots, the MH on the FV is not copied to the reduplicant in shorter bases, but is in longer bases. What is interesting is that the definition of short vs. long base varies slightly, depending on the tonal status of the root. In forms with toneless roots (523) a long base is one which contains three or more syllables, whereas in forms with H-toned roots (527), a long base is one which contains four or more syllables.

Finally, let us examine verbs that take the V2 MH docking pattern.

- (528) a. à-là-sh-àá-sh-á ‘they will grind repeatedly’ /a-la-si-a-si-a +H/  
 b. yá-á-sì-íl-é-sì-íl-é ‘they ground repeatedly’ /yá-a-si-il-e-si-il-e +H/  
 c. yá-á-lém-íl-é-lém-íl-é ‘they grabbed repeatedly’ /yá-a-lem-il-e-lem-il-e +H/  
 d. yá-á-mù-lùk-ííl-é-lùk-ííl-é ‘they wove for him/her repeatedly’ /yá-a-mu-luk-il-il-e-luk-il-il-e +H/
- (529) a. yá-á-sì-íl-é-sì-íl-é ‘they left repeatedly’ /yá-a-si-il-e-si-il-e +H/  
 b. yá-á-lém-íl-é-lém-íl-é ‘they planted repeatedly’ /yá-a-lem-il-e-lem-il-e +H/  
 c. yá-á-mù-lùk-ííl-é-lùk-ííl-é ‘they vomited on him/her repeatedly’ /yá-a-mu-luk-il-il-e-luk-il-il-e +H/

To account for these forms I assume there is a single MH tone which does not get copied onto the reduplicant. This H docks onto the word-final TBU and then spreads to the second TBU of the reduplicant. The fact that the form in (528b) surfaces with a rise on the stem-initial syllable shows that there must be a phonological word boundary between the reduplicant and the base; otherwise we would predict that MH spreading would result in \*yá-á-sì-íl-é-sì-íl-é.

Let us now turn to Far Past forms with H-toned roots.

- (530) a. yá-á-sì-íl-é-sì-íl-é ‘they left repeatedly’ /yá-a-si-il-e-si-il-e +H/  
 b. yá-á-lém-íl-é-lém-íl-é ‘they planted repeatedly’ /yá-a-lem-il-e-lem-il-e +H/  
 c. yá-á-mù-lùk-ííl-é-lùk-ííl-é ‘they vomited on him/her repeatedly’ /yá-a-mu-luk-il-il-e-luk-il-il-e +H/

The forms above are all consistent with the assumption that the MH does not reduplicate. Rather, it docks onto the FV and then spreads leftward to the pen-initial mora of the reduplicant, after which Fusion applies.

<sup>54</sup> We noted above for the forms with long bases in (523b) that while it was preferable to copy the H on the FV, my consultants found the variant acceptable where this H was not copied. In the forms in (527) which contain H-toned roots, the preferred pronunciation is as given, where both the FV and root H are copied. When presented with the forms that result when neither H is copied, they found some of them marginally acceptable and some unacceptable. I note this here to suggest that the obligatoriness or optionality of tonal copying is certainly not yet fully understood and is an area which merits further study.

It should be recalled that in the subjunctive the root H deletes if it is immediately preceded by a SM. When such forms are reduplicated, the root H is absent from both the reduplicant and base even though the root-initial TBU in the base is not preceded by a SM.

- (531) tú-sópòlòl-é-sópòlòl-é ‘that we untie repeatedly’ /tú-sópolol-é-sópolol-é/

It should be kept in mind that in bases greater than two syllables we do expect both the root H and FV to be copied and that in the subjunctive it is not the case that the root H simply deletes if any H precedes as there is no deletion after a H-toned OM.

Finally, let us examine a reduplicated form of the negative Perfective. It should be recalled that in the negative Perfective forms of verbs with toneless roots, the MH docks onto the second and subsequent TBUs of the stem up to the penult (and not to the final as is the case with most of the TAMs presented in §5.3). Both the non-reduplicated and reduplicated forms are given below.

- (532) a. tù-tá-sú<sup>1</sup>kíl-ííl-è ‘we have not accompanied’ /tu-tá-sukil-il-il-e +H/  
 b. tù-tá-sú<sup>1</sup>kíl-ííl-é-sùkíl-ííl-è ‘we have not accompanied rep.’ /tu-tá-sukil-il-il-e+H-sukil-il-il-e +H/  
 c. tù-tá-mú-sùkíl-ííl-é-sùkíl-ííl-è ‘we have not accompanied him rep’ /tú-tá-mu-sukil-il-il-e+H-sukil-il-il-e +H/
- (533) a. tù-tá-fú<sup>1</sup>z-íl-è ‘we have not washed’ /tu-tá-ful-il-e +H/  
 b. tù-tá-fú<sup>1</sup>z-íl-é-fùz-íl-è ‘we have not washed rep’ /tu-tá-ful-il-e +H ful-il-e +H/  
 c. tù-tá-mú-fùz-íl-é-fùz-íl-è ‘we have not washed him rep’ /tu-tá-mu-ful-il-e+H-ful-il-e +H/

The MH in the above forms is present in both the base as well as the reduplicant. The first MH undergoes unbounded spreading within the reduplicant, but as the FV is not word-final it is no longer extraprosodic and thus spreading is to the reduplicant-final TBU. The second MH is realized on V2 to the penult as it is in the non-reduplicated forms.

The 3 sg. forms in the Perfect also show the V2-penult pattern. Examples of reduplicated forms are given below.

- (534) a. à-fùz-íl-è ‘he/she has washed’ /a-ful-il-e +H/  
 b. à-fùz-íl-é-fùz-íl-è ‘he/she has repeatedly washed’ /a-ful-il-e +H -ful-il-e +H/  
 c. à-sùkíl-ííl-è ‘he/she has accompanied’ /a-sukil-il-il-e +H/  
 d. à-sùkíl-ííl-é-sùkí-ííl-è ‘he/she has repeatedly accompanied’ /a-sukil-il-il-e +H -sukil-il-il-e +H/  
 e. à-lás-íl-è ‘he/she has hit’ /a-lás-il-e +H/  
 f. à-lás-íl-é-lás-íl-è ‘he/she has repeatedly hit’ /a-lás-il-e +H-lás-il-e +H/

These forms show the same pattern as those in the negative Perfect. The MH is copied onto the base and then both MHs undergo unbounded spreading. When the root is H-toned, this H is present on the root in the reduplicant as well as the base.



## CHAPTER 6: TONOLOGY OF VERBAL INFINITIVES

### 6.1 Affirmative Infinitive

#### 6.1.1 General Description and comparison with 2 sg. Present Progressive forms

In Cilungu, as in many other Bantu languages, the infinitival form of the verb is formed as a Class 15 noun. (Nouns in other classes will be presented and analyzed in chapter 7.) The infinitival verb has the following structure:

(1) Preprefix /u-/ - Class Prefix /ku-/ - Object Marker (opt.) - Root – Extension(s) (opt.) - Final Vowel /-a/.

Representative infinitival forms containing the 3 sg. object /mu-/ are given below:

(2) Verbal Infinitives with toneless roots

- |    |                    |                        |
|----|--------------------|------------------------|
| a. | ú-kú-mú-fúl-à      | ‘to wash him/her’      |
| b. | ú-kú-mú-fúl-íl-à   | ‘to wash for him/her’  |
| c. | ú-kú-mú-zíík-à     | ‘to bury him/her’      |
| d. | ú-kú-mú-zíík-íl-à  | ‘to bury for him/her’  |
| e. | ú-kú-mú-súkíl-íl-à | ‘to accompany him/her’ |
| f. | ú-kú-mú-swéél-él-à | ‘to brew for him/her’  |

(3) Verbal Infinitives with H-toned roots

- |    |                    |                        |
|----|--------------------|------------------------|
| a. | ú-kú-mù-lás-à      | ‘to hit him/her’       |
| b. | ú-kú-mù-lás-íl-à   | ‘to hit for him/her’   |
| c. | ú-kú-mù-léét-à     | ‘to bring him/her’     |
| d. | ú-kú-mù-léét-él-à  | ‘to bring for him/her’ |
| e. | ú-kú-mù-sópólól-à  | ‘to untie him/her’     |
| f. | ú-kú-mù-swéél-él-à | ‘to fish for him/her’  |

Segmentally, the infinitive is always identical to the 2 sg. form of the Present Progressive (cf. §5.1.1). We will see however, that tonally, the infinitive form is identical to its Present Progressive counterpart in some cases, but not in others. In infinitive forms with toneless roots, all TBUs are H-toned except the final one which is Low. In forms with H-toned roots, the first two TBUs are H-toned, the 3 sg. object /mu-/ surfaces as Low and all TBUs in the stem except the final one are High. These tone patterns are directly predicted by our rules if we set up the preprefix /ú-/ as H-toned, and continue to assume a High/toneless contrast in verb roots. The forms above, then, are completely homophonous with the 2 sg. Present Progressive forms (§5.1.1), as the latter take the H-toned subject prefix /ú-/.

- |     |    |                    |  |
|-----|----|--------------------|--|
| (4) | a. | ú-kú-mú-fúl-à      | ‘to wash him/her’, ‘you (sg.) are washing him/her’         |
|     | b. | ú-kú-mú-swéél-él-à | ‘to brew for him/her’, ‘you (sg.) are brewing for him/her’ |
|     | c. | ú-kú-mù-lás-à      | ‘to hit him/her’, ‘you (sg.) are hitting him/her’          |
|     | d. | ú-kú-mù-sópólól-à  | ‘to untie him/her’, ‘you (sg.) are untying him/her’        |

Examples of the non-phrase-final realization of these forms are also identical to their 2 sg. Present Progressive counterparts, and are given below.

- (5)
- |    |                                      |  |
|----|--------------------------------------|--|
| a. | ú-kú-mù-fùl-à sààná                  | ‘to wash him/her a lot’, ‘you (sg.) are washing him/her a lot’         |
| b. | ú-kú-mù-swèèl-èl-à sààná             | ‘to brew for him/her a lot’, ‘you (sg.) are brewing for him/her a lot’ |
| c. | ú-kú-mù-lás-á <sup>1</sup> sààná     | ‘to hit him/her a lot’, ‘you (sg.) are hitting him/her a lot’          |
| d. | ú-kú-mù-sópólól-á <sup>1</sup> sààná | ‘to untie him/her a lot’, ‘you (sg.) are untying him/her a lot’        |

Infinitival and 2 sg. forms are also homophonous when the toneless 1 sg. OM /n-/ is present, as seen below.

- (6)
- |    |                                      |  |
|----|--------------------------------------|--|
| a. | ú-kúú-m-fùl-à                        | ‘to wash me’, ‘you (sg.) are washing me’                       |
| b. | ú-kúù-m-fùl-à sààná                  | ‘to wash me a lot’, ‘you (sg.) are washing me a lot’           |
| c. | ú-kúú-n-déét-él-à                    | ‘to bring for me’, ‘you (sg.) are bringing for me’             |
| d. | ú-kúù-n-déét-él-á <sup>1</sup> sààná | ‘to bring for me a lot’, ‘you (sg.) are bringing for me a lot’ |

Let us now consider infinitives without any object prefix. We begin with forms with toneless roots.

(7) Verbal Infinitives with toneless roots; phrase-final

- |    |                  |                     |
|----|------------------|---------------------|
| a. | ú-kú-sh-á        | ‘to grind’          |
| b. | ú-kú-fùl-à       | ‘to wash’           |
| c. | ú-kú-fùl-íl-à    | ‘to wash for’       |
| d. | ú-kú-zíík-à      | ‘to bury’           |
| e. | ú-kú-zíík-íl-à   | ‘to bury for’       |
| f. | ú-kú-súkíl-íl-à  | ‘to accompany’      |
| g. | ú-kú-swéél-él-à  | ‘to brew for’       |
| h. | ú-kú-súkílíl-w-á | ‘to be accompanied’ |

(8) Verbal Infinitives with toneless roots; non-phrase-final

- |    |                        |                      |
|----|------------------------|----------------------|
| a. | ú-kú-sh-à pó sààná     | ‘to grind a lot’     |
| b. | ú-kú-fùl-à sààná       | ‘to wash a lot’      |
| c. | ú-kú-zíík-à sààná      | ‘to bury a lot’      |
| d. | ú-kú-súkíl-íl-à Chóólà | ‘to accompany Chola’ |
| e. | ú-kú-pèkèt-à sààná     | ‘to inspect a lot’   |

As can be seen both the phrase-final and non-phrase-final forms surface as predicted, and all are homophonous with the corresponding 2 sg. Present Progressive forms.

### 6.1.2 Motivating a nominal Melodic High tone

Let us now turn to verbs without any object prefix which contain H-toned roots.

(9) Verbal Infinitives with H-toned roots

a.	ú-kú-sh-à	‘to leave’ <sup>1</sup>
b.	ú-kú- <sup>1</sup> láš-á	‘to hit’
c.	ú-kú- <sup>1</sup> láš- <sup>1</sup> w-á	‘to be hit’
d.	ú-kú- <sup>1</sup> láš- <sup>1</sup> íl-à	‘to hit for’
e.	ú-kú- <sup>1</sup> bé <sup>1</sup> lééng-à	‘to read’
f.	ú-kú- <sup>1</sup> só <sup>1</sup> pólól-à	‘to untie’
g.	ú-kú- <sup>1</sup> só <sup>1</sup> pólwéél-à	‘to untie for’
h.	ú-kú- <sup>1</sup> lé <sup>1</sup> ét-à	‘to bring’
i.	ú-kú- <sup>1</sup> lé <sup>1</sup> ét-w-á	‘to be brought’
j.	ú-kú- <sup>1</sup> lé <sup>1</sup> ét-él-à	‘to bring for’
k.	ú-kú- <sup>1</sup> swé <sup>1</sup> él-él-à	‘to fish for’
l.	ú-kú- <sup>1</sup> zi <sup>1</sup> ingúlúl-à	‘to surround’
m.	ú-kú- <sup>1</sup> pá <sup>1</sup> ápáátík-à	‘to flatten’

The first thing to be noted is that verbal infinitives with H-toned roots all surface differently than their 2 sg. Present Progressive counterparts as seen below.

(10) 2 sg. Present Progressive Forms with H-toned roots

a.	ú-kú- <sup>1</sup> sh-á	‘you (sg.) are leaving’
b.	ú-kú- <sup>1</sup> láš-à	‘you (sg.) are hitting’
c.	ú-kú- <sup>1</sup> láš-w-á	‘you (sg.) are being hit’
d.	ú-kú- <sup>1</sup> láš-íl-à	‘you (sg.) are hitting for’
e.	ú-kú- <sup>1</sup> léét-à	‘you (sg.) are bringing’
f.	ú-kú- <sup>1</sup> léét-él-à	‘you (sg.) are bringing for’
g.	ú-kú- <sup>1</sup> sópólól-à	‘you (sg.) are untying’
h.	ú-kú- <sup>1</sup> swéél-él-à	‘you (sg.) are fishing for’

In the verbal infinitives with a H-toned root, there is ample evidence of the insertion of a Melodic High—something not found in the 2 sg. Present Progressive forms. But the behavior of the MH in the infinitive is interestingly different than its behavior in the finite verbs discussed in sections 5.2 and 5.3. First, in finite verbs presented in §5.3 the melodic H docked onto the second and subsequent TBUs of the verbal stem regardless of the tone of the root and whether an OM (H or  $\emptyset$ ) was present or not. In the infinitive, no MH is attested when the macrostem-initial TBU is toneless ((2)-(8)). Second, in finite verbs the melodic H always fused with a root-initial H, while in infinitival forms it does not. Third, in finite verbs the melodic H generally manifested itself on all morae to the right of its docking site, including the FV, while in the infinitival forms it behaves like a macrostem H in a verb with no MH (cf. §5.1) in that it spreads to the penult when the verb is phrase-final (and only to the ultima when the verb is non-phrase-final). There are, however, a few exceptions to this within the finite verbal tonology, where a MH does dock onto the second and subsequent TBUs up to the penult. This happens in certain forms in the Recent Past (§5.2.4) and the Perfect (§5.3.7). We return to some of these differences below.

Let us now examine the non-phrase-final realizations of infinitives with H-toned roots.

<sup>1</sup> The reason why the FV in this case surfaces as Low is discussed below.

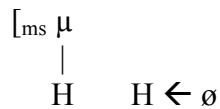
- |      |    |  |                      |                            |
|------|----|--|----------------------|----------------------------|
| (11) | a. | ú-kú- <sup>!</sup> sh-á Chòòlà                             | ‘to leave Chola’     | /ú-ku-sí-a +H Choola/      |
|      | b. | ú-kú- <sup>!</sup> sh-á nìngó                              | ‘to leave well’      | /ú-ku-sí-a +H nìngó/       |
|      | c. | ú-kú- <sup>!</sup> sh-á <sup>!</sup> sàaná                 | ‘to leave a lot’     | /ú-ku-sí-a +H sàaná/       |
|      |    |  |                      |                            |
| (12) | a. | ú-kú- <sup>!</sup> lá <sup>!</sup> s-á Chóólà              | ‘to hit Chola’       | /ú-ku-lás-a +H Choola/     |
|      | b. | ú-kú- <sup>!</sup> lá <sup>!</sup> s-á nìngó               | ‘to hit well’        | /ú-ku-lás-a +H nìngó/      |
|      | c. | ú-kú- <sup>!</sup> lá <sup>!</sup> s-á sàaná               | ‘to hit a lot’       | /ú-ku-lás-a +H sàaná/      |
|      |    |  |                      |                            |
| (13) | a. | ú-kú- <sup>!</sup> lá <sup>!</sup> s-íl-á Chòòlà           | ‘to hit for Chola’   | /ú-ku-lás-il-a +H Choola/  |
|      | b. | ú-kú- <sup>!</sup> lé <sup>!</sup> ét-á <sup>!</sup> sàaná | ‘to bring a lot’     | /ú-ku-léet-a +H sàaná/     |
|      | c. | ú-kú- <sup>!</sup> pé <sup>!</sup> él-á <sup>!</sup> sàaná | ‘to give a lot’      | /ú-ku-pé-il-a +H sàaná/    |
|      | d. | ú-kú- <sup>!</sup> lé <sup>!</sup> ét-él-á Chòòlà          | ‘to bring for Chola’ | /ú-ku-léet-il-a +H Choola/ |
|      | e. | ú-kú- <sup>!</sup> só <sup>!</sup> pólól-á Chòòlà          | ‘to untie Chola’     | /ú-ku-sópolol-a +H Choola/ |

We see that the Melodic H which has docked onto the second TBU of the stem spreads in an unbounded fashion up to the FV. It should be noted that all non-phrase-final infinitival forms with H-toned roots surface distinctly from their 2 sg. Present Progressive counterparts, as can be seen below.<sup>2</sup>

- |      |    |  |                                    |                         |
|------|----|--|------------------------------------|-------------------------|
| (14) | a. | ú-kú- <sup>!</sup> sh-á Chóólà               | ‘you (sg.) are leaving Chola’      | /ú-ku-sí-a Choola/      |
|      | b. | ú-kú- <sup>!</sup> sh-á nìngó                | ‘you (sg.) are leaving well’       | /ú-ku-sí-a nìngó/       |
|      | c. | ú-kú- <sup>!</sup> sh-á sàaná                | ‘you (sg.) are leaving a lot’      | /ú-ku-sí-a sàaná/       |
|      |    |  |                                    |                         |
| (15) | a. | ú-kú- <sup>!</sup> lás-á Chòòlà              | ‘you (sg.) are hitting Chola’      | /ú-ku-lás-a Choola/     |
|      | b. | ú-kú- <sup>!</sup> lás-á <sup>!</sup> sàaná  | ‘you (sg.) are hitting a lot’      | /ú-ku-lás-a sàaná/      |
|      |    |  |                                    |                         |
| (16) | a. | ú-kú- <sup>!</sup> lás-íl-á Chòòlà           | ‘you (sg.) are hitting for Chola’  | /ú-ku-lás-il-a Choola/  |
|      | b. | ú-kú- <sup>!</sup> léét-á <sup>!</sup> sàaná | ‘you (sg.) are bringing a lot’     | /ú-ku-léet-a sàaná/     |
|      | c. | ú-kú- <sup>!</sup> léét-él-á Chòòlà          | ‘you (sg.) are bringing for Chola’ | /ú-ku-léet-il-a Choola/ |
|      | d. | ú-kú- <sup>!</sup> sópólól-á Chòòlà          | ‘you (sg.) are untying Chola’      | /ú-ku-sópolol-a Choola/ |

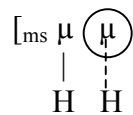
The key to accounting for the differences between the infinitive and the 2 sg. forms is the Melodic High, which is present in the infinitive forms with H-toned roots, but never present in the Present Progressive. I propose that this nominal MH docks onto the leftmost free mora of the macrostem.

(17) Nominal Melodic High Insertion



<sup>2</sup> Infinitives and 2 sg. forms with CV stems, while introduced here for completeness, are discussed and analyzed below.

(18) Nominal Melodic High Docking



This nominal MH spreads rightward in an unbounded fashion (as expected of a stem H) but as seen above, has the unusual property of not fusing with the macrostem H that it docks beside. When the nominal MH docks onto the FV, however, it will fuse with an immediately following H (in the following word), as seen in (12c). The way I propose to account for this is to posit two Fusion rules, one which operates strictly within the word and one which operates at the level of the phrase. If Nominal MH Docking is ordered between the two, then the correct results obtain as seen below, where the derivation of (12c) is contrasted with (15b).

(19) a. Infinitive      b. Present Progressive

las-a saana	las-a saana	U.R.
H      H H	H      H H	
las-a saana		Nominal MH Insertion
H H    H H		
n/a	n/a	Fusion-word
las-a saana	n/a	Nominal MH Docking
H H H H		
las-a saana	n/a	Fusion-phrase
\ /		
H    H    H		
n/a	las-a saana	General Doubling
	/	
	H    H H	

Next, we note that while the nominal MH spreads into the following word in cases such as (12a-b), it will not in cases such as (11a-b). This is illustrated below.

- (20) a. u-ku-si-a Choola    b. u-ku-las-a Choola    U.R. + Nominal MH Insertion
- $\begin{array}{c} | \\ \text{H} \end{array}$      $\begin{array}{c} | \\ \text{H} \end{array}$   $\text{H}$                        $\begin{array}{c} | \\ \text{H} \end{array}$      $\begin{array}{c} | \\ \text{H} \end{array}$   $\text{H}$

Fusion

- u-ku-si-a Choola                      u-ku-las-a Choola    Nominal MH Docking
- $\begin{array}{c} | \\ \text{H} \end{array}$      $\begin{array}{c} | \\ \text{H} \end{array}$   $\begin{array}{c} | \\ \text{H} \end{array}$                        $\begin{array}{c} | \\ \text{H} \end{array}$      $\begin{array}{c} | \\ \text{H} \end{array}$   $\begin{array}{c} | \\ \text{H} \end{array}$

- u-ku-sh-aa Choola                      Gliding, Palatalization & CL
- $\begin{array}{c} | \\ \text{H} \end{array}$                        $\begin{array}{c} | \\ \text{H} \end{array}$   $\begin{array}{c} | \\ \text{H} \end{array}$

- u-ku-sh-a Choola                      Word-final Shortening
- $\begin{array}{c} | \\ \text{H} \end{array}$                        $\begin{array}{c} | \\ \text{H} \end{array}$   $\begin{array}{c} | \\ \text{H} \end{array}$

- u-ku-sh-a Choola                      u-ku-las-a Choola    General Doubling & Unbounded Spreading
- $\begin{array}{c} | \\ \text{H} \end{array}$     /     $\begin{array}{c} | \\ \text{H} \end{array}$   $\text{H}$                        $\begin{array}{c} | \\ \text{H} \end{array}$     /     $\begin{array}{c} | \\ \text{H} \end{array}$   $\begin{array}{c} | \\ \text{H} \end{array}$     /

To account for the fact that the MH spreads in (20b), but not in (20a), we must formalize General Doubling not to spread a H into the following word when that H is followed by a floating H.

Let us now turn to forms which have a H-toned object prefix. We begin with forms in phrase-final position. (Verbs with monosyllabic stems will be discussed separately below.)<sup>3</sup>

- (21) Infinitives with a H-toned OM and a toneless root; phrase-final

- |   |                     |                         |
|---|---------------------|-------------------------|
| a. ú-kú- <sup>1</sup> yá- <sup>1</sup> lém-à      | ‘to grab them’      | /ú-ku-yá-lem-a +H/      |
| b. ú-kú- <sup>1</sup> yá- <sup>1</sup> lém-él-à   | ‘to grab for them’  | /ú-ku-yá-lem-il-a +H/   |
| c. ú-kú- <sup>1</sup> yá- <sup>1</sup> lúk-íl-à   | ‘to weave for them’ | /ú-ku-yá-luk-il-a +H/   |
| d. ú-kú- <sup>1</sup> yá- <sup>1</sup> súkíl-íl-à | ‘to accompany them’ | /ú-ku-yá-sukil-il-a +H/ |

- (22) Infinitives with a H-toned OM and a H-toned root; phrase-final

- |  |                     |                        |
|--|---------------------|------------------------|
| a. ú-kú- <sup>1</sup> yá- <sup>1</sup> lém-à     | ‘to plant them’     | /ú-ku-yá-lém-a +H/     |
| b. ú-kú- <sup>1</sup> yá- <sup>1</sup> lém-él-à  | ‘to plant for them’ | /ú-ku-yá-lém-il-a +H/  |
| c. ú-kú- <sup>1</sup> yá- <sup>1</sup> lúk-íl-à  | ‘to vomit on them’  | /ú-ku-yá-lúk-il-a +H/  |
| d. ú-kú- <sup>1</sup> yá- <sup>1</sup> sópólól-à | ‘to untie them’     | /ú-ku-yá-sópolol-a +H/ |

<sup>3</sup> Even though I assume that the nominal MH is inserted by an early rule (17), I include it in the UR, as <+H> as an aid to the reader.

As can be seen, forms with toneless roots and H-toned roots (which have stems greater than one syllable) surface identically when a H-toned OM is present. The non-phrase-final forms with a H-toned OM also surface identically, as seen below.

(23) Infinitives with a H-toned OM and a toneless root; non-phrase-final

- |    |   |                              |                          |
|----|---|------------------------------|--------------------------|
| a. | ú-kú- <sup>1</sup> mú- <sup>1</sup> lém-él-á <sup>1</sup> sáàná | ‘to grab for you (pl) a lot’ | /ú-ku-mú-lem-el-a sáaná/ |
| b. | ú-kú- <sup>1</sup> yá- <sup>1</sup> lúk-íl-á <sup>1</sup> sáàná | ‘to weave for them a lot’    | /ú-ku-yá-luk-il-a sáaná/ |

(24) Infinitives with a H-toned OM and a H-toned root; non-phrase-final

- |    |   |                               |                          |
|----|---|-------------------------------|--------------------------|
| a. | ú-kú- <sup>1</sup> mú- <sup>1</sup> lém-él-á <sup>1</sup> sáàná | ‘to plant for you (pl) a lot’ | /ú-ku-mú-lém-el-a sáaná/ |
| b. | ú-kú- <sup>1</sup> yá- <sup>1</sup> lúk-íl-á <sup>1</sup> sáàná | ‘to vomit on them a lot’      | /ú-ku-yá-lúk-il-a sáaná/ |

In order to account for the forms with a toneless root in (23), the rule which inserts a nominal MH must be triggered by the presence of a macrostem-initial H (and not simply by a stem-initial H). I.e. the rule is triggered whether this macrostem-initial H is sponsored by an OM (23) or a root (14)-(16).<sup>4</sup>

A docking process then links that H to the *leftmost* free TBU of the macrostem (and not blindly to the second mora of the stem as it does in did in the TAMs presented in §5.3), which in the case of forms like those in (21) will be the stem-initial TBU since it is toneless. In the case of the forms with a H-toned root (22), we see that the H on the OM and the H on the root do not fuse. This shows that no fusion occurs in the macrostem in the infinitive between any two adjacent H’s—whether the H’s in question are supplied by the OM, the root, or are melodic H, and thus the general rule of Fusion must be annotated not fuse a OM H and a root H in verbal infinitives.

Next, for the forms in (22) with a H-toned OM as well as a H-toned root I assume that the melodic H *does* link to the second TBU of the stem (which is the leftmost free TBU). At this point I assume that whenever there is a string of four consecutive syllables within a word each linked to a distinct H, the fourth H delinks as the language does not allow three consecutively downstepped morae.

(25) Third Consecutive Downstep Deletion

μ	μ	μ	μ
			+
H	H	H	H

Let us now consider verbs which have two direct objects.

<sup>4</sup> Of course, the question arises as to whether it would be possible to make this MH insertion rule (which certainly runs counter to the spirit of the OCP) more general—perhaps affecting all macrostems and not simply those whose initial TBU is toneless. We will see in chapter 7 that this MH insertion will take place in nouns of all classes, not just the class 15 nouns being presented here. As will be seen in §7.2, it is the tonal behavior of nouns whose roots have a H on a non-root-initial TBU which argue against the general insertion of a MH which must often later be deleted or fused.

- (26) a. ú-kú-<sup>1</sup>tú-<sup>1</sup>mú-lém-él-à      ‘to grab him for us’      /ú-ku-tú-mu-lem-il-a +H/  
 b. ú-kú-<sup>1</sup>tú-<sup>1</sup>mú-lém-él-à      ‘to grab you for us’      /ú-ku-tú-mú-lem-il-a +H/  
 c. ú-kú-<sup>1</sup>tú-<sup>1</sup>mú-lém-él-à      ‘to plant you for us’      /ú-ku-tú-mú-lém-il-a +H/

In the case of (26a) the MH will dock onto the second (toneless) OM /mu-/ as it is the leftmost free TBU. In (26b) we see that the melodic H is not realized. Again, I assume that it may dock, but is then deleted or delinked by the rule in (25) since it would represent a third consecutive downstep, rendering this form homophonous with (26a). In the case of a verb with 2 H-toned OM’s as well as a H-toned root (26c), not only is the MH not realized in these forms, but the H on the root deletes, rendering it homophonous to (26a-b). This is again consistent with the constraint that the language does not tolerate more than two consecutive downsteps.

Let us now consider the behavior of two OM’s where the second is the toneless 1 sg. /n-/.

- (27) a. ú-kú-<sup>1</sup>yá<sup>1</sup>á-n-dém-él-à      ‘to grab them for me’      /ú-ku-yá-n-lem-il-a +H/  
 b. ú-kú-<sup>1</sup>yá<sup>1</sup>á-n-dámúk-íl-à      ‘to greet them for me’      /ú-ku-yá-n-lamuk-il-a +H/

Since the macrostem initial TBU is H-toned, the MH is inserted and docks onto the leftmost free TBU, which in this case is the mora supplied by the 1 sg. nasal. This creates a downstep on [yá<sup>1</sup>á], which makes it distinct from the corresponding 2 sg. forms where no MH is inserted and where the third syllable has a long leel High [yáá].<sup>5</sup>

- (28) a. ú-kú-<sup>1</sup>yáá-n-dém-él-à      ‘you are grabbing them for me’      /ú-ku-yá-n-lem-il-a/  
 b. ú-kú-<sup>1</sup>yáá-n-dámúk-íl-à      ‘you are greeting them for me’      /ú-ku-yá-n-lamuk-il-a/

Let us now turn to infinitival forms with vowel-initial roots. We begin with infinitives with toneless roots.

(29) V-initial toneless roots in phrase-final position

- a. ú-kw-íimb-à      ‘to dig’      /ú-ku-imb-a/  
 b. ú-kw-íiz-à      ‘to come’      /ú-ku-iz-a/  
 c. ú-kw-éél-à      ‘to winnow’      /ú-ku-el-a/  
 d. ú-kú-úlúk-à      ‘to blow’      /ú-ku-uluk-a/  
 e. ú-kw-éélééngány-á      ‘to consider’      /ú-ku-elengany-a/

(30) V-initial toneless roots in non-phrase-final position

- a. ú-kw-íimb-à Chòòlà      ‘to dig out Chola’      /ú-ku-imb-a Choola/  
 b. ú-kw-íimb-il-àn-à sáaná      ‘to dig for each other a lot’      /ú-ku-imb-il-an-a sáaná/  
 c. ú-kw-éèlèèngány-à nìngó      ‘to consider well’      /ú-ku-elengany-a nìngó/

The tonology of these is exactly as expected. No MH is present since the macrostem is toneless and the H of the preprefix will spread in an unbounded fashion to the penult in the phrase-final forms, and in a bounded fashion in the non-phrase-final forms. The forms in (29) and (30), as they do not have a MH, are homophonous with their 2 sg. Present Progressive counterparts.

Let us now turn to verbs with H-toned roots.

<sup>5</sup> Infinitives with the /yá-/ and /n-/ prefixes with H-toned roots are presented and discussed in section 10.5.



(31) V-initial H-toned roots in phrase-final position

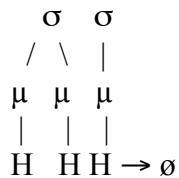
a.	ú-kw-í'ímb-à	'to sing'	/ú-ku-ímb-a/
b.	ú-kw-é'él-èl-à	'to fish for'	/ú-ku-él-il-a/
c.	ú-kw-í'ímb-il-àn-à	'to sing to each other'	/ú-ku-ímb-il-an-a/
d.	ú-kw-í'íkùt-à	'to be full (of food)'	/ú-ku-íkut-a/
e.	ú-k-ó'ómòl-à	'to pull down'	/ú-ku-ómol-a/

(32) V-initial H-toned roots in non-phrase-final position

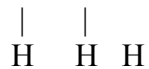
a.	ú-kw-í'ímb-à sàaná	'to sing a lot'	/ú-ku-ímb-a sàaná/
b.	ú-kw-í'ímb-il-àn-à sàaná	'to sing for each other a lot'	/ú-ku-ímb-il-an-a sàaná/
c.	ú-kw-é'él-èl-à Chòòlà	'to fish for Chola'	/ú-ku-él-el-a Choola/

We see two strange things in the forms above. First, there is no evidence of a melodic H linking to the second TBU of the stem, something which did occur in the H-toned C-initial roots seen in (9). Next, the root H does not spread. Had both of these processes applied we would expect forms such as: \*ú-kw-í'ímb-<sup>1</sup>á and \*ú-kw-í'ímb-<sup>1</sup>il-án-à. It turns out that there is no contrast in Cilungu between C<sup>1</sup>ṽ<sup>1</sup>C<sup>1</sup> and C<sup>1</sup>ṽ<sup>1</sup>Cṽ. I therefore assume that the MH does dock in these forms as it does in all others, and when C<sup>1</sup>ṽ<sup>1</sup>C<sup>1</sup> is created the rightmost H in this sequence is deleted, as formalized in (33). If this is ordered after spreading, we account for the lack of spreading in the forms given above.

(33) Post-Fall Downstep Deletion



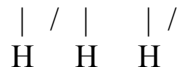
(34) u-ku-imb-il-an-a U.R. + Nominal MH Insertion



u-ku-imb-il-an-a MH Docking



u-ku-imb-il-an-a General Doubling & Unbounded Spreading



u-ku-imb-il-an-a Post-Fall Downstep Deletion



I remind the reader here that all of the infinitival forms in (31) and (32) are distinct from their 2 sg. counterparts. As discussed in section 5.1.1.2, a SM H tone in the Present Progressive will not spread onto the following mora as this would create a downstep over a macrostem boundary.

- |      |    |               |                       |                |
|------|----|---------------|-----------------------|----------------|
| (35) | a. | ú-kw-ímb-à    | ‘you are singing’     | /ú-ku-ímb-a/   |
|      | b. | ú-kw-éél-él-à | ‘you are fishing for’ | /ú-ku-él-il-a/ |

Let us now consider vowel-initial roots with object markers. First, we consider toneless OMs.

(36) Toneless root with toneless OM

- |    |                  |                         |                   |
|----|------------------|-------------------------|-------------------|
| a. | ú-kú-mw-ímb-à    | ‘to dig him up’         | /ú-ku-mu-imb-a/   |
| b. | ú-kú-mw-éél-él-à | ‘to winnow for him/her’ | /ú-ku-mu-el-il-a/ |

Since the macrostem is toneless, no MH is added and the H on the preprefix undergoes unbounded spreading. (These forms are identical to their 2 sg. Present Progressive counterparts.)

Forms with a H-toned root and toneless OM are given below.

- |      |    |                  |                         |                   |
|------|----|------------------|-------------------------|-------------------|
| (37) | a. | ú-kú-mw-ímb-à    | ‘to sing about him/her’ | /ú-ku-mu-ímb-a/   |
|      | b. | ú-kú-mw-éél-él-à | ‘to fish for him/her’   | /ú-ku-mu-él-il-a/ |

Since the macrostem-initial mora is toneless, the nominal MH is not inserted.

Now we turn to forms with a H-toned OM. First we begin with forms with toneless roots.

- |      |    |  |                          |                    |
|------|----|--|--------------------------|--------------------|
| (38) | a. | ú-kú- <sup>!</sup> mw-í <sup>!</sup> mb-à    | ‘to dig you (pl.) up’    | /ú-ku-mú-imb-a/    |
|      | b. | ú-kú- <sup>!</sup> tw-í <sup>!</sup> mb-íl-à | ‘to dig for us’          | /ú-ku-tú-imb-il-a/ |
|      | c. | ú-kú- <sup>!</sup> mw-é <sup>!</sup> él-él-à | ‘to winnow for you (pl)’ | /ú-ku-mú-el-il-a/  |

In the forms above we see that the MH is triggered by the H on the macrostem-initial TBU, and has docked onto the leftmost free TBU, which is the root-initial one, exactly as it did in C-initial roots with H-toned OMs (21). This H then spreads to the penult.

Verbs with H-toned roots and H toned objects are shown below.

- |      |    |  |                           |                    |
|------|----|--|---------------------------|--------------------|
| (39) | a. | ú-kú- <sup>!</sup> mw-í <sup>!</sup> mb-à    | ‘to sing about you (pl.)’ | /ú-ku-mú-ímb-a/    |
|      | b. | ú-kú- <sup>!</sup> tw-í <sup>!</sup> mb-íl-à | ‘to sing for us’          | /ú-ku-tú-ímb-il-a/ |
|      | c. | ú-kú- <sup>!</sup> mw-é <sup>!</sup> él-él-à | ‘to fish for you (pl)’    | /ú-ku-mú-él-il-a/  |

As can be seen, these surface homophonously with their counterparts with toneless verbs. I assume in each case the MH is triggered and docks onto the second mora of the root, after which Post-Fall Downstep Deletion, as formalized above in (33), will delete it.

### 6.1.3 Reduplicated & andative infinitival forms

Let us now briefly examine the reduplication of infinitival forms. Representative forms are given below.

- (40) a. ú-kú-fúl-á-fúl-à 'to wash repeatedly' /ú-ku-ful-a-ful-a/  
 b. ú-kú-súkílíl-á-súkíl-íl-à 'to accompany repeatedly' /ú-ku-ful-a-ful-a/  
 (41) a. ú-kú-<sup>1</sup>yá-<sup>1</sup>fúl-á-fúl-à 'to wash them repeatedly' /ú-ku-yá-ful-a-ful-a +H/  
 b. ú-kú-<sup>1</sup>lú<sup>1</sup>m-á-lúm-à 'to bite repeatedly' /ú-ku-lúm-a-lum-a +H/  
 c. ú-kú-<sup>1</sup>só<sup>1</sup>pólól-á-sópólól-à 'to untie repeatedly' /ú-ku-sópolol-a-sopolol-a +H/

As is the case in non-reduplicated infinitival forms, a melodic H is present if the initial mora of the macrostem is H, and so none occurs in (40). In (41b-c) we see that a root H is only realized on the reduplicant (i.e. the left member of the reduplicated stem). This contrasts with the Present Progressive reduplicatives (§5.5) where we saw that the root H was present in both the base and reduplicant when the former was greater than two syllables. In all the forms in (41), we see that a single MH docks onto the second TBU of the macrostem and then spreads to the penult.

Finally, we saw that both the subjunctive (5.3.9) as well as the imperative (5.3.10) were able to convey the “andative” sense of ‘go and...’ by adding the prefix /ka-/.

- (42) a. ú-ká-fùl-é 'that you go and wash' /ú-ka-ful-e +H/  
 b. kà-zìik-é 'go and bury' /ka-ziik-e +H/

It is possible to add these same semantics to the infinitive by using the prefix /yaa-/.<sup>6</sup> Representative forms are given below.

- (43) a. ú-kú-yáá-sh-á 'to go and grind' /ú-ku-yaa-si-a/  
 b. ú-kú-yáá-káz-y-á 'to go and sell' /ú-ku-yaa-kal-i-a/  
 c. ú-kú-yáá-fúl-à 'to go and wash' /ú-ku-yaa-ful-a/  
 d. ú-kú-yáá-él-à 'to go and winnow' /ú-ku-yaa-el-a/  
 (44) a. ú-kú-yá-mú-fúl-à 'to go and wash him/her' /ú-ku-yaa-mu-ful-a/  
 b. ú-kú-yà-ví-fúl-à 'to go and wash them (C8)' /ú-ku-yaa-ví-ful-a/  
 (45) a. ú-kú-yàà-sh-á 'to go and leave' /ú-ku-yaa-sí-a/  
 b. ú-kú-yàà-lém-à 'to go and plant' /ú-ku-yaa-lém-a/  
 c. ú-kú-yàà-él-à 'to go and fish' /ú-ku-yaa-él-a/  
 (46) a. ú-kú-yà-símúl-à 'to go and run' /ú-ku-ya-símul-a/  
 b. ú-kú-yà-mù-sh-á 'to go and leave' /ú-ku-ya-mu-sí-a/  
 c. ú-kú-yà-mù-sópólól-à 'to go and untie him/her' /ú-ku-ya-mu-sópolol-a/  
 d. ú-kú-yà-ví-sópólól-à 'to go and untie them (C8)' /ú-ku-ya-ví-sópolol-a/

In each case the overall tone pattern of the form diagnoses this prefix as toneless. One interesting aspect of these forms is that the vowel in the prefix is sometimes realized as long and sometimes as short. The surface distribution of the long and short variants was addressed in section 3.1.6 and depends on the size of the macrostem.<sup>7</sup> The long variant occurs if the following macrostem is two morae or less, otherwise the long

<sup>6</sup> This prefix is, of course, related to the verb *ú-kú-y-á* ‘to go’.

<sup>7</sup> See §10.1.4 for a complete list of environments in which this type of shortening occurs.

variant appears. I assume that the prefix is underlyingly long and shortens by rule. The other notable thing about the forms above is that the Melodic High never appears. The most straightforward way to account for this is to include the andative /yaa-/ as part of the macrostem, since what triggers the insertion of the nominal Melodic High is a macrostem-initial H tone.

## 6.2 Negative Infinitive

To form the negative of the infinitive, the H-toned prefix /ntá-/ is used. Representative forms are shown below.

### (47) Negative infinitives with toneless macrostems; phrase-final

a.	ú-kúù-ntá-sh-á	‘to not grind’	/ú-ku-ntá-si-a/
b.	ú-kúù-ntá-fúl-à	‘to not wash	/ú-ku-ntá-ful-a/
c.	ú-kúù-ntá-lém-él-à	‘to not grab for’	/ú-ku-ntá-lem-il-a/
d.	ú-kúù-ntá-zíík-íl-án-à	‘to not bury for each other’	/ú-ku-ntá-ziik-il-an-a/

### (48) Negative infinitives with toneless macrostems; non-phrase-final

a.	ú-kúù-ntá-sh-á <sup>1</sup> sáaná	‘to not grind a lot’	/ú-ku-ntá-si-a sáaná/
b.	ú-kúù-ntá-zíík-á <sup>1</sup> sáaná	‘to not bury a lot’	/ú-ku-ntá-ziik-a sáaná/
c.	ú-kúù-ntá-lém-él-á <sup>1</sup> sáaná	‘to not grab for a lot’	/ú-ku-ntá-lem-il-a sáaná/
d.	ú-kúù-ntá-súkíl-íl-á <sup>1</sup> sáaná	‘to not accompany a lot’	/ú-ku-ntá-sukil-il-a sáaná/

The H on /ntá-/ is acting like a macrostem H in that it undergoes unbounded spreading even though it is not the rightmost H of the phrase. Interestingly, in cases of very long stems, especially those beginning with long vowels, there is some variation in the tonal pattern. Either bounded or unbounded spreading is possible.

(49)	a.	ú-kúù-ntá-zíík-íl-àn-à sáaná ~ ú-kúù-ntá-zíík-íl-án-á <sup>1</sup> sáaná	‘to not bury for each other a lot’	/ú-ku-ntá-ziik-il-an-a sáaná/
	b.	ú-kúù-ntá-swéél-èl-àn-à pó ~ ú-kúù-ntá-swéél-él-án-á <sup>1</sup> pó	‘to not brew for each other (loc.)’	/ú-ku-ntá-suel-il-an-a pó/

Let us now examine forms with a toneless root and toneless OM.

### (50) Negative infinitives with a toneless OM and toneless root; phrase-final

a.	ú-kúù-ntáá-m-fúl-íl-à	‘to not wash for me’	/ú-ku-ntá-n-ful-il-a/
b.	ú-kúù-ntá-mú-swéél-él-à	‘to not brew for him/her’	/ú-ku-ntá-mu-suel-el-a/
c.	ú-kúù-ntá-mú-lém-él-à	‘to not grab for him/her’	/ú-ku-ntá-mu-lem-il-a/
d.	ú-kúù-ntá-mw-íimb-íl-à	‘to not dig for him/her’	/ú-ku-ntá-mu-imb-il-a/

(51) Negative infinitives with a toneless OM and toneless root; non-phrase-final

- |    |                             |                                 |                              |
|----|-----------------------------|---------------------------------|------------------------------|
| a. | ú-kúù-ntáá-m-fúl-il-à sáaná | ‘to not wash for me a lot’      | /ú-ku-ntá-n-ful-il-a sáaná/  |
| b. | ú-kúù-ntá-mú-swèèl-èl-à pó  | ‘to not brew for him/her’       | /ú-ku-ntá-mu-suel-il-a pó/   |
| c. | ú-kúù-ntá-mú-lèm-èl-à sáaná | ‘to not grab for him/her a lot’ | /ú-ku-ntá-mu-lem-il-a sáaná/ |
| d. | ú-kúù-ntá-mw-ímb-il-à pó    | ‘to not dig out him/her’        | /ú-ku-ntá-mu-imb-il-a pó/    |

As can be seen in (51), when a toneless OM is present, the H on /ntá-/ clearly acts like a pre-macrostem H in always undergoing binary spreading. One possible way to analyze this is that the language allows one non-TAM prefix element preceding the root to be part of the domain of unbounded spreading. Thus, when an object is present, the negative /ntá-/ falls outside that domain and undergoes binary rather than unbounded spreading.

Next let us examine cases of negative infinitives with a toneless OM and a H-toned root.

(52) Negative infinitives with toneless OM and H-toned root; phrase-final

- |    |                                       |                            |                         |
|----|---------------------------------------|----------------------------|-------------------------|
| a. | ú-kúù-ntá-mú- <sup>1</sup> swéél-él-à | ‘to not fish for him/her’  | /ú-ku-ntá-mu-súel-il-a/ |
| b. | ú-kúù-ntá-mú- <sup>1</sup> lém-él-à   | ‘to not plant for him/her’ | /ú-ku-ntá-mu-lém-il-a/  |
| c. | ú-kúù-ntáá-n-déét-él-à                | ‘to not bring for me’      | /ú-ku-ntá-n-léet-il-a/  |
| d. | ú-kúù-ntá-mw-í <sup>1</sup> mb-il-à   | ‘to not sing for him/her’  | /ú-ku-ntá-mu-ímb-il-a/  |

(53) Negative infinitives with toneless OM and H-toned root; non-phrase-final

- |    |  |                                  |                              |
|----|--|----------------------------------|------------------------------|
| a. | ú-kúù-ntá-mú- <sup>1</sup> swéél-él-á <sup>1</sup> pó  | ‘to not fish for him/her (loc.)’ | /ú-ku-ntá-mu-súel-il-a pó/   |
| b. | ú-kúù-ntá-mú- <sup>1</sup> lém-él-á <sup>1</sup> sáaná | ‘to not plant for him a lot’     | /ú-ku-ntá-mu-lém-il-a sáaná/ |
| c. | ú-kúù-ntá-mw-í <sup>1</sup> mb-il-á <sup>1</sup> sáaná | ‘to not sing for him/her a lot’  | /ú-ku-ntá-mu-ímb-il-a sáaná/ |

As expected the H on /ntá-/ undergoes binary spreading and the root H undergoes unbounded spreading. Next let us examine negatives with H-toned roots and no OM.

(54) Negative infinitives with H-initial macrostems; phrase-final

- |    |                      |                              |                        |
|----|----------------------|------------------------------|------------------------|
| a. | ú-kúù-ntá-sh-á       | ‘to not leave’               | /ú-ku-ntá-sí-a/        |
| b. | ú-kúù-ntá-lúk-à      | ‘to not vomit’               | /ú-ku-ntá-lúk-a/       |
| c. | ú-kúù-ntá-lém-él-à   | ‘to not plant for’           | /ú-ku-ntá-lém-il-a/    |
| d. | ú-kúù-ntá-sópólól-à  | ‘to not untie’               | /ú-ku-ntá-sópolol-a/   |
| e. | ú-kúù-nt-ímb-il-án-à | ‘to not sing for each other’ | /ú-ku-ntá-ímb-il-an-a/ |

(55) Negative infinitives with H-initial macrostems; non-phrase-final

- |    |                                       |                          |                           |
|----|---------------------------------------|--------------------------|---------------------------|
| a. | ú-kúù-ntá-léét-á <sup>1</sup> sáaná   | ‘to not bring a lot’     | /ú-ku-ntá-léet-a sáaná/   |
| b. | ú-kúù-ntá-lém-él-á <sup>1</sup> sáaná | ‘to not plant for a lot’ | /ú-ku-ntá-lém-il-a sáaná/ |
| c. | ú-kúù-ntá-sópólól-á <sup>1</sup> pó   | ‘to not untie’           | /ú-ku-ntá-sópolol-a pó/   |

The above examples show that the H of the negative prefix fuses with the H on the following root-initial TBU and this H undergoes unbounded spreading to the penult. It should be noted here that whereas there is evidence that in the affirmative infinitive of verbs with H-toned roots there is an insertion of a melodic H to the

leftmost free TBU (9), such is not the case in the negative infinitive. Also, whereas macrostem H tones in the infinitive did not fuse with adjacent H's, such is not the case in the negative infinitive. We therefore conclude that the nominal Melodic H described and analyzed in §6.1 is in fact morphologically conditioned to be inserted in affirmative infinitives (and other classes of nouns as well, as we will see in chapter 7) but not in negative infinitives.<sup>8</sup>

Next we turn to forms with H-toned OM's and toneless roots.

(56) Negative infinitives with H-toned OM, toneless root; phrase-final

- |    |                         |                        |                         |
|----|-------------------------|------------------------|-------------------------|
| a. | ú-kúù-ntá-mú-swéél-él-à | 'to not brew for you'  | /ú-ku-ntá-mú-suel-il-a/ |
| b. | ú-kúù-ntá-yá-lém-él-à   | 'to not grab for them' | /ú-ku-ntá-yá-lém-il-a/  |
| c. | ú-kúù-ntá-mw-íimb-il-à  | 'to not dig for you'   | /ú-ku-ntá-mú-imb-il-a/  |

(57) Negative infinitives with H-toned OM, toneless root; non-phrase-final

- |    |  |                              |                               |
|----|--|------------------------------|-------------------------------|
| a. | ú-kúù-ntá-mú-swéél-él-á <sup>1</sup> sàaná | 'to not brew for you a lot'  | /ú-ku-ntá-mú-suel-il-a sáaná/ |
| b. | ú-kúù-ntá-yá-lém-él-á <sup>1</sup> sàaná   | 'to not grab for them a lot' | /ú-ku-ntá-yá-lém-il-a sáaná / |
| c. | ú-kúù-ntá-mw-íimb-il-á <sup>1</sup> sàaná  | 'to not dig for you a lot'   | /ú-ku-ntá-mú-imb-il-a sáaná / |

The above examples show that the H of /ntá/ fuses with any macrostem-initial H, whether that be a root H or OM H. This H then undergoes unbounded spreading.

Finally, we examine negative infinitives with H-toned OM's and H-toned roots.

(58) Negative infinitives with H-toned OM, H-toned root

- |    |                        |                        |                         |
|----|------------------------|------------------------|-------------------------|
| a. | ú-kúù-ntá-yá-lás-à     | 'to not hit them'      | /ú-ku-ntá-yá-lás-a/     |
| b. | ú-kúù-ntá-mú-léét-él-à | 'to not bring for you' | /ú-ku-ntá-mú-léet-il-a/ |
| c. | ú-kúù-ntá-yá-sópólól-à | 'to not untie you'     | /ú-ku-ntá-yá-sópolol-a/ |

(59) Negative infinitives with H-toned OM, H-toned root

- |    |   |                              |                                |
|----|---|------------------------------|--------------------------------|
| a. | ú-kúù-ntá-yá-lás-á <sup>1</sup> sàaná     | 'to not hit them a lot'      | /ú-ku-ntá-yá-lás-a sáaná/      |
| b. | ú-kúù-ntá-mú-léét-él-á <sup>1</sup> sàaná | 'to not bring for you a lot' | /ú-ku-ntá-mú-léet-il-a sáaná / |

These forms have three consecutive underlying Hs which all fuse and then undergo unbounded spreading. Below, we consider forms with two OM's.

- |      |    |                                     |                                      |                           |
|------|----|-------------------------------------|--------------------------------------|---------------------------|
| (60) | a. | ú-kúù-ntá-yáá-n-dém-él-à            | 'to not grab them for me'            | /ú-ku-ntá-yá-n-dem-il-a/  |
|      | b. | ú-kúù-ntá-yáá-n-zíik-il-à           | 'to not bury them for me'            | /ú-ku-ntá-yá-n-ziik-il-a/ |
| (61) | a. | ú-kúù-ntá-yáá-n-zíik-il-à sàaná     | 'to not bury them for me a lot'      |                           |
|      | b. | ú-kúù-ntá-yáá-n-déèng-èl-à sàaná    | 'to not draw them for me a lot'      |                           |
|      | c. | ú-kúù-ntá-yáá-n-súkìl-il-il-à sàaná | 'to not accompany them for me a lot' |                           |

<sup>8</sup> This leads one to speculate that in some sense, affirmative infinitives are nominal, whereas negative infinitives are not (i.e. are verbal).

In the forms above with toneless roots, we see that the H's on /ntá-/ and /yá-/ fuse and undergo unbounded spreading when the verb is phrase-final (60). This H undergoes bounded spreading when the verb is not phrase final (61) since there is a toneless OM immediately preceding the verb, as previously seen in (51).

## CHAPTER 7: TONOLOGY OF NOUNS

### 7.1 Nominal & Adjectival morphology

While the morphology of nouns was discussed in some detail in section 2.1 above, I repeat below the table showing the segmental make-up of the noun class prefixes, as well as examples of nouns from each class. I also include the adjective agreement prefixes as adjectives will be discussed immediately below.<sup>1</sup>

Class	Preprefix	Class Prefix	Adjective Agreement
1	u-	mu-	mu-
1a	∅	∅	mu-
2	a-	ba-	ya-
2a	∅	yaa-	ya-
3	u-	mu-	u-
4	i-	mi-	i-
5	∅	i-	li-
5a	i-	li-	li-
6	a-	ma-	ya-
7	i-	ci-	ci-
8	i-	vi-	vi-
9	i-	n-	i-
10	i-	n-	zi-
11	u-	lu-	lu-
12	a-	ka-	ka-
13	u-	tu-	tu-
14	u-	bu-	u-
15	u-	ku-	ku-
16	a-	pa-	pa-
17	u-	ku-	ku-
18	u-	mu-	mu-

Table 1: Noun Classes

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<sup>1</sup> Segmentally, with the exception of class 1, the adjective agreement prefixes are identical to verbal Subject Marker prefixes (cf. §5.1).



Singular Class	Cilungu example	Plural Class	Cilungu example	English gloss
1	ú-mú-límì	2	á-á-límì	farmer
1a	cìpùzí	2a	yáá-cìpùzí	pumpkin
3	ú-mú-tì	4	í-mí-tì	tree
5	í-lí-ínò	6	á-mí-ínò	tooth
5a	í-támà	6	á-má-támà	cheek
7	í-cí-fúlà	8	í-ví-fúlà	well
9	í-n-kóóndè	10	í-n-kóóndè	banana
11	ú-lú-fínè	11	í-m-fínè	pimple
12	á-ká-nyá	13	ú-tú-nyá	newborn
14	ú-ú-sú má			goodness
15	ú-kú-fúlà			to wash, washing
16	á-pá-mw-íli			at/on the body
17	ú-kú-mw-íli			at the body
18	ú-mú-mw-íli			in the body

Table 2: Examples of nouns of each class

It will be shown that the rules developed to account for the tone patterns in verbs (both finite and infinitival) are applicable to nouns as well. While verbal infinitives (presented and analyzed in chapter 6) are class 15 nouns, there are two major tonal difference between verbal infinitives and non-class 15 nouns. First, verbal infinitives have a maximum of one H tone in the stem. (Some verb roots sponsor a High tone and some do not.) While we will see that this is true for the vast majority of nominal stems, it is certainly not true of all stems as some do have two distinct Hs (§7.2.5). Second, and even more importantly, the location of the H tone in verbal infinitives was completely predictable as it was always located on the root-initial TBU. We will see that in principle any mora of the noun stem can bear a H tone, and thus they exhibit a positional contrast not found in verb roots.

We will see that all noun class prefixes are toneless and all preprefixes are H-toned. The class 1a/2a nouns are exceptional in that they never take any preprefix. The one class which merits further clarification in this regard is class 5a. It was proposed in section 2.1.1 that the behavior of the pre-stem [i] of these nouns clearly diagnosed it as a class prefix. I therefore concluded that segmentally the class 5a preprefix is null. However, it certainly is the case (as seen in Table 2) that in contexts where the preprefix is obligatory, the class 5a nouns do in fact begin with a H tone. I therefore assume that the class 5a preprefix does sponsor a H tone, as is the case with the preprefix in every other class, but in this case the H is floating since it contains no segmental material. This H will dock onto the word-initial mora (the class prefix /i-/) after which it will undergo all the productive tonal rules of the language.

While the focus of the chapter on finite verbs was the tonology of single-word forms, we often found it useful to observe differences between phrase-final and non-phrase-final forms of the verb and so small (usually two-word) phrases were included for this purpose. (A fuller account of all the phrasal phonology will be given in Chapter 9.) In the presentation of nouns in this chapter, it will also be useful to note the tonology of nouns in non-phrase-final position and this will generally be done by presenting noun-adjective phrases.

Adjectives in Cilungu follow the noun that they modify. In a simple Noun-Adjective NP the adjective has an agreement prefix which agrees in class with the noun it modifies. Adjectival agreement prefixes for each class are given in Table 1. Like many Bantu languages, Cilungu has a relatively small number of adjectival roots. Examples of a number of these are given below, where the input representations are given on the right.

(1) Adjectives with toneless roots

í-víì-ntù vî-tifi	‘black things’	/í-vi-ntu vi-tifi/
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(2) Adjectives with a stem-initial H

a. ú-mú-limi mù-táli	‘tall farmer’	/ú-mu-limi mu-táli/
b. ú-mú-limi mù-kúlù	‘big farmer’	/ú-mu-limi mu-kúlu/
c. í-víì-ntù vî-ípe	‘bad things’	/í-vi-ntu vi-ípe/
d. í-víì-ntù vî-ípi	‘short things’	/í-vi-ntu vi-ípi/

(3) Adjectives with a stem-final H

a. ú-mú-limi mù-sù má	‘good farmer’	/ú-mu-limi mu-sumá/
b. ú-mú-limi mù-tùpú	‘only the farmer’	/ú-mu-limi- mu-tupú/
c. í-víì-ntù vî-tiswé	‘white things’	/í-vi-ntu vi-tiswé/
d. í-víì-ntù vî-pyáá	‘new things’	/í-vi-ntu vi-piá/

(4) Adjectives with both a stem-initial and stem-final H

a. ú-mú-limi mù-ká lá à mbá	‘the big farmer’	/ú-mu-limi mu-kálaambá/
b. í-víì-ntù vî-nó ò nó	‘the small things’	/í-vi-ntu vi-nóonó/

The only thing I wish to point out here (as the tonology of the pre-adjectival noun will be addressed in some detail below) is that the adjectival agreement prefixes are all toneless and the roots come in a variety of tonal patterns. They can be toneless (1), have a stem-initial H (2), a stem-final H (3), or even two H’s (4). We will see below that the same is true of noun roots.

When multiple adjectives are used consecutively, then all but the first one must bear a H-toned preprefix.<sup>2</sup>

(5)	a. ú-mú-limi mù-sù m ú-mw-í’ípi	‘the short good farmer’	/ú-mu-limi mu-sumá ú-mu-ípi/
	b. ú-mú-limi mù-tifi ú-mú-’táli	‘the tall black farmer’	/ú-mu-limi mu-tifi ú-mu-táli/
	c. ú-mú-limi mù-sù m ú-mú-’táli ’ú-mú-’kúlù	‘the good big tall farmer’	/ú-mu-limi mu-sumá ú-mu-táli ú-mu-kúlu/

Finally, an adjective may be used as a noun as shown below. In such cases it always appears with a preprefix.

(6)	a. í-cí-sù má	‘the good one (C7)’	/í-ci-sumá/
	b. ú-mú-’kúlù	‘the big one (C1)’	/ú-mu-kúlu/

<sup>2</sup> In every case the preprefix added is simply the vowel of the adjectival agreement prefix shown in Table 1. However, for class 6, when the preprefix /a-/ is added to the adjectival agreement prefix /ya-/, the /y/ in the latter prefix is not realized. E.g. á-má-zèngò yà-sù má á-á-tífi (< /á-ma-zengo ya-sumá á-ya-tifi/). This same avoidance of [a-ya] is seen in associative copulatives discussed in §9.8.

## 7.2 The tonology of phrase-initial nouns

### 7.2.1 Nouns with toneless stems

Nouns can profitably be divided up into several types, according to their tonal behavior. We begin with tones which have toneless stems. As can be seen in the table below, such nouns exhibit the same pattern as verbal infinitives (§6.1) with toneless roots—i.e. the H from the preprefix spreads in an unbounded fashion to the penultimate syllable. Examples of nouns with toneless roots from a variety of noun classes are shown below.<sup>3</sup>

#### (7) Nouns with toneless stems

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	ú-múú-ntù	á-á-ntù	person	1/2
b.	ú-mú-tì	í-mí-tì	tree	3/4
c.	ú-mú-lómò	í-mí-lómò	mouth	3/4
d.	ú-mú-lyáàngò	í-mí-lyáàngò	doorway	3/4
e.	ú-mú-téèngò	í-mí-téèngò	price	3/4
f.	ú-m-óóngólólò	í-my-óóngólólò	backbone	3/4
g.	í-pápíkò	á-má-pápíkò	wing	5/6
h.	í-zéèngò	á-má-zéèngò	wooden pole	5/6
i.	í-ly-áámbà	á-má-ámbà	scale	5a/6
j.	í-c-áálò	í-vy-áálò	field	7/8
k.	í-cí-fúlà	í-ví-fúlà	well	7/8
l.	í-cí-sááli	í-ví-sááli	sugar-cane	7/8
m.	í-m-báázò	í-m-báázò	carving axe	9/10
n.	í-m-péléèmbè	í-m-péléèmbè	antelope	9/10
o.	í-n-tólómílò	í-n-tólómílò	windpipe	9/10
p.	ú-lw-áálà	í-n-gálà	crown	11/10
q.	ú-lw-éètè	í-n-jètè	fight	11/10
r.	ú-ú-tóóngè		cotton	14
s.	ú-ú-sù		flour	14
t.	ú-ú-lálò	á-má-lálò	bridge	14/6

Let us now examine the tonal behavior of nouns with toneless roots when they are not pre-pausal. First, when an adjective follows, the H on the preprefix behaves identically to the preprefix H of verbal infinitives which are followed by another word in the same phrase, i.e. this High undergoes bounded instead of unbounded spreading. This can be seen below.

- (8)
- |    |                      |                 |                       |
|----|----------------------|-----------------|-----------------------|
| a. | ú-mú-limì mù-sù má   | ‘good farmer’   | /ú-mu-limi mu-sumá/   |
| b. | í-m-péléèmbè zì-kùlù | ‘big antelopes’ | /í-m-pelembe zi-kùlu/ |
| c. | í-n-gálà zì-sù má    | ‘good crowns’   | /í-n-gala zi-sumá/    |

<sup>3</sup> Nouns with no class prefix (i.e. class 1a) are discussed separately in §7.2.6, and diminutives (Class 12/13) are discussed separately in §7.5)

There is one *prima facie* exception to this. Consider the forms below.

- (9) a. á-á-limi yà-sùmá 'good farmers' /á-ba-limi ya-sumá/  
 b. ú-ú-tòòngè ù-sùmá 'good cotton' /ú-bu-tonge u-sumá/

Given our generalizations about binary tone spreading, we might have expected the H on the preprefix of these forms to spread into the first syllable of the root, yet this does not occur. To account for this I would like to propose that at the point where binary spreading applies the class 2 and class 14 prefixes are treated as separate syllables from the preprefix. This can be accounted for by setting up these prefixes as /ba-/ and /bu-/ (which is of course their diachronic source). If the rule of b-deletion follows binary spreading (cf. §3.3), then we account for the fact that the preprefix H does not penetrate the stem (as Heterosyllabic Doubling would predict it would if the first two morae were tautosyllabic).

As detailed in section 5.1.1.3, unbounded spreading of a H can reach the final syllable if that spreading targets a high vowel (/i/ or /u/) which glides before a word-final tautosyllabic vowel. This applies to nouns as well, as seen below.

(10)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	ú-mú-nwé	í-mí-nwé	finger	3/4
b.	í-fwá	á-má-fwá	leaf	5/6
c.	í-wé	á-má-wé	stone	5/6
d.	í-cí-kwá	í-ví-kwá	mole-trap	7/8
e.	í-m-bálámínwé	í-m-bálámínwé	ring	9/10
f.	ú-ú-lw-í	á-má-ú-lw-í	fight	14/5

When these nouns are non-phrase-final, the H on the preprefix undergoes bounded spreading, as predicted.

- (11) a. í-m-bálámínwè zì-sùmá 'good rings'  
 b. ú-mú-nwè mù-sùmá 'good finger'

There are, however, some nouns which surface as all High, where no gliding has taken place in the word-final syllable. These are shown below.

(12)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	ú-mú-zá		wind	3/4
b.	ú-mú-zí	í-mí-zí	village'	3/4
c.	ú-mw-éélé	í-my-éélé	loin cloth for girl	3/4
d.	í-lá	á-má-lá	intestine	5/6
e.	í-vú	á-má-vú	wasp	5/6
f.	í-cí-sáásá	í-ví-sáásá	door	7/8
g.	í-cí-zúlé	í-ví-zúlé	tobacco garden	7/8
h.	í-n-dá	í-n-dá	stomach/pregnancy	9/10

Like the nouns in (10), when nouns in (12) are non-phrase-final the preprefix H undergoes bounded spreading.

- (13) a. í-cí-sààsà cì-sùmá           ‘good door’  
       b. í-cí-zùlè cì-sùmá           ‘good tobacco garden’

We will see further evidence below that while the majority of nouns in Cilungu exhibit final extrametricality, a number of them do not. I therefore propose that noun stems such as those in (12) are lexically marked to resist phrase-final extrametricality or the docking of a boundary L tone.<sup>4</sup> We will see robust additional evidence of this distinction in many other nouns presented below. It should be noted that whenever a toneless CV stem is preceded by a single syllable in the noun (i.e. when it is in class 5 (/i-/) or class 9/10 (/i-n-/)) then the (sole) mora of the root is always extraprosodic (even when that very root is preceded by two syllables in the Class 6 forms).

### 7.2.2 Nouns with a stem-final H

The next set of nouns are those whose stem has a H on the final TBU. (H-toned CV roots are presented in the section on nouns with root-initial H’s (§7.2.3).) Representative examples are given below.

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<sup>4</sup> In this regard, I adopt, in all important respects, the analysis of nouns found in Bickmore & Doyle (1995) where it is proposed that some nouns are lexically marked for final-extraprosodicity and some are not. I note here that the description and analysis of nouns in this work supercedes that presented in Bickmore & Doyle (1995) where a much more limited set of nouns (and mainly just their isolation forms) was presented and analyzed, and without the benefit of relating the tonology of nouns to verbs.

## (14) Nouns with a stem-final H

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	cìpùzí	yàà-cìpùzí	pumpkin	1a/2a
b.	cìsámá	yàà-cìsámá	lion	1a/2a
c.	cùùlá	yàà-cùùlá	frog	1a/2a
d.	lùvwí	yàà-lùvwí	chameleon	1a/2a
e.	mùkòló	yàà-mùkòló	hoe	1a/2a
f.	ú-mú-sàno	á-á-sàno	chief wife (of chief)	3/2
g.	ú-mú-silyá	í-mí-silyá	salt	3/4
h.	ú-mú-pèní	í-mí-pèní	knife	3/4
i.	ú-mú-sàzí	í-mí-sàzí	calabash bottle	3/4
j.	ú-mú-sàanzí	í-mí-sàanzí	bed	3/4
k.	ú-mw-éèlé	í-my-éèlé	knife	3/4
l.	ú-mú-làlààmfulí	í-mí-làlààmfulí	rainbow	3/4
m.	í-fwáàfwá	á-má-fwáàfwá	sp snake	5/6
n.	í-tààngá	á-má-tààngá	cattle pen	5/6
o.	í-ng'áàndá	á-má-ng'áàndá	house	5/6
p.	í-líindí	á-má-líindí	grave	5/6
q.	í-cí-inùùngí	í-ví-inùùngí	porcupine	7/8
r.	í-cí-ùùngú	í-ví-ùùngú	catterpillar	7/8
s.	í-cí-pààpá	í-ví-pààpá	rind	7/8
t.	í-cí-pòomá	í-ví-pòomá	waterfall	7/8
u.	í-cí-síkí	í-ví-síkí	tree stump	7/8
v.	í-cí-pùtùl-w-á	í-ví-pùtùl-w-á	segment	7/8
w.	í-ny-ùùngú	í-ny-ùùngú	pot	9/10
x.	í-m-pààngá	í-m-pààngá	land	9/10
y.	í-m-péènd-w-á	í-m-péènd-w-á	number	9/10
z.	ú-lú-tààndá	í-n-tààndá	star	11/10
aa.	ú-lú-kùsá	í-n-kú'sá	fibers of plant	11/10
bb.	ú-lú-òyá	í-m-bó'yá	bee sting	11/10
cc.	ú-ú-làpwá	á-má-làpwá	bow	14/5
dd.	ú-ú-ùfí	á-má-ùfí	lie	14/5
ee.	ú-ú-sùmá		goodness	14
ff.	ú-w-ààzí		blood	14

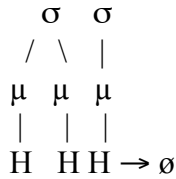
In each case the H on a preprefix undergoes bounded spreading as there is another H on the word-final syllable. When an adjective follows, the stem-final H will spread onto the initial TBU of this following word. (The spreading of H onto a following word is discussed in further detail in §9.4).

- (15)
- |    |                    |                |
|----|--------------------|----------------|
| a. | cìpùzí mú-sùmá     | ‘good pumpkin’ |
| b. | ú-mú-pèní ú-sùmá   | ‘good knife’   |
| c. | í-cí-pààpá cí-sùmá | ‘good rind’    |
| d. | cùùlá mú-tífí      | ‘black frog’   |

### 7.2.3 Nouns with a stem-initial H

Let us now turn to stems with a H on their stem-initial TBU. First, we should recall the patterns we observed in the infinitival forms with H-toned roots (§6.1.2). C-initial H-toned macrostems showed evidence of a nominal melodic H which docked onto the second TBU of the macrostem, and spread to the penult (in phrase-final forms). In forms with V-initial roots, we assumed that the MH was assigned, but subsequently removed by the rule of Post Fall Downstep Deletion, repeated below.

#### (16) Post-Fall Downstep Deletion



Examples of H-initial stems that are vowel-initial are given in (17) and non-phrase-final examples are given in (18).

#### (17) V-initial stems with H on initial TBU

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	ú-mw-á <sup>1</sup> ánà	á-á- <sup>1</sup> ánà	child	1/2
b.	ú-mw-á <sup>1</sup> ánàcì	á-á- <sup>1</sup> ánàcì	woman	1/2
c.	í-lí- <sup>1</sup> ínò	á-mí- <sup>1</sup> ínò	tooth	5a/6
d.	í-lí- <sup>1</sup> ínsò	á-mí- <sup>1</sup> ínsò	eye	5a/6
e.	ú-w-á <sup>1</sup> ásùkò	á-má- <sup>1</sup> ásùkò	answer	14

- (18) a. ú-mw-á<sup>1</sup>ánà mù-sù má ‘good child’  
b. í-lí-<sup>1</sup>ínò lì-sù má ‘good tooth’

Like their class 15 verbal infinitive counterparts (cf. §6.1.2), no melodic H surfaces, due to the rule of Post Fall Downstep Deletion.

Let us now turn to nouns with C-initial roots which have a High on the root-initial TBU. As can be seen, the forms below in (19) show evidence of a second H tone on the second TBU of the stem. Just as was the case in the verbal infinitives with H-toned roots (cf. §6.1.2), the two stem H’s do not fuse—rather a downstep is found between them. This is accounted for by ordering Nominal MH Docking after Fusion within the word. After docking, the nominal MH spreads to the penult.<sup>5</sup>

<sup>5</sup> As was the case with the toneless nouns presented in (10), if a noun of the type presented in (19) has a glide in the final syllable, then the H (in this case the MH) will spread to the word-final mora. E.g. á-má-<sup>1</sup>só’óswá (< /á-ma-sósua +H/) ‘cooking stones’.

(19) C-initial stems with H on initial TBU

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	ú-mú- <sup>1</sup> swé <sup>1</sup> éz-ì	á-á- <sup>1</sup> swé <sup>1</sup> éz-ì	fisherman	1/2
b.	ú-mú- <sup>1</sup> ká <sup>1</sup> zyáánà	á-á- <sup>1</sup> ká <sup>1</sup> zyáánà	girl	1/2
c.	ú-mú- <sup>1</sup> tú <sup>1</sup> úmp-è	á-á- <sup>1</sup> tú <sup>1</sup> úmp-è	stupid person	1/2
d.	ú-mú- <sup>1</sup> lém- <sup>1</sup> ál-è	á-á- <sup>1</sup> lém- <sup>1</sup> ál-è	lame person	1/2
e.	ú-mú- <sup>1</sup> lú <sup>1</sup> mééndò	á-á- <sup>1</sup> lú <sup>1</sup> mééndò	boy	1/2
f.	ú-mú- <sup>1</sup> cé <sup>1</sup> lé	í-mí- <sup>1</sup> cé <sup>1</sup> lé	salt	3/4
g.	ú-mú- <sup>1</sup> sá <sup>1</sup> ná	í-mí- <sup>1</sup> sá <sup>1</sup> ná	waist	3/4
h.	í-cí- <sup>1</sup> sá <sup>1</sup> ánzì	í-ví- <sup>1</sup> sá <sup>1</sup> ánzì	broom	7/8
i.	í-cí- <sup>1</sup> ló <sup>1</sup> ót-ò	í-ví- <sup>1</sup> ló <sup>1</sup> ót-ò	dream	7/8
j.	í-cí- <sup>1</sup> kó <sup>1</sup> zí	í-ví- <sup>1</sup> kó <sup>1</sup> zí	eagle	7/8
k.	í-cí- <sup>1</sup> bá <sup>1</sup> tá	í-m-bá <sup>1</sup> tá	duck	7/10
l.	í-cí- <sup>1</sup> lém- <sup>1</sup> á	í-ví- <sup>1</sup> lé <sup>1</sup> má	lame person	7/8
m.	ú-ú- <sup>1</sup> sí <sup>1</sup> kú		night	14
n.	ú-ú- <sup>1</sup> ú <sup>1</sup> cí		honey	14

When these nouns occur non-phrase-finally, a MH on a word-final mora will spread onto the first mora of a following word. A non-word-final H will spread to the word-final TBU.

- (20) a. ú-mú-<sup>1</sup>cé<sup>1</sup>lé ú-sù<sup>1</sup>má ‘good salt’ /ú-mu-céle +H u-sumá/  
b. ú-mú-<sup>1</sup>sá<sup>1</sup>ná ú-sù<sup>1</sup>má ‘good waist’ /ú-mu-sána +H u-sumá/
- (21) a. ú-mú-<sup>1</sup>lé<sup>1</sup>málé mù-sù<sup>1</sup>má ‘good lame person’ /ú-mu-lémale +H mu-sumá/  
b. ú-lú-<sup>1</sup>lí<sup>1</sup>mí lù-sù<sup>1</sup>m-á ‘good tongue’ /ú-lu-lími +H lu-sumá/  
c. ú-mú-<sup>1</sup>lú<sup>1</sup>mééndó mù-sù<sup>1</sup>má ‘good boy’ /ú-mu-lúmendo +H mu-sumá/  
d. ú-mú-<sup>1</sup>ká<sup>1</sup>zyááná mù-sù<sup>1</sup>má ‘good girl’ /ú-mu-káziana +H mu-sumá/  
e. ú-mú-<sup>1</sup>lé<sup>1</sup>málé mù-tí<sup>1</sup>fí ‘black lame person’ /ú-mu-lémale +H mu-tifi/

This was exactly the same phrasal tone pattern that we witnessed in verbal infinitives with H-toned roots and a nominal MH (§6.1.2). To account for the fact that the nominal MH does not fuse with the root-initial H, we order nominal H docking after Fusion. When the MH docks onto the word-final TBU (20), then General Doubling will spread it onto a following toneless TBU; otherwise it will undergo unbounded rightward spreading to the final, as we expect of any stem H (21).

Let us now turn to the tonology of nouns of classes 5, 9, and 10 which have a stem-initial H. Representative examples from class 5/6 are given below.

(22) Class 5/6 nouns

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	í-sú <sup>1</sup> mó	á-má- <sup>1</sup> sú <sup>1</sup> mó	spear	5/6
b.	í-tá <sup>1</sup> má	á-má- <sup>1</sup> tá <sup>1</sup> má	cheek	5/6
c.	í-ká <sup>1</sup> sá	á-má- <sup>1</sup> ká <sup>1</sup> sà	arm	5/6
d.	í-kó <sup>1</sup> kóla	á-má- <sup>1</sup> kó <sup>1</sup> kólà	knee	5/6
e.	í-pé <sup>1</sup> épálà	á-má- <sup>1</sup> pé <sup>1</sup> épálà	paper (Bor)	5/6
f.	í-só <sup>1</sup> óswá	á-má- <sup>1</sup> só <sup>1</sup> óswá	cooking stones	5/6
g.	í-tú <sup>1</sup> úndù	á-má- <sup>1</sup> tú <sup>1</sup> úndù	back	5/6



The tonology of the class 6 nouns is identical to the nouns presented in (19) above. The nominal MH will not fuse with the adjacent root H since the MH docking in these cases applies after Fusion. While this is true for class 5 nouns as well, we note that there is no downstep between the class prefix and a following polysyllabic stem. This is accounted for by the Fusion rule which will fuse two input H's linked to adjacent TBUs.

(23)	i-kokola	U.R.
	H H H	
	i-kokola	Fusion
	\ /	
	H H	
	i-kokola	MH Docking
	\ /	
	H H	

Let us now examine class 11/10 nouns with H-toned roots.

(24) Class 11/10 nouns

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	ú-lw-á'álà	í-n-gá'lá	finger nail	11/10
b.	ú-lú-'lí'mí	í-n-dí'mí	tongue	11/10
c.	ú-lú-'pé'cé	í-m-pé'cé	maize seed	11/10
d.	ú-lú-'ú'zì	í-n-gú'zí	river	11/10
e.	ú-lú-'kó'pyó	í-n-kó'pyó	eyelash	11/10
f.	ú-lú-'pé'ém'bè	í-m-pé'ém'bè	horn	11/10
g.	ú-lú-'fí'né	í-m-fí'né	pimple	11/10
h.	ú-lú-'pá'kó	í-m-pá'kó	hole in tree	11/10
i.	ú-lú-'kó'sé	í-n-kó'sé	bird trap	11/10

The class 11 nouns, like other nouns with H-toned roots that we have examined above (19), surface with a H on each of the first two morae of the stem, yielding a downstep between the two. Turning to the class 10 nouns, we see that the H on the class prefix and the stem-initial H are realized on the same pitch—i.e. there is no downstep between them. This same pattern is found with class 9/10 nouns with H-toned roots as can be seen below.

(25) Class 9/10 nouns

	<b>Singular/Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	í-m-bá <sup>1</sup> lí	side	9/10
b.	í-m-bé <sup>1</sup> zú	seed	9/10
c.	í-m-bó <sup>1</sup> ó	buffalo	9/10
d.	í-n-zí <sup>1</sup> lá	path	9/10
e.	í-n-kó <sup>1</sup> kó	chicken	9/10
f.	í-m-vú <sup>1</sup> lá	rain	9/10
g.	í-n-zó <sup>1</sup> ká	snake	9/10
h.	í-n-ká <sup>1</sup> lá	crab	9/10
i.	í-n-ká <sup>1</sup> ándà	skin (human)	9/10
j.	í-n-kú <sup>1</sup> úndà	pigeon/dove	9/10
k.	í-n-sí <sup>1</sup> íngò	neck	9/10
l.	í-n-cí <sup>1</sup> líkò	stopper	9/10
m.	í-n-kó <sup>1</sup> léélò	in front	9/10
n.	í-n-kú <sup>1</sup> píkò	lid	9/10
o.	í-n-sá <sup>1</sup> lámù	betrothal gift	9/10
p.	í-n-tú <sup>1</sup> úngúlúz-ì	leader	9/10

How can we account for the lack of downstep between the first two syllables in the class 9 and class 10 nouns above. As presented in section 3.1.3 there is ample evidence that pre-consonantal nasals are moraic in most environments (see §10.1.2)—something which would block fusion between the H on the preprefix /i-/ and the stem-initial H. However, as was also stated in §3.1.3, there are two cases where the mora of a pre-C nasal must be pruned, and this is one of them. I assume a rule which shortens a word-initial preprefix. If the second mora (contributed by the pre-C nasal in the forms in (25) is pruned before Fusion, then the H on the class 9/10 preprefix and the root-initial H will fuse.

I note here that just as we saw forms with toneless roots where the H spread onto the ultima, rather than the penult (12), so too are there nouns with H-toned roots in class 5/6 and 9/10 where this is true. Again, I must assume that in these cases stem-final extraprosodicity is suspended.

(26)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>
a.	ú-lú- <sup>1</sup> pé <sup>1</sup> énzú	í-m-pé <sup>1</sup> énzú	cockroach	11/10
b.	ú-lú- <sup>1</sup> tú <sup>1</sup> úngú	í-n-tú <sup>1</sup> úngú	hip	11/10

(27)

<b>Singular/ Plural</b>	<b>Gloss</b>	<b>Class</b>
í-n-zó <sup>1</sup> káándá	intestinal worm	9/10

When the nouns in (22)-(27) occur in non-phrase-final position, their tone patterns are identical to those presented in (20)-(21).

- (28)
- |    |                                  |                       |                      |
|----|----------------------------------|-----------------------|----------------------|
| a. | í-sú <sup>1</sup> mó lí-sùmá     | ‘good spear’          | /í-sumo li-sumá/     |
| b. | í-kó <sup>1</sup> kóla lí-sùmá   | ‘good knee’           | /í-kókola li-sumá/   |
| c. | í-tú <sup>1</sup> úndú lí-sùmá   | ‘good back’           | /í-túndu li-sumá/    |
| d. | í-n-kó <sup>1</sup> sé zì-sùmá   | ‘good bird traps’     | /í-n-kóse zi-sumá/   |
| e. | í-n-sá <sup>1</sup> lámú zì-sùmá | ‘good betrothal gift’ | /í-n-sálamu zi-sumá/ |
| f. | í-n-ká <sup>1</sup> ándá ì-sùmá  | ‘good skin’           | /í-n-kánda i-sumá/   |
| g. | í-m-pé <sup>1</sup> énzú zì-sùmá | ‘good cockroaches’    | /í-m-pénzu zi-sumá/  |

Let us now examine nouns with a H in a monosyllabic stem. There are three possible underlying sources for a monosyllabic stem containing a H tone: /Ć/ , /Cv́/ and /Ćv/. We examine these in turn. First let us consider examples of nouns with a /Ć/ stem.

(29)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>	<b>UR</b>
a.	ú-mú- <sup>1</sup> cí	á-á- <sup>1</sup> cí	wife	1/2	/cí/
b.	í-cí- <sup>1</sup> yé	í-ví- <sup>1</sup> yé	shoulder	7/8	/yé/
c.	á-ká- <sup>1</sup> nyá	ú-tú- <sup>1</sup> nyá	newborn	12/13	/ñá/

(30)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>	<b>UR</b>
a.	í- <sup>1</sup> vú	á-má- <sup>1</sup> vú	clay, soil	5/6	/vú/
b.	í- <sup>1</sup> n-dá	í- <sup>1</sup> n-dá	louse/lice	9/10	/dá/
c.	í- <sup>1</sup> n-sí	í- <sup>1</sup> n-sí	world/country	9/10	/sí/

The tonology of the forms in (29) is straightforward. The H on the preprefix undergoes binary spreading, causing a downstep with the root-initial H. (Strictly speaking these roots trigger nominal MH insertion, but there is no free TBU on which it can dock when they occur in phrase-final position.) The class 5 and class 9/10 nouns in (30) merit further explanation since the H on the preprefix does not in fact fuse with the root H in these cases. The generalization here (which we will find further support for below) is that a H on a CV stem will not undergo Fusion with a preceding H. One possible functional explanation here would be that, were the preprefix and root H's in a form such as (30a) to undergo fusion, the result would be [í-vú], which would then be homophonous with *í-vú* ‘wasp’ (12e) which has a toneless root (not subject to final extraprosodicity)

Nouns such as those in (29) and (30) in non-phrase-final position are given below.

- (31)
- |    |                                |                 |
|----|--------------------------------|-----------------|
| a. | í- <sup>1</sup> n-dá zì-sùmá   | ‘good lice’     |
| b. | ú-mú- <sup>1</sup> cí mù-sùmá  | ‘good wife’     |
| c. | í-cí- <sup>1</sup> yé cì-sùmá  | ‘good shoulder’ |
| d. | á-ká- <sup>1</sup> nyá kà-sùmá | ‘good newborn’  |

In these cases I assume the H on the root-initial (and sole) TBU triggers the presence of the nominal MH which in these cases remains floating, and thus prevents the root H from spreading into the following word. (This was shown to be true in the tonology of verbal infinitives with H toned CV roots, presented in §6.1.2)

Next let us consider stems of the shape /Caá/.

(32)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>	<b>UR</b>
a.	í-zwíí	á-má-zwíí	voice	5/6	/zuí/
b.	í-kú-twíí	á-má-twíí	ear	5/6	/tuí/
c.	ú-lú-swàá	í-n-swàá	flying ant	11/10	/suá/

- (33) a. í-zwíí lí-sù má ‘good voice’  
b. í-n-swàá zí-sù má ‘good flying ants’

Just as we saw in the verbal tonology, words that end in a /Cv́/ sequence surface with a long Rise. This is the one case when word-final shortening is blocked since a Rise cannot be borne by a short vowel. Since the root-initial mora is toneless, no MH is inserted in these cases, accounting for the fact that the root H will spread onto a toneless mora in a following word in (33).

Let us consider the final case, of a /Cv́/ stem.

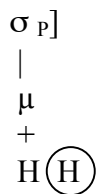
(34)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>	<b>UR</b>
a.	í-twì	á-má-twì-twí	ashes	5/6	/túi/
b.	í-m-fw-à	á-má- <sup>1</sup> fwá <sup>1</sup> áf wá	death	9	/fú-a/
c.	í-n-swì	í-n-swì	fish	9/10	/súi/
d.	ú-lú-kwì	í-n-kwì	firewood	11/10	/kúi/
e.	ú-lú-py-à	í-m-py-à	brush fire	11/10	/pí-a/

- (35) a. í-n-swí zì-sù má ‘good fish (pl.)’  
b. í-m-py-á zì-sù má ‘good brush fires’  
c. ú-lú-<sup>1</sup>py-á lù-sù-m-á ‘good brush fire’  
d. ú-lú-<sup>1</sup>kwí lù-sù má ‘good piece of firewood’

These are the very same patterns that we saw in infinitival forms with H-toned CV roots (§6.1). When the final vowel was added, the stem was of the shape /Cv́/. In this case the MH does dock onto the word-final toneless TBU. The word-final V does undergo shortening and if phrase-final it will also undergo Pre Floating H Delinking, repeated below. (Cf. §5.3.1 for further exemplification.) When the noun is non-phrase-final the floating H blocks the root H from spreading into the following word.

(36) Pre Floating H Delinking



I conclude this section by noting that while not numerous, there are nouns of class 1a/2a which have a root-initial H. These are shown below.

(37)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>	<b>UR</b>
a.	kálúkúlúkù	yàà-kálúkúlúkù	turkey	1a/2a	/kálukuluku/
b.	sííng'áángá	yàà-sííng'áángá	doctor	1a/2a	/sííng'anga/

In each case the root-initial H spreads rightward in an unbounded fashion. The word-final mora is extraprosodic in (37a), but not (37b). We note that no melodic High is inserted in these forms and thus this morphological fact must be built into the nominal MH insertion rule. Non-phrase-final examples of these two nouns are given below.

- (38) a. kálúkúlúkù mù-sùmá 'good turkey'  
b. sííng'áàngà mù-sùmá 'good doctor'

As can be seen the root-initial H in these nouns behaves like a non-macrostem H in the sense that it undergoes bounded and not unbounded spreading when another word follows. In the following section, we note that the spreading behavior of a *non*-root-initial H in a class 1a/2a noun in non-phrase-final position is quite different.

#### 7.2.4 Nouns with a stem-medial H

Up to this point if a stem has had a single underlying H, it has been located at a periphery. While statistically, this seems to be true of most stems it is not true of all of them as can be seen in the nouns below.

(39)

	<b>Singular</b>	<b>Plural</b>	<b>Gloss</b>	<b>Class</b>	<b>UR</b>
a.	mùlámù	yàà-mùlámù	brother-in-law	1a/2a	/mulámu/
b.	mùsátò	yàà-mùsátò	python	1a/2a	/musátò/
c.	còólwá	yàà-còólwá	zebra	1a/2a	/coólua/
d.	mùùmbúlwé	yàà- mùùmbúlwé	big lizard	1a/2a	/mumbúlué/
e.	ú-mw-èènéco	á-èènéco	owner	1/2	/enéco/
f.	ú-mú-sùúzù	í-mí-sùúzù	hen	3/4	/suúzu/
g.	ú-mú-kàátè	í-mí-kàátè	bread	3/4	/kaáte/
h.	í-kòófì	á-má-kòófì	fist	5/6	/koófì/
i.	í-làángì	á-má-làángì	color, hue	5/6	/laángì/
j.	í-yé <sup>1</sup> léénà	á-má-yèléénà	ear-ring (Bor)	5/6	/yeléena/
k.	í-sú <sup>1</sup> kúlù	á-má-sùkúlù	school (Bor)	5/6	/sukúlu/
l.	í-sí <sup>1</sup> tímà	á-má-sítímà	train, ship	5/6	/sitíma/
m.	i-cí-ikínì	i-ví-ikínì	kitchen (Bor)	7/8	/ikínì/
n.	í-n-dyáátù	í-n-dyáátù	sandal	9/10	/diátu/
o.	í-n-kòòngólè	í-n-kòòngólè	debt	9/10	/kongóle/
p.	í-n-síìndáánò	í-n-síìndáánò	needle	9/10	/sindáano/
q.	ú-lú-pùúpù	í-m-pùúpù	seed	11/10	/puúpu/

And as with other nouns which we have seen, there are some which resist final extraprosodicity.

(40)

	Singular	Plural	Gloss	Class	UR
a.	mùtúúmpé		peas	1a/2a	/mutúmpé/
b.	cítííndí		dung	1a/2a	/citíndi/
c.	í-cíi-nkwíngílí	í-víi-nkwíngílí	chief's bracelet	7/8	/nkúingili/

In these nouns, the stem contains a non-peripheral TBU which undergoes unbounded rightward spreading. It is interesting to note, however, that the location of the left edge of the span of High-toned TBUs within the stem is not arbitrary. Rather, in each case it is located on the pen-initial TBU of the stem, unless that would be on the second mora of a pre-penultimate syllable, in which case it is on the first mora of the second syllable. This, it should be recalled, is the very pattern we saw in the behavior of the verbal MH (cf. §5.3), as seen below.

(41)	a.	à-là-sùkíl-íl-á	‘he will accompany’	/a-la-sukil-il-a +H/
	b.	à-là-zíík-á	‘he will bury’	/a-la-ziik-a +H/
	c.	à-là-zíik-íl-á	‘he will bury for’	/a-la-ziik-il-a +H/

It should also be remembered that in certain cases this verbal MH was not realized on the word-final syllable, resulting in a V2-penult pattern (cf. §5.3.37).

(42)	a.	à-sùkíl-í-íl-è	‘he/she has accompanied’	/a-sukil-il-il-e +H/
	b.	à-sópólw-ííl-è	‘he/she has untied’	/a-sopolol-il-e +H/

The analysis provided for verbal forms such as those in (41) was that the MH docked onto the ultima and then spread leftward to the pen-initial TBU of the stem. In certain cases (such as those in (42)), the link from the MH to the FV was then removed. After this, the H would undergo the productive rules of rightward spreading (i.e. General Doubling and Unbounded Spreading).

At this point, then, two analyses of the nouns in (39) and (40) seem possible. The first would simply posit a H at the location of the left edge of the surface tone span (i.e. generally on the second TBU of the stem, but in certain cases the third). The second possible account would be to extend the analysis of verbs such as (41) and (42) to these nouns—i.e. to have a melodic H triggered which, in the event that no stem TBU was linked to a H, docks onto the rightmost mora of the stem (unless that mora is phrase-final in which case it is extraprosodic) and then spreads leftward to the pen-initial mora. One way to get the MH inserted into stems such as those in (39) and (40), but not those in (7) and (10), would be to assume that the former stems contained a floating H which, like the stem-initial one, precipitated the insertion of the melodic H. However, I must leave that as an open question.

It turns out that these two accounts make differing predictions about the tone patterns of nouns such as those in (39) and (40) when they occur in non-phrase-final position. An account which posits a H on the peninitial mora underlyingly predicts that unbounded spreading should stop at the stem-final TBU, just as it does in verbal cases like those below.

(43)	a.	yá-kú- <sup>1</sup> sópólól-á Chòòlà	‘they are untying Chola’	/yá-ku-sopolol-a Choola/
	b.	yá-kú-sùkíl-íl-á ñiingó	‘they are accompanying well’	/yá-ku-sukil-il-a ñingó/

If, on the other hand, we posit a melodic H which docks onto the final mora of the noun stem (always in cases where the noun is non-phrase-final), then we predict that this MH should spread onto a toneless syllable in a following word, as illustrated for verbs below.

- (44) a. à-là-sùkíl-íl-á Chóólà 'he will accompany Chola' /a-la-sukil-il-a +H Choola/  
 b. à-là-ziík-á nìngó 'he will bury well' /a-la-ziik-a +H ningó/  
 c. à-là-lòòndólól-á nìngó 'he will explain well' /a-la-londolol-a +H ningó /

As can be seen in the non-phrase-final forms below the H from the noun stem does spread into the following word.<sup>6</sup>

- (45) a. í-n-siindáánó zí-tífi 'black needles' /í-n-sindáano zi-tifi/  
 b. ú-mú-kàáté ú-sù má 'good bread' /ú-mu-kaáte u-sumá/  
 c. í-n-kóòngólé zí-sù má 'good debts' /í-n-kongóle zi-sumá/  
 d. ú-mw-èènéco mú-sù má 'good owner' /ú-mu-enéco mu-sumá/  
 e. í-cíi-nkwíngíli cí-sù má 'good (chief's) bracelet' /í-ci-nkúingili ci-sumá/  
 f. mùmbúlúwé mú-<sup>1</sup>kúlù 'big lizard' /mumbúlue mu-kúlu/  
 g. mùsátó mú-sù má 'good python' /musáto mu-sumá/  
 h. í-sú<sup>1</sup>kúlú lí-sù má 'good school' /í-sukúlu li-sumá/  
 i. í-sú<sup>1</sup>kúlú lí-tífi 'black school' /í-sukúlu li-tifi/  
 j. í-sí<sup>1</sup>tí má lí-sù má 'good train, ship' /í-sitíma li-sumá/  
 k. mùtúúmpé mú-sù má 'good peas' /mutúmpe mu-sumá/  
 l. citííndí mú-sù má 'good dung' /citíndi mu-sumá/

If the analysis is adopted whereby the nominal H docks onto the ultima and spreads leftward (as is the case in verbs discussed in §5.3) then these stems will need to be differentiated from toneless ones in class 1a/2a (to be presented below in §7.2.6), so that the latter nouns do not trigger this nominal MH. If the alternative analysis is pursued, whereby the nouns above have a H linked to a medial TBU, then one would need to posit a new rightward unbounded spread rule which would precede General Doubling, as the latter rule would spread a H on a word-final TBU onto a toneless TBU in the following word. This new rule would need to target only stem-medial H's.<sup>7</sup>

## 7.2.5 Nouns with two stem H's

Finally, there are a few stems with 2 lexical H tones.

<sup>6</sup> In this respect these nouns are different from verbs such as those in (42) where the verbal MH does not spread into the following word. E.g. à-sùkíl-í-íl-é Chòòlà 'he/she has accompanied Chola'. Thus, while the MH docks onto the word-final TBU (subject to phrase-final extraprosodicity) in both the case of the nouns in (39) as well as the verbs in (42), I assume there is a rule which delinks the MH from the ultima when the word is in non-phrase-final position that applies to verbs but not nouns.

<sup>7</sup> While either analysis seems possible and is left here as an open question, I will continue to represent the underlying representations of these nouns with a H tone on the appropriate stem-medial mora.

(46)

	Singular	Plural	Gloss	Class	UR
a.	fùùbéfùùbé		mist	1a/2a	/fuubé-fuubé/
b.	cìimbwí	yàà-cìimbwí	hyena	1a/2a	/cìmbuí/
c.	móótó <sup>1</sup> ká	yàà-móótó <sup>1</sup> ká	car	1a/2a	/móotoká/
d.	cìpáámbá <sup>1</sup> sí	yàà- cìpáámbá <sup>1</sup> sí	bull	1a/2a	/cìpámbasí/
e.	mwáánkó <sup>1</sup> lé	yàà-mwáánkó <sup>1</sup> lé	crow	1a/2a	/múankolé/
f.	ú-mú- <sup>1</sup> póóngóòzí	á-á- <sup>1</sup> póóngóòzí	in-law	1/2	/póngoozí/
g.	ú-mú- <sup>1</sup> tóówáàné	á-á- <sup>1</sup> tóówáàné	younger sibling	1/2	/tóuané/
h.	i-cí-pùúlú <sup>1</sup> lú	i-ví-pùúlú <sup>1</sup> lú	owl	7/8	/puúlulú/

(47)	a.	cìimbwí mú-sù má	‘good hyena’	/cìmbuí mu-sumá/
	b.	ú-mú-tóówáàné mú-sù má	‘good sibling’	/ú-mu-tóuané mu-sumá/
	c.	móótó <sup>1</sup> ká mú-tífi	‘black car’	/móotoké mu-tifi/
	d.	mwáánkó <sup>1</sup> lé mú-sù má	‘good crow’	/múankolé mu-sumá/

In each of the nouns above the stem has two H tones underlyingly—one on the stem-final TBU and one on some TBU which precedes it. First, we note that there is no evidence that any MH has been added (e.g. on the second TBU of forms with a root-initial H. The first H will generally undergo binary spreading. The one case where this is not true is when it is on the first mora of a bimoraic syllable and the following syllable is H-toned. This is true of (46a), and is true of adjectival and adverbial roots as well, as seen below.

(48)	a.	vì-nóònó	‘small (C8)	/vi-nóonó/
	b.	sáàná	‘very’	/sáaná/

The generalization seem to be that such spreading is inhibited when both H’s in question are tautomorphic. We saw many cases in Chapter 5 when such spreading did occur when the two H’s were heteromorphic. (E.g. *tw-áá-léét-à* ‘we have just brought’ (< /tú-á-léet-á/); \**tw-áá-léet-á*.)

### 7.2.6 Totally toneless nouns

It should be noted that all of the nouns we have seen up to this point have at least one High tone in them somewhere—be it on a prefix (7) or stem. The question arises as to whether a noun can surface as completely toneless. Any such form would have to be found in Class 1a/2a since that is the only class where the prefixal material is toneless. It turns out that these seem to be fairly rare in Cilungu, as there seems to be a strong (though not absolute) tendency in the language to have a least one H in a lexical (as opposed to function) word. The few that I have found are listed below.

(49)

	Singular	Plural	Gloss	Class
a.	yèèmbà	yàà-yèèmbà	lake	/yemba/
b.	mùfi	yàà-mùfi	snake (puffader)	/mufi/
c.	cààngà	yàà-cààngà	squirrel	/canga/
d.	mùunjìli	yàà-mùunjìli	warthog	/munjili/
e.	ng’ ààmbà	yàà- ng’ ààmbà	crack in the foot	/munjili/



- (50) a. yèèmbà mù-sù má 'good lake'  
 b. mùfì mù-tìfì 'black snake'

Interestingly, even though these class 1a/2a nouns are underlyingly toneless, they also can exhibit lexical extraprosodicity. As seen below (49d-e) have an extraprosodic final mora, while the others do not.

- (51) a. à-là-lòl-á yéémbá 'he will see the lake'  
 b. à-là-lòl-á múfì 'he will see the puffader'  
 c. à-là-lòl-á cáángá 'he will see the squirrel'  
 d. à-là-lòl-á múúnjìlì 'he will see the warthog'  
 e. à-là-lòl-á ng'áámbà 'he will see the crack in the foot'

In each case the H from the FV of the verb spreads into the noun and then undergoes unbounded spreading (as will be discussed in further detail in §9.4). In (51a-c) the H spreads to the final TBU of the noun, but in (51d-e) it stops at the penult as the final TBU is extraprosodic.

### 7.2.7 Proper nouns and summary of underived nominal stems

I note here that with respect to proper nouns, there seem to be a good number which are completely toneless, in addition to those with one or two H tones.

- (52) Names of people (proper nouns)
- a. Toneless: Chèèlà, Chòòlà, Mùlèèngà, Mùsòòndà, Mààngàlà, Kàzìwè
  - b. One H tone: Yààndé, Kàpèèmbwá, Pààndé, Mùlámù, Àànjèlíná
  - c. Two H tones: Íínkísóóní, Fólóòngá, Músóòndé

When such proper names (which I classify as Class 1a nouns) are used vocatively, a High tone is inserted and docked to the word-initial mora, and then spreads appropriately as illustrated below.

- (53) a. Mùlééngà 'Mulenga!' /Mulenga/  
 b. Kápèèmbwá 'Kapembwa!' /Kapembuá/  
 c. múúnjìlì 'warthog!' /munjili/

To summarize thus far, we have seen two things. First, the general rules governing bounded and unbounded spreading motivated by the behavior of verbal infinitives have been shown to directly extend to nouns. This is not to say, however, that nouns do not exhibit any interesting tonal differences vis-à-vis verbs. Indeed they do. First, we saw that certain nouns seem to be need to be marked as not exhibiting final extraprosodicity (or alternatively, marked to resist boundary Low docking). Next, while verb roots had either no High or a High on the first TBU, noun stems can have from 0-2 H tones in them and in general their position in the stem is not predictable. The location of the H (or Hs) is most often a peripheral TBU of the stem, but as shown above there are exceptions to this too (46). Finally, we note that there does not seem to be any evidence for stems which have underlying multiply-linked H tones (or consecutive morae linked to distinct H's). E.g. there are no stems of the shape ĆĆĆĆĆĆ (< /ĆĆĆĆĆĆ/), ĆĆĆĆĆĆĆ (< /ĆĆĆĆĆĆĆ/), etc. There are numerous

cases of noun stems which wind up having two adjacent TBUs linked to distinct H's (due to the insertion of the MH), but in these cases they do not fuse.

### 7.3 Deverbal nouns

Three processes of deverbal nominalization were briefly presented in section 2.1.5. Their tonology will be dealt with here.

The first process produces deverbal agentives. Examples using toneless and H-toned roots are found in (54) and (55) and respectively. Singulars are given first and are followed by the corresponding plurals. Given the plural /yaa-/ these can be diagnosed as Class 1a/2a nouns.

- |      |    |                       |                    |                         |                        |
|------|----|-----------------------|--------------------|-------------------------|------------------------|
| (54) | a. | kà-kòm-á              | yàà-kà-kòm-á       | ‘one who kills/killer’  | /ka-kom-á/             |
|      | b. | kà-lim-á              | yàà-kà-lim-á       | ‘one who farms/farmer’  | /ka-lim-á/             |
|      | c. | kà-tòt-á              | yàà-kà-tòt-á       | ‘one who stabs/stabber’ | /ka-tot-á/             |
|      | d. | kà-sùkil-ìl-á         | yàà-kà-sùkilìl-á   | ‘one who accompanies’   | /ka-sukil-il-á/        |
|      | e. | kà-lim-á mú-sù má     |                    | ‘the good farmer’       | /ka-lim-á mu-sumá/     |
|      |    |                       |                    |                         |                        |
| (55) | a. | kà-súl-à              | yàà-kà-súl-à       | ‘blacksmith’            | /ka-súl-á/             |
|      | b. | kà-lás-à              | yàà-kà-lás-à       | ‘one who hits/hitter’   | /ka-lás-á/             |
|      | c. | kà-sópólòl-á          | yàà-kà-sópólòl-á   | ‘one who unties’        | /ka-sopolol-á/         |
|      | d. | kà-páápáàtik-á        | yàà-kà-páápáàtik-á | ‘one who flattens’      | /ka-páapaatik-á/       |
|      | e. | kà-lás-á mù-sù má     |                    | ‘good hitter’           | /ka-lás-á mu-sumá/     |
|      | f. | kà-sópólòl-á mú-sù má |                    | ‘good untier’           | /ka-sopolol-á mu-sumá/ |

The tonology of these forms can be accounted for if we assume that the nominalizing prefix /ka-/ is toneless and that the final vowel /-á/ is H-toned. We note that no MH is found in the forms in (55), something true of all Class 1a/2a nouns). There is one special rule which deletes the H on the FV if it is immediately preceded by a H, accounting for (55a-b). (See also §10.5.5).

The second nominalizing process produces manner nouns by using the class 4 prefix and a stem composed of an applicativized root plus the final vowel /-e/. Representative examples with toneless and H-toned roots are given below.

- |      |    |                              |                           |                            |
|------|----|------------------------------|---------------------------|----------------------------|
| (56) | a. | í-mí-lim-ìl-é                | ‘manner of farming’       | /i-mi-lim-il-e +H/         |
|      | b. | í-mí-swèèl-él-é              | ‘manner of brewing’       | /i-mi-suel-il-e +H/        |
|      | c. | í-my-éèl-él-é                | ‘manner of winnowing’     | /i-mi-el-il-e +H/          |
|      | d. | í-mí-làànd-ìl-é              | ‘manner of speaking’      | /i-mu-land-il-e +H/        |
|      | e. | í-mí-làànd-ìl-é í-sù má      | ‘good manner of speaking’ | /i-mu-land-il-e +H i-sumá/ |
|      |    |                              |                           |                            |
| (57) | a. | í-mí- <sup>1</sup> lás-ìl-é  | ‘manner of hitting’       | /i-mi-lás-il-e +H/         |
|      | b. | í-mí- <sup>1</sup> léét-él-é | ‘manner of bringing’      | /i-mi-léet-il-e +H/        |
|      | c. | í-mí- <sup>1</sup> lí-ìl-é   | ‘manner of eating’        | /i-mi-lí-il-e +H/          |
|      | d. | í-mí- <sup>1</sup> imb-ìl-é  | ‘manner of singing’       | /i-mi-imb-il-e +H/         |

As can be seen, the tonology of these forms are reminiscent of the finite verbs examined in §5.3 which had a melodic H that docked onto the second and subsequent TBUs of the stem—exactly what we see here. I therefore assume that the final vowel /-e/ in this case has a floating H associated with it that docks onto the FV

and then spreads leftward to V2. It will be recalled that the final vowel of the shape /-e/ was used in the subjunctive finite verb forms (§5.3.9). Its tonal properties described there were interesting—it docked onto only the final vowel if there were no OMs present, but onto V2-FV if there were OMs present. The pattern exhibited here is the same one used in the subjunctive with OMs.

The final group of deverbal nouns seem to be the least productive synchronically. They are nouns of the shape: Class Prefix – Root – FV. These can potentially fall into any of the first 15 noun classes, and the final vowel used can be any one of the 5 vowels. Representative examples (first introduced in section §2.1.5) are given below, grouped according to final vowel.

- |      |    |  |                               |  |
|------|----|--|-------------------------------|--|
| (58) | a. | ú-mú- <sup>1</sup> lú <sup>1</sup> únz-ì             | ‘hunter’                      | (cf. ú-kú- <sup>1</sup> lú <sup>1</sup> úng-à ‘to hunt’)             |
|      | b. | ú-mú- <sup>1</sup> ó <sup>1</sup> ómv-ì              | ‘worker’                      | (cf. ú-kú- <sup>1</sup> ó <sup>1</sup> ómb-à ‘to work’)              |
|      | c. | ú-mú-vyááz-ì   | ‘parent’                      | (cf. ú-kú-vyáál-à ‘to bear a child’)                                 |
|      | d. | ú-mú- <sup>1</sup> swé <sup>1</sup> éz-ì             | ‘fisherman’                   | (cf. ú-kú- <sup>1</sup> swé <sup>1</sup> él-à ‘to fish’)             |
|      | e. | á-má- <sup>1</sup> tú <sup>1</sup> únz-ì             | ‘urine’                       | (cf. ú-kú- <sup>1</sup> tú <sup>1</sup> únd-à ‘to urinate’)          |
|      | f. | í-cí-súz-ì   | ‘flatulence’                  | (cf. ú-kú-súl-à ‘to flatulate’)                                      |
|      | g. | í-cí- <sup>1</sup> lú <sup>1</sup> m- <sup>1</sup> í | ‘bedbug’                      | (cf. ú-kú- <sup>1</sup> lúm- <sup>1</sup> á ‘to bite’)               |
|      | h. | ú-mú- <sup>1</sup> tú <sup>1</sup> úngúlúz-ì         | ‘leader, ruler’               | (cf. ú-kú- <sup>1</sup> tú <sup>1</sup> úngúlúz-à ‘to lead, rule’)   |
| (59) | a. | ú-lw-í <sup>1</sup> ímb-ò                            | ‘song’                        | (cf. ú-kw-í <sup>1</sup> ímb-à ‘to sing’)                            |
|      | b. | ú-mú-láp-ò   | ‘oath’                        | (cf. ú-kú-láp-à ‘to swear’)  |
|      | c. | í-cí-láy-ò   | ‘promise’                     | (cf. ú-kú-láy-à ‘to promise’)  |
|      | d. | í-cí- <sup>1</sup> ló <sup>1</sup> ót-ò              | ‘dream’                       | (cf. ú-kú- <sup>1</sup> ló <sup>1</sup> ót-à ‘to dream’)             |
|      | e. | í-cí-pím-ò   | ‘measure’                     | (cf. ú-kú-pím-à ‘to measure’)  |
|      | f. | í-cí-sáákúl-ò  | ‘comb’                        | (cf. ú-kú-sáákúl-à ‘to comb’)  |
| (60) | a. | ú-mú-fw-è  | ‘dead person’                 | (cf. ú-kú-fw-à ‘to die’)   |
|      | b. | í-cí- <sup>1</sup> lá <sup>1</sup> áng-è             | ‘crack’                       | (cf. ú-kú- <sup>1</sup> lá <sup>1</sup> áng-à ‘to be cracked’)       |
|      | c. | í-cí- <sup>1</sup> wá <sup>1</sup> y-é               | ‘something painful’           | (cf. ú-kú- <sup>1</sup> wáy- <sup>1</sup> á ‘to be painful’)         |
|      | d. | ú-ú- <sup>1</sup> tú <sup>1</sup> úmp-è              | ‘stupidity’                   | (cf. ú-kú- <sup>1</sup> tú <sup>1</sup> úmp-à ‘to be stupid’)        |
|      | e. | í-cí- <sup>1</sup> ví <sup>1</sup> ímb-è             | ‘swelling part’               | (cf. ú-kú- <sup>1</sup> ví <sup>1</sup> ímb-à ‘to swell’)            |
|      | f. | í-n-kó <sup>1</sup> óngól-è                          | ‘debt’                        | (cf. ú-kú- <sup>1</sup> kó <sup>1</sup> óngól-à ‘to borrow (money)’) |
| (61) | a. | í-cí- <sup>1</sup> lé <sup>1</sup> m-á               | ‘lame person’                 | (cf. ú-kú- <sup>1</sup> lé <sup>1</sup> m-á ‘to be lame’)            |
|      | b. | ú-mú- <sup>1</sup> pí <sup>1</sup> ín-à              | ‘poor person’                 | (cf. ú-kú- <sup>1</sup> pí <sup>1</sup> ín-à ‘to be poor’)           |
|      | c. | í-m-fw-à   | ‘death’                       | (cf. ú-kú-fw-à ‘to die’)   |
|      | d. | ú-mú-zw-à  | ‘stirring stick for porridge’ | (cf. ú-kú-zw-à ‘to make porridge’)                                   |
|      | e. | ú-lú-py-à  | ‘brushfire’                   | (cf. ú-kú-py-à ‘to be burned’)                                       |
| (62) | a. | ú-ú- <sup>1</sup> kú <sup>1</sup> l-ú                | ‘bigness’                     | (cf. ú-kú- <sup>1</sup> kú <sup>1</sup> l-á ‘to grow, become big’)   |
|      | b. | í-yúúl-ù   | ‘sky’                         | (cf. ú-kú-yúúl-à ‘to open’)  |

All of these nouns, perhaps unsurprisingly, exhibit an overall tone pattern characteristic of other, non-derived, nouns. In the case of nouns with toneless roots, the prefixal H spreads in an unbounded fashion to the penult (e.g. (59f)). In nouns with a H-toned root, there is evidence of a MH which docks onto the leftmost free

TBU of the stem and then undergoes unbounded rightward spreading (e.g. (58h)). We posit all 5 different final vowels as toneless.<sup>8</sup>

## 7.4 Locatives

As presented in section 2.1.2, noun classes 16, 17 and 18 serve a locative function, as can be seen in the examples below.

- |      |    |             |                        |
|------|----|-------------|------------------------|
| (63) | a. | ú-mw-íli    | ‘body’ (C3)            |
|      | b. | á-pá-mw-íli | ‘at/on the body’ (C16) |
|      | c. | ú-kú-mw-íli | ‘at the body’ (C17)    |
|      | d. | ú-mú-mw-íli | ‘in the body’ (C18)    |

Additional examples using the class 18 locative /ú-mu/ are given below for nouns with toneless stems.

- |      |    |                 |                          |                  |
|------|----|-----------------|--------------------------|------------------|
| (64) | a. | í-n-dá          | ‘stomach’                | /í-n-da/         |
|      | b. | ú-múú-n-dá      | ‘in the stomach’         | /ú-mu-n-da/      |
| (65) | a. | í-vú            | ‘wasp’                   | /í-vu/           |
|      | b. | ú-mw-íí-vú      | ‘in the wasp’            | /ú-mu-i-vu/      |
| (66) | a. | ú-lú-pwá        | ‘family’                 | /ú-lu-pua/       |
|      | b. | ú-mú-lú-pwá     | ‘in the family/relative’ | /ú-mu-lu-pua/    |
| (67) | a. | í-pápíkò        | ‘wing’                   | /í-papiko/       |
|      | b. | ú-mw-íí-pápíkò  | ‘in the wing’            | /ú-mu-i-papiko/  |
| (68) | a. | í-m-pélémbè     | ‘antelope’               | /í-m-pelembe/    |
|      | b. | ú-múú-m-pélémbè | ‘in the antelope’        | /ú-mu-m-pelembe/ |
| (69) | a. | í-m-bázò        | ‘ribs’                   | /í-m-bazo/       |
|      | b. | ú-múú-m-bázò    | ‘in the rib’s, sideways’ | /ú-mu-m-bazo/    |

The H on the preprefix undergoes unbounded spreading as it is the only H in the word. We note that if the H on the preprefix spread to the stem-final TBU in the plain noun, whether that be due to a glide in the final syllable (66) or simply being marked as resisting extraprosodicity (65), then it will spread to the stem-final TBU in the locative.

With regard to the length of the vowel preceding the Class 9/10 prefix /n-/ in (68) and (69), it was proposed in sections 3.3 and 7.2 that while the mora assigned to the Class 9/10 nasal will have the effect of lengthening the previous vowel via Nasal Demorification and compensatory lengthening, a Class 9/10 preprefix will be shortened to a single mora.

The class prefixes used in the locatives are generally the same as those used in plain nouns. The one exception is that the class 2 prefix (underlyingly /ba-/) is realized as /ya-/ instead of /a-/.<sup>9</sup>

<sup>8</sup> The only exception I have found to this generalization is the word *ú-mw-ìin-é* ‘fat person’ (cf. *ú-kw-íin-à* ‘to be fat’) where the FV /-é/ is H-toned.

(70)	a. á-á-lími	‘farmers’	/á-ba-limi/
	b. ú-mú-yá-lími	‘in the farmers’	/ú-mu-ba-limi/
	c. á-pá-yá-lími	‘on the farmers’	/á-pa-ba-limi/

When the noun being locativized is class 9/10 and has a root-initial nasal consonant, we see the same lengthening of the locative prefix seen in (68)-(69) where the class 9/10 noun root begins with a non-nasal.

(71)	a. í-ng’óómbè	‘cow’	/i-n-ng’ombe/
	b. ú-múú-ng’óómbè	‘in the cow’	/ú-mu-n-ng’ombe/
(72)	a. í-námà	‘animal’	/i-n-nama/
	b. ú-múú-námà	‘in the animal’	/ú-mu-n-nama/
(73)	a. í-nyámà	‘meat’	/i-n-ñama/
	b. ú-múú-nyámà	‘in the meat’	/ú-mu-n-ñama/

We see the same compensatory lengthening followed by geminate reduction that we saw exemplified by verbs with nasal-initial roots preceded by the 1 sg. OM /n-/ E.g. *ú-kúú-mil-à* ‘to swallow me’ (< /ú-ku-n-mil-a.) (cf. §3.1.3).

Let us now consider the locatives below where there is a H in the stem.

(74)	a. í-cí- <sup>1</sup> sá <sup>1</sup> ánzi	‘broom’	/i-ci-sánzi +H/
	b. ú-mú-ci-sáánzi	‘in the broom’	/ú-mu-ci-sánzi +H/
(75)	a. ú-mú- <sup>1</sup> lú <sup>1</sup> meéndò	‘boy’	/ú-mu-lúmendo +H/
	b. ú-mú-mù-lúmeéndò	‘in the boy’	/ú-mu-mu-lúmendo +H/
	c. ú-mú-mù-lúmeéndó mù-sùmá	‘in the good boy’	/ú-mu-mu-lúmendo +H mu-sumá/
(76)	a. á-á- <sup>1</sup> lú <sup>1</sup> meéndò	‘boys’	/á-ba-lúmendo +H/
	b. ú-mú-yà-lúmeéndò	‘in the boys’	/ú-mu-ya-lúmendo +H/
(77)	a. ú-kú- <sup>1</sup> só <sup>1</sup> pólól-à	‘to untie’	/ú-ku-sópolol-a +H/
	b. ú-mú-kù-sópólól-à	‘in the untying’	/ú-mu-ku-sópolol-a +H/
(78)	a. í-sú <sup>1</sup> mó	‘spear’	/i-súmo +H/
	b. ú-mw-ìi-súmò	‘in the spear’	/ú-mu-i-súmo +H/
	c. ú-mw-ìi-súmó lí-sùmá	‘in the good spear’	/ú-mu-i-súmo +H li-sumá/

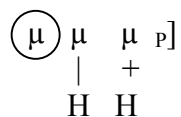
<sup>9</sup> It should be recalled from section 3.5 that we have in fact posited a  $b > y$  rule in Cilungu, but this only affects a root-final /b/ preceded by a [-round] V. The alternation between [y] and  $\emptyset$  seen in (70) does not appear to be conditioned phonologically, as each can appear in the environment a \_\_ a. I will assume that the UR of the class 2 prefix is /ba/ and that some morphologically conditioned rule changes the /b/ to /y/ when another class prefix (as opposed to a preprefix) precedes it.

(79)	a.	í-cí- <sup>1</sup> bá <sup>1</sup> tá	‘duck’	/í-ci-báta +H/
	b.	ú-mú-ci-bátà	‘in the duck’	/ú-mu-ci-báta +H/
	c.	ú-mú-ci-bátá cí-sùmá	‘in the good duck’	/ú-mu-ci-báta +H cí-sumá/
(80)	a.	ú-kú- <sup>1</sup> lá- <sup>1</sup> s-á	‘to hit, hitting’	/ú-ku-lás-a +H/
	b.	ú-kú-mù-lás-à	‘in the hitting’	/ú-mu-ku-lás-a +H/
(81)	a.	í- <sup>1</sup> vú	‘clay’	/í-vú +H/
	b.	ú-mw-îi-vú	‘in the clay’	/ú-mu-i-vú +H/
(82)	a.	í-n- <sup>1</sup> sí	‘world’	/í-n-sí +H/
	b.	ú-múù-n-sí	‘in the world’	/ú-mu-n-sí +H/

In each of the examples of above, the H on the preprefix of the class 18 locative undergoes binary spreading. The inherent class prefix of the noun is underlyingly toneless. While the MH clearly docks onto the second TBU in the non-locative (a) forms in (74)-(80) (where there is a toneless TBU in the stem on which it can dock), inducing a phonetic downstep between the first two morae of the stem, this downstep is missing in the locative forms. I would like to propose two rules to account for these patterns.

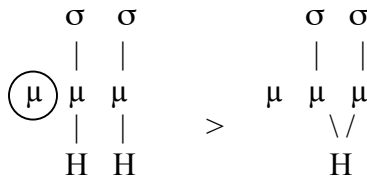
Let us first consider the forms in (78b), (79b) and (80b). Since the nominal stem begins with a H tone, I assume that the nominal MH is in fact present and docks onto the second (and final) TBU of the stem. The difference between the non-locative (a) forms and the locative (b) forms is the tonal status of the pre-stem TBU. In the former it is H, but in the latter it is toneless. As pointed out in section 5.2.6, while there is a robust contrast in Cilungu between phrase-final HH<sup>1</sup>H and HHL (cf. §10.4.1) there is not a contrast between phrase-final LH<sup>1</sup>H and LHL. I therefore posited a rule of Post L Downstep Removal, repeated below, which will delink a phrase-final H in such cases, accounting for the surface patterns in (78b), (79b) and (80b).

(83) Post L Downstep Removal



Let us now turn to the remaining locative forms ((74b), (75b), (76b), (77b), (78c) (79c)). In these forms the docking of the nominal MH also creates a LH<sup>1</sup>H sequence, but in these cases it is not phrase-final. (In (74b), (75b), (76b) and (77b) it is not word-final, and in (78c) and (79c) it is word-final, but not phrase-final.) In these cases no downstep surfaces. If we were to remove the phrasal boundary from the rule in (83) and have the rule delete the second H (instead of just delinking it), we would in fact correctly account for the surface tone pattern in (74b), (75b), (76b) and (77b). The problem is that if the second H is delinked (or deleted) in (78c) and (79c), the remaining (root) H would simply spread to the final TBU of the stem and not into the following word, as was the case with non-phrase final nouns with a root-initial H (21). The fact that a H has spread onto the first TBU of the following adjective can be accounted for if we assume that the two H's fuse (in the context where they are not phrase-final. This rule (ordered after Post L Downstep Removal) is formalized below.

(84) Post L Fusion



This more specialized rule of Fusion is necessary because the general rule of Fusion occurs before the nominal MH docks (accounting for the downstep between it and the preceding root-initial H).

The application of this rule in (79a-b) is illustrated below.

(85)	u-mu-ci-bata	u-mu-ci-bata ci-suma	UR
	$  \begin{array}{ccc}    &   & \\  H & H & H  \end{array}  $	$  \begin{array}{ccc}    &   &   \\  H & H & H  \end{array}  $	
			Fusion
	u-mu-ci-bata	u-mu-ci-bata ci-suma	Nominal MH Docking
	$  \begin{array}{ccc}    &   &   \\  H & H & H  \end{array}  $	$  \begin{array}{ccc}    &   &   \\  H & H & H  \end{array}  $	
	u-mu-ci-bata	u-mu-ci-bata ci-suma	General Doubling
	$  \begin{array}{ccc}    & / &   \\  H & & H  \end{array}  $	$  \begin{array}{ccc}    & / &   \\  H & & H  \end{array}  $	
	u-mu-ci-bata		Post L Downstep Removal
	$  \begin{array}{ccc}    & / &   \\  H & & H  \end{array}  $		
		u-mu-ci-bata ci-suma	Post L Fusion
		$  \begin{array}{ccc}    & \backslash / &   \\  H & & H  \end{array}  $	

Finally, we note that for class 1a/2a nouns, the morpheme /lí/ (which appears to be a copula in many compound verbs (cf. chapter 8)) appears between the class 18 prefix and the noun.<sup>10</sup>

<sup>10</sup> The tonology of these forms seems to be consistent with either the assumption that *mú-lí* is a phonological word, or that both are prefixes on the following noun. While I have written these as two separate words (as is done in standard Cilungu orthography) I must leave this as an open question.

(86)	a. mú-lí yéembá	‘in the lake’	/mú-lí yemba/
	b. mú-lí yáá-yéembá	‘in the lakes’	/mú-lí yaa-yemba/
	c. mú-lí móótó <sup>1</sup> ká	‘in the car’	/mú-lí móotoká/
	d. mú-lí Múléengà	‘in Mulenga’	/mú-lí Mulenga/
	e. mú-lí cipuzí	‘in the pumpkin’	/mú-lí cipuzí/
	f. mú-lí cúulá	‘in the frog’	/mú-lí cuulá/
	g. mú-lí mú <sup>1</sup> sátò	‘in the python’	/mú-lí musátò/
	h. mú-lí múfí	‘in the puffader’	/mú-lí mufí/

## 7.5 Diminutives

Diminutives are formed in class 12/13. A few examples are given below. (As noted in the presentation of diminutive morphology in §2.1.3, in certain cases the inherent class prefix of the noun is maintained while in other cases it is not.)

(87)	a. ú-mú-zá	‘wind’	/ú-mu-za/
	b. í-mí-zá	‘winds’	/í-mi-za/
	c. á-ká-mú-zá	‘small wind’	/á-ka-mu-za/
	d. ú-tú-mí-zá	‘small winds’	/ú-tu-mu-za/
(88)	a. á-á- <sup>1</sup> lú <sup>1</sup> mééndò	‘boys’	/á-ba-lúmendo +H/
	b. ú-tú-yà-lúmééndò	‘small boys’	/ú-tu-ba-lúmendo +H/
(89)	a. ú-mú-lyáángò	‘doorway’	/ú-mu-liango/
	b. á-ká-mú-lyáángò	‘small doorway’	/á-ka-mu-liango/
(90)	a. í-cí- <sup>1</sup> kó <sup>1</sup> zi	‘eagle’	/í-ci-kózi +H/
	b. á-ká- <sup>1</sup> kó <sup>1</sup> zi	‘small eagle’	/á-ka-kózi +H/
	c. ú-tú- <sup>1</sup> kó <sup>1</sup> zi	‘small eagles’	/ú-tu-kózi +H/
(91)	a. ú-mú- <sup>1</sup> swé <sup>1</sup> éz-ì	‘fisherman’	/ú-mu-súel-i +H/
	b. á-ká- <sup>1</sup> swé <sup>1</sup> éz-ì	‘small fisherman’	/á-ka-súel-i +H/
	c. ú-tú- <sup>1</sup> swé <sup>1</sup> éz-ì	‘small fishermen’	/ú-tu-súel-i +H/

As can be clearly seen in examples (90)-(91), if the diminutive /á-ka/ is followed directly by a root with an initial H tone, then the MH is realized on the second TBU of the stem just as it is the underived (non-diminutive) nouns. But if the diminutive prefix is followed by the toneless class prefix of a noun with a root-initial H, as in (88), then that inherent class prefix will surface as Low and the Post L Fusion rule formalized above in (84) will apply.

## 7.6 Augmentatives

Augmentatives are formed in class 7/8. Representative examples are given below. (Augmentative morphology was presented in §2.1.4.)



(92)	a. ú-mú-lími	‘farmer’	/ú-mu-limi/
	b. í-cí-mú-lími	‘big farmer’	/i-ci-mu-limi/
	c. í-ví-yá-lími	‘big farmers’	/i-vi-mu-limi/
(93)	a. í-pápíkò	‘wing’	/i-papiko/
	b. í-cí-lí-pápíkò	‘big wing’	/i-ci-li-papiko/
	c. í-ví-má-pápíkò	‘big wings’	/i-vi-ma-papiko/
(94)	a. ú-mú-pèní	‘knife’	/ú-mu-pení/
	b. í-cí-mù-pèní	‘big knife’	/i-ci-mu-pení/
	c. í-ví-mì-pèní	‘big knives’	/i-vi-mu-pení/
(95)	a. ú-mú- <sup>1</sup> sá <sup>1</sup> ná	‘waist’	/ú-mu-sána +H/
	b. í-cí-mù-sánà	‘big waist’	/i-ci-mu-sána +H/
	c. í-cí-mù-sáná mú-sù <sup>1</sup> má	‘good big waist’	/i-ci-mu-sána +H mu-sumá/
(96)	a. ú-mú- <sup>1</sup> ká <sup>1</sup> zyáánà	‘girl’	/ú-mu-káziana +H/
	b. í-cí-mù-kázyáánà	‘big girl’	/i-ci-mu-káziana +H/
	c. í-ví-yà-kázyáánà	‘big girls’	/i-vi-ba-káziana +H/
(97)	a. ú-mú- <sup>1</sup> swé <sup>1</sup> éz-ì	‘fisherman’	/ú-mu-súel-i/
	b. í-cí-mù-swééz-ì	‘big fisherman’	/i-ci-mu-súel-i/
	c. í-ví-yà-swééz-ì	‘big fishermen’	/i-vi-ba-súel-i/
(98)	a. í-kó <sup>1</sup> kola	‘knee’	/i-kókola +H/
	b. í-cí-lì-kókólà	‘big knee’	/i-ci-li-kókola +H/
	c. í-ví-mà-kókólà	‘big knees’	/i-vi-ma-kókola +H/
(99)	a. ú-mw-á <sup>1</sup> ánà	‘child’	/ú-mu-ána/
	b. í-cí-mw-àánà	‘big child’	/i-ci-mu-ána/
	c. í-ví-yà-ánà	‘big children’	/i-vi-ya-ána/

With regard to tone, we see the same pattern that we have in the locatives and diminutives—namely that when a H-toned root is preceded on the surface by a Low TBU, then one of two processes will apply. If the nominal H is on a phrase-final TBU, then Post L Downstep Removal (83) will apply (e.g. (95b)). If it is not phrase-final, then the rule of Post L Fusion (84) will apply and fuse the root H and the MH (e.g. (95c), (96b-c), (97b-c), (98b-c)).

## 7.7 Copulatives

We now turn to an analysis of the tonology of copulatives, whose basic morphology was presented in §2.1.6. We begin by examining affirmative copulatives, starting with forms with toneless roots.

(100)	a. ú-múú-ntù	‘person’	/ú-mu-ntu/
	b. ù-múú-ntù	‘it is a person’	/a-ú-mu-ntu/

(101)	a. ú-mú-límì	‘farmer’	/ú-mu-limi/
	b. ù-mú-límì	‘it is a farmer’	/a-ú-mu-limi/
(102)	a. ú-mú-tééngò	‘price’	/ú-mu-tengo/
	b. ù-mú-tééngò	‘it is a price’	/a-ú-mu-tengo/
(103)	a. í-pápíkò	‘wing’	/í-papiko/
	b. ì-pápíkò	‘it is a wing’	/a-í-papiko/
(104)	a. á-má-pápíkò	‘wings’	/á-ma-papiko/
	b. à-má-pápíkò	‘they are wings’	/a-á-ma-papiko/
(105)	a. í-m-péléémbè	‘antelope’	/í-m-pelembe/
	b. ì-m-péléémbè	‘it is an antelope’	/a-í-m-pelembe/
(106)	a. í-zééngò	‘wooden pole’	/í-zengo/
	b. ì-zééngò	‘it is a wooden pole’	/a-í-zengo/

As can be seen, the difference between the expression of the noun and the copulative is expressed by the tone of the word-initial mora—whereas it is H-toned in the noun, it is toneless in the copulative. Before we account for this formally, however, let us consider the copulatives below which have shorter roots.

(107)	a. í-lá	‘intestine’	/í-la/
	b. ìì-lá	‘it is an intestine’	/a-í-la/
(108)	a. í-twì	‘ashes’	/í-túi/
	b. ìì-twì	‘it is ashes’	/a-í-túi/
(109)	a. í-zwíí	‘voice’	/í-zuí/
	b. ìì-zwíí	‘it is a voice’	/a-í-zuí/
(110)	a. í-sótè	‘grass’	/í-sote/
	b. ìì-sótè	‘it is grass’	/a-í-sote/
(111)	a. í-n-zóvù	‘elephant’	/í-n-zovu/
	b. ìì-n-zóvù	‘it is an elephant’	/a-í-n-zovu/

In (107)-(111) the copulative differs from the plain nominal in that the preprefix is long and rising. The difference between these forms and those in (100)-(106) has to do with the number of morae following the preprefix. Specifically, in (100)-(106) there are more than two morae, whereas in (107)-(111) there are two or less morae. The preprefix is short in the former, but long in the latter.

Finally, we note that in cases where the class prefix is CV and the root surfaces as monomoraic (even if it is bimoraic underlyingly), there is variation in the length of the preprefix.

(112)	a. á-má-wé	‘stones’	/á-ma-ue/
	b. à-má-wé ~ áá-má-wé	‘they are stones’	/a-á-ma-ue/

- (113) a. ú-mú-nwé 'finger' /ú-mu-nue/  
 b. ù-mú-nwé ~ ùú-mú-nwé 'it is a finger' /a-ú-mu-nue/
- (114) a. á-má-fwá 'leaves' /á-ma-fua/  
 b. à-má-fwá ~ àá-má-fwá 'they are leaves' /a-á-ma-fua/
- (115) a. ú-mú-tì 'tree' /ú-mu-ti/  
 b. ùú-mú-tì ~ ù-mú-tì 'it is a tree' /a-ú-mu-ti/
- (116) a. ú-mú-zí 'village' /ú-mu-zi/  
 b. ùú-mú-zí ~ ù-mú-zí 'it is a village' /a-ú-mu-zi/

It should be recalled that we saw a similar vowel length alternation in a pre-stem syllable in three different situations in §3.1.6. In the Persistentive, e.g., the TAM prefix /lí-/ surfaced as long when followed by two or less morae and as short when followed by more than two morae. This was accounted for by the rule of Pre-stem Shortening which shortens a morphologically specified pre-stem syllable when two or more morae follow in the word. I would like to suggest that the copulative morpheme is the prefix /a-/. In each case the vowel will delete before a following vowel which is then compensatorily lengthened. In the event that only one or two morae follow the preprefix, then the form predictably surfaces with a long rise (107)-(111). When more than two morae follow the preprefix then Pre-Stem Shortening will apply. Derivations of (117b) and (101b) are provided below.

- (117) a. a- i-sote                      b. a-u-mu-limi                      U.R.
- |    |
- H    H
- i-i-sote                                      u-u-mu-limi                      Vowel Deletion & CL
- |    |
- H    H
- i-i-sote                                      u-u-mu-limi                      General Doubling
- \ /    \ /
- H    H
- u-mu-limi                                      Pre-Stem Shortening (2<sup>nd</sup> mora)
- \ /
- H

The form in (117b) will be derived correctly as long as Pre-Stem Shortening removes the second of the two tautosyllabic morae. Additional evidence that the second mora is always removed by this rule will be seen below.

Let us now examine copulatives which contain a H in the stem (where the stem is greater than a single syllable). We begin with those where the H is on the stem-final TBU.

(118)	a. í-cí-inùùngí	‘porcupine’	/í-ci-inungí/
	b. ì-cí-inùùngí	‘it is a porcupine’	/a-í-ci-inungí/
(119)	a. ú-lú-pùúpu	‘seed’	/ú-lu-puúpu/
	b. ù-lú-pùúpu	‘it is the seed’	/a-ú-lu-puúpu/
(120)	a. ú-mú-làlààmfutí	‘rainbow’	/ú-mu-lalamfutí/
	b. ù-mú-làlààmfutí	‘it is the rainbow’	/a-ú-mu-lalamfutí/
(121)	a. ú-lú-tààndá	‘star’	/ú-lu-tandá/
	b. ù-lú-tààndá	‘it is a star’	/a-ú-lu-tandá/
(122)	a. ú-mú-pení	‘knife’	/ú-mu-pení/
	b. ù-mú-pé <sup>1</sup> ní	‘it is a knife’	/a-ú-mu-pení/

As was true in the forms with toneless stems, in each case the copulative surfaces with a word-initial Low-toned mora. Let us now focus our attention on the tonology of the TBUs which immediately follow the word-initial one. In examples (118)-(119) the tonology of the stem in the copulative is the same as it is in the plain noun, but in (120)-(122) it is different. In both the plain noun and copulative cases we expect some kind of binary spreading of the prefixal H given the fact that it is not the final H of the word, but why the difference in the spreading? As seen in the derivations below, if Pre-Stem Shortening applies between General Doubling and Heterosyllabic Doubling, then the correct surface forms are directly predicted.

(123)	a. a-í-ci-inuungí	b. a-ú-lu-puúpu	c. a-ú-mu-lalaamfutí	d. a-ú-mu-pení	UR
	i-í-ci-inuungí	u-ú-lu-puúpu	u-ú-mu-lalaamfutí	u-ú-mu-pení	Deletion & CL
	i-í-cí-inuungí	u-ú-lú-puúpu	u-ú-mú-lalaamfutí	u-ú-mú-pení	General Doubling
	i-cí-inuungí	u-lú-puúpu	u-mú-lalaamfutí	u-mú-pení	Pre-Stem Shortening
	n/a	blocked	u-mú-lálaamfutí	u-mú-pé <sup>1</sup> ní	Heterosyll Doubling

In (123a) Heterosyllabic Doubling will not apply since the immediately following mora is not tautosyllabic. In (123b) Heterosyllabic Doubling is blocked since it would cause an intra-syllabic OCP violation. In (123c-d) Heterosyllabic Doubling will apply, causing an OCP violation in the latter.

This rule ordering also correctly predicts these same patterns when the stem is toneless in non-phrase-final forms, as illustrated below.

(124)	a. ù-mú-lími mù-sù má	‘it is a good farmer’	/a-ú-mu-limi mu-sumá/
	b. ù-m-óòngòlòlò ù-sù má	‘it is a good backbone’	/ú-mu-ongololo u-sumá/
	c. ì-m-báláminwè zì-sù má	‘they are good rings’	/í-m-balaminue zi-sumá/

Let us now examine forms with a stem-initial H.

(125)	a. ú-mú- <sup>1</sup> ká <sup>1</sup> zyáánà	‘girl’	/ú-mu-káziana +H/
	b. ù-mú- <sup>1</sup> ká <sup>1</sup> zyáánà	‘it is a girl’	/a-ú-mu-káziana +H/
(126)	a. ú-mú- <sup>1</sup> lú <sup>1</sup> mééndò	‘boy’	/ú-mu-lúmendo +H/
	b. ù-mú- <sup>1</sup> lú <sup>1</sup> mééndò	‘it is a boy’	/a-ú-mu-lúmendo +H/
(127)	a. ú-lú- <sup>1</sup> pé <sup>1</sup> émbè	‘horn’	/ú-lu-pémbe +H/
	b. ù-lú- <sup>1</sup> pé <sup>1</sup> émbè	‘it is a horn’	/a-ú-lu-pémbe +H/
(128)	a. ú-lú- <sup>1</sup> lí <sup>1</sup> mí	‘tongue’	/ú-lu-lími +H/
	b. ù-lú- <sup>1</sup> lí <sup>1</sup> mí	‘it is a tongue’	/a-ú-lu-lími +H/
(129)	a. ú-kú- <sup>1</sup> lé <sup>1</sup> m-á	‘to plant’	/ú-ku-lém-a +H/
	b. ù-kú- <sup>1</sup> lé <sup>1</sup> m-á	‘it is to plant’	/a-ú-ku-lém-a +H/
(130)	a. ú-kú- <sup>1</sup> yá- <sup>1</sup> súkíl-íl-à	‘to accompany them’	/ú-ku-yá-sukil-il-a +H/
	b. ù-kú- <sup>1</sup> yá- <sup>1</sup> súkíl-íl-à	‘it is to accompany them’	/a-ú-ku-yá-sukil-il-a +H/
(131)	a. ú-kú- <sup>1</sup> yá- <sup>1</sup> sópólól-à	‘to untie them’	/ú-ku-yá-sópolol-a +H/
	b. ù-kú- <sup>1</sup> yá- <sup>1</sup> sópólól-à	‘it is to untie them’	/a-ú-ku-yá-sópolol-a +H/

As can be seen, in these cases the copulatives differ tonally from their non-copulative counterparts in that the former do not exhibit the downstep between the class prefix and the stem-initial H which is found in the latter. This is directly accounted for by the Post L Fusion rule proposed above in (84), as seen below in the derivations of (125a-b).

(132)	a.	u-mu-kaziana	b.	a-u-mu-kaziana	U.R.
		H     H H		H     H H	
		u-mu-kazyana		u u-mu-kazyana	Vowel Del, Gliding, & C.L.
		H     H H		H     H H	
		u-mu-kazyana		u u-mu-kazyana	MH Docking
		H     H H		H     H H	
		u-mu-kazyana		u u-mu-kazyana	General Doubling
		/		/	
		H     H H		H     H H	
				u-mu-kazyana	Pre-Stem Shortening (2 <sup>nd</sup> mora)
				H H H	
				u-mu-kazyana	Post L Fusion
				\ /	
				H    H	
		n/a			

In the case of class 5 and class 9/10 nouns that have stems with an initial H, there is no downstep between the pre-stem H and the stem-initial H in the plain forms or the copulative forms. In cases where Pre-Stem Shortening applies, we also see the effects of Post L Fusion.

(133)	a.	í-m-bá'ví	‘paddle’	/í-m-bávi +H/
	b.	ĩ-m-bá'ví	‘it is a paddle’	/a-í-m-bávi +H/
(134)	a.	í-sú'mó	‘spear’	/í-súmo +H/
	b.	ĩ-í-sú'mó	‘it is a spear’	/a-í-súmo +H/
(135)	a.	í-kó'kólà	‘knee’	/í-kókola +H/
	b.	ĩ-kó'kólà	‘it is a knee’	/a-í-kókola +H/

There are two cases where the downstep between the pre and post stem boundary TBUs is not in fact removed. This is shown below.

(136)	a.	í-'vú	‘clay’	/í-vú +H/
	b.	ĩ-í-'vú	‘it is clay’	/a-í-vú +H/
(137)	a.	í-'n-sí	‘world’	/í-n-sí +H/
	b.	ĩ-í-'n-sí	‘it is a world’	/a-í-n-sí +H/

- (138) a. ú-mw-á<sup>1</sup>ánà ‘child’ /ú-mu-ána +H/  
 b. ù-mw-á<sup>1</sup>ánà ‘it is a child’ /a-ú-mu-ána +H/
- (139) a. ú-kw-í<sup>1</sup>ímb-à ‘to sing’ /ú-ku-ímb-a +H/  
 b. ù-kw-í<sup>1</sup>ímb-à ‘it is to sing’ /a-ú-ku-ímb-a +H/

When the stem is monosyllabic and H-initial, the downstep found in the plain noun is also found in the copulative. We noted in the discussion of the forms in (29) that fusion is blocked between a H on a monomoraic root and a preceding H. This holds true in both the non-locative and locative forms. When the stem is V-initial and H-toned, the fall from H to downstepped H present in the plain form is also found in the copulative (138)-(139). Since Post L Fusion (84) demands that the two H’s (to be fused) following the toneless mora be heterosyllabic, we correctly predict that it will not apply in (138)-(139).

Let us consider cases where there are two TBUs between the word-initial mora and the nominal stem.

- (140) a. ú-mú-<sup>1</sup>ká<sup>1</sup>zyáánà ‘girl’ /ú-mu-kázyana +H/  
 b. í-cí-mù-kázyáánà ‘big girl’ /í-ci-mu-kázyana +H/  
 c. ì-cí-mú-<sup>1</sup>kázyáánà ‘it is a big girl’ /a-í-ci-mu-kázyana +H/
- (141) a. ú-kú-mù-lém-él-à ‘to plant for him’ /ú-ku-mu-lém-il-a/  
 b. ù-kú-mú-<sup>1</sup>lém-él-à ‘it is to plant for him’ /a-ú-ku-mu-lém-il-a/
- (142) a. ú-kú-mù-lém-à ‘to plant him’ /ú-ku-mu-lém-a/  
 b. ù-kú-mú-<sup>1</sup>lém-à ‘it is to plant him’ /a-ú-ku-mu-lém-a/
- (143) a. ú-kú-<sup>1</sup>mú-<sup>1</sup>lém-él-à ‘to plant for you’ /ú-ku-mú-lém-il-a +H/  
 b. ù-kú-mú-<sup>1</sup>lé<sup>1</sup>m-él-à ‘it is to plant you’ /a-ú-ku-mú-lém-il-a +H/
- (144) a. ú-kú-<sup>1</sup>mú-<sup>1</sup>lém-él-à ‘to grab for you’ /ú-ku-mú-lem-il-a +H/  
 b. ù-kú-mú-<sup>1</sup>lé<sup>1</sup>m-él-à ‘it is to grab you’ /a-ú-ku-mú-lem-il-a +H/

In (140c) there is no downstep between the first and second TBUs of the stem in the copulative forms. I would like to suggest that Post L Fusion has applied in this form (as it has in (140b)) even though on the surface the pre-stem TBU is High. This can be accounted for by ordering Post-L Fusion before Heterosyllabic Doubling which spreads the H to the pre-stem TBU. With respect to forms (141) and (142), I have suggested that no nominal MH is generated when the macrostem-initial TBU is toneless. Still, it should be evident that were a macrostem H generated and docked onto the leftmost free TBU, the rules apparent in (140) would be operative and would derive the correct forms.

The form in (144b) is unusual. As can be seen, the copulative form of this verb with a toneless root is homophonous with its counterpart with an H-toned root in (143b). The H on the stem-initial TBU in (144b) presumably has the same source as the H on the stem-initial TBU in (144a), namely the melodic H. But as can be seen, there is yet an additional H which is showing up on the second TBU of the stem in (144b). I must assume that this is some paradigm uniformity effect—i.e. the fact that the forms are homophonous in the plain forms is somehow carrying over in the copulative forms. This could be accounted for formally by adding a rule which inserts another H tone in these cases.

Let us now examine the copulatives of class 1a/2a nouns.

- |       |    |              |                    |                  |
|-------|----|--------------|--------------------|------------------|
| (145) | a. | cùulá        | ‘frog’             | /cuulá/          |
|       | b. | à-cùulá      | ‘it is a frog’     | /a-cuulá/        |
|       | c. | yàà-cùulá    | ‘frogs’            | /yaa-cuulá/      |
|       | d. | àá cùulá     | ‘they are frogs’   | /a-á-ba-cuulá/   |
|       |    |              |                    |                  |
| (146) | a. | mùunjìlì     | ‘warthog’          | /munjili/        |
|       | b. | à-mùunjìlì   | ‘it is a warthog’  | /a-munjili/      |
|       | c. | yàà-mùunjìlì | ‘warthogs’         | /yaa-munjili/    |
|       | d. | àá mùunjìlì  | ‘it is warthogs’   | /a-á-ba-munjili/ |
|       |    |              |                    |                  |
| (147) | a. | mùsátò       | ‘python’           | /musáto/         |
|       | b. | à-mùsátò     | ‘it is a python’   | /a-musáto/       |
|       | c. | yàà-mùsátò   | ‘pythons’          | /yaa-musáto/     |
|       | d. | àá mùsátò    | ‘they are pythons’ | /a-á-ba-musáto/  |

The class 1a copulatives are interesting in that they show evidence of a H tone being contributed at the left edge of the word. This could be accounted for in one of three ways. First, there could be a rule which inserts and links a H tone to any toneless mora following the copulative prefix. Second, the copulative prefix could be set up with a floating H which docks only on a following toneless TBU. Finally, the copulative prefix could be set up as underlyingly H and would delink by rule whenever the following TBU was H-toned. Any of these rules would need to be ordered before Heterosyllabic Doubling. Post-L Fusion accounts for the lack of downstep between the first and second syllables of the root in (147b). The class 2a nouns form their copulatives in the same way as class 2 ones, viz. by prefixing a mora to the nominal prefixes /á-ba-/.

Adjectives can be made copulatives as well, as illustrated below.

- |       |    |   |                          |                               |
|-------|----|---|--------------------------|-------------------------------|
| (148) | a. | ú-mú-límì ù-mú-sú <sup>1</sup> má                                 | ‘the farmer is good’     | /ú-mu-limi á-ú-mu-sumá/       |
|       | b. | cìpùzì ù-mú-sú <sup>1</sup> má                                    | ‘the pumpkin is good’    | /cipuzì á-ú-mu-sumá/          |
|       | c. | í-tààngá ì-lí-sú <sup>1</sup> má                                  | ‘the cattle pen is good’ | /í-tangá á-í-li-sumá/         |
|       | d. | ú-mú- <sup>1</sup> ká <sup>1</sup> zyáánà ù-mú-sú <sup>1</sup> má | ‘the girl is good’       | /ú-mu-káziana +H á-ú-mu-sumá/ |
|       | e. | mùlámù ù-mú-sú <sup>1</sup> má                                    | ‘the bro-in-law is good’ | /mulámu á-ú-mu-sumá/          |
|       | f. | ì-ví-kùlù   | ‘they (C8) are big’      | /a-í-vi-kúlu/                 |
|       | g. | ì-cí-sú <sup>1</sup> má   | ‘it (C7) is good’        | /a-í-ci-sumá/                 |

When an adjective is used as a copulative, it bears a H-toned preprefix which spreads and then delinks just as was true with the nouns. The final example shows that a copulative adjective can be used without any explicit noun preceding it.

Let us now turn to the negative copulative. As noted in §2.1.6, the negative copulative employs the negative marker /sí-/ (quite similar to the negative prefix /síi-/ used in the Habitual (§5.1.9)). This marker /sí-/ is preceded by a Low-toned subject agreement prefix, but with a long vowel. It is followed by the noun with no preprefix. Some examples of nouns with toneless stems are given below.

- |       |    |                                     |                           |                          |
|-------|----|-------------------------------------|---------------------------|--------------------------|
| (149) | a. | ú-mú-límì                           | ‘farmer’                  | /ú-mu-limi/              |
|       | b. | àà-sí mù-límì                       | ‘it is not a farmer’      | /a-μ-sí mu-limi/         |
|       | c. | àà-sí mù-límì mù-sù <sup>1</sup> má | ‘it is not a good farmer’ | /a-μ-sí mu-limi mu-sumá/ |



- |       |    |                |                      |                  |
|-------|----|----------------|----------------------|------------------|
| (150) | a. | ú-mú-nwé       | ‘finger’             | /ú-mu-nue/       |
|       | b. | ùù-sí mú-nwé   | ‘it is not a finger’ | /u-μ-sí mu-nue/  |
| (151) | a. | í-mí-nwé       | ‘fingers’            | /i-mi-nue/       |
|       | b. | ìì-sí mí-nwé   | ‘it is not fingers’  | /i-μ-sí mi-nue/  |
| (152) | a. | í-cí-fúlà      | ‘well’               | /i-ci-fula/      |
|       | b. | cìì-sí cí-fúlà | ‘it is not a well’   | /i-μ-sí-ci-fula/ |

To account for these forms I proposed (in §2.1.6) an underlying structure with an underspecified mora, as given below.<sup>11</sup>

(153) Negative Copulative

SM - μ - sí CP - stem

Examples involving nouns with a High in the stem are given below.

- |       |    |   |                      |                         |
|-------|----|---|----------------------|-------------------------|
| (154) | a. | móótó <sup>1</sup> ká                         | ‘car’                | /móoto <sup>1</sup> ká/ |
|       | b. | àà-sí móótó <sup>1</sup> ká                   | ‘it is not a car’    | /a-μ-sí-móotoká/        |
| (155) | a. | ú-lú- <sup>1</sup> lí <sup>1</sup> mí         | ‘tongue’             | /ú-lu-lími +H/          |
|       | b. | lùù-sí lú- <sup>1</sup> lí <sup>1</sup> mí    | ‘it is not a tongue’ | /lu-μ-sí-lu-lími +H/    |
| (156) | a. | ú-mú- <sup>1</sup> ká <sup>1</sup> zyáánà     | ‘girl’               | /ú-mu-káziana +H/       |
|       | b. | àà-sí mú- <sup>1</sup> ká <sup>1</sup> zyáánà | ‘it is not a girl’   | /a-μ-sí-mu-káziana +H/  |
| (157) | a. | ú-mú- <sup>1</sup> lé <sup>1</sup> málè       | ‘boy’                | /ú-mu-lémale +H/        |
|       | b. | àà-sí mú- <sup>1</sup> lé <sup>1</sup> émálè  | ‘it is not a boy’    | /a-μ-sí-lémale +H/      |

As can be seen the tone patterns on the noun in the negative copula are identical to the underived noun. This is expected since the H on the negative marker /sí-/ is in the same position relative to the rest of the noun as the H-toned preprefix in the underived noun.

Below are some examples of class 5 and 9/10 nouns.

- |       |    |               |                    |                    |
|-------|----|---------------|--------------------|--------------------|
| (158) | a. | í-sótè        | ‘grass’            | /i-sote/           |
|       | b. | lìì-sí í-sótè | ‘it is not grass’  | /li-μ-sí-í-sote/   |
| (159) | a. | í-pápíkò      | ‘wing’             | /i-papiko/         |
|       | b. | lìì sí pápíkò | ‘it is not a wing’ | /li-μ-sí-í-papiko/ |

<sup>11</sup> We saw earlier that the class 7/8 /ci-/ /vi-/ and class 12/13 /ka-/ /tu-/ while normally having short vowels, surfaced with long vowels when they were used as augmentatives and diminutives of class 1a/2a nouns. It might be possible to set up those as well with underlyingly unspecified morae, i.e. /ci-μ/, /vi-μ/, /ka-μ/, /tu-μ/.

(160)	a. í-m-bázò	‘ribs’	/i-m-bazo/
	b. zì-sí í-m-bázò	‘it is not ribs’	/i-μ-sí-m-bazo/
(161)	a. í- <sup>1</sup> n-sí	‘world’	/i-n-sí/
	b. ì-sí í-n-sì	‘it is not a world’	/i-μ-sí-n-sí/
(162)	a. í-n-kó <sup>1</sup> kó	‘chicken’	/i-n-kóko +H/
	b. ì-sí í-n-kó <sup>1</sup> kó	‘it is not a chicken’	/i-μ-sí-n-kóko +H/
(163)	a. í-m-fí <sup>1</sup> né	‘pimples’	/i-m-fíné/
	b. zì-sí í-m-fí <sup>1</sup> né	‘they are not pimples’	/zi-μ-sí-n-fíné/
(164)	a. í-m-báázò	‘carving axe’	/i-m-baazo/
	b. ì-sí m-báázò	‘it is not a carving axe’	/i-μ-sí-m-baazo/
(165)	a. í-m-péléémbe	‘antelope’	/i-m-peleembe/
	b. ì-sí m-péléémbe	‘it is not an antelope’	/i-μ-sí-m-peleembe/

As can be seen, if the stem of the noun contains more than two morae then the [i] following the [s] of the negative copulative is short, whereas if the stem contains less than three morae, then the [i] is long. (This was the same pattern we saw in the pre-stem vowel length alternation in the affirmative copulative as well as the Persistent (§5.1.10). (Cf. §3.1.6.) For class 5 nouns the mora of the negative prefix /si-/ and the mora of the class 5 prefix /i-/ combine to form a long vowel. For the class 9/10 nouns, the /i/ of /si-/ will lengthen before the following NC sequence, after which it will shorten if it is followed by more than two morae.

## 7.8 Tonal Properties of the Preprefix

### 7.8.1 Optionality of the preprefix in isolation forms

As we noted in section 2.1, nouns in Cilungu sometimes appear with their preprefix and sometimes they do not. In many contexts, including isolation forms, the presence of the preprefix signals definiteness in nouns. The bulk of this chapter has attempted to provide an account of the tonology of nouns when the preprefix is present. In the one case where the noun appears without any H-toned preprefix, the negative copulative (§7.7), the tonology of the forms were derived straightforwardly from the tonal rules presented. Let us now briefly consider the tonology of nouns when the preprefix is not present. Below are examples of nouns shown both with and without the preprefix. The UR of the form with the preprefix is given on the right.

(166)	a. ú-mú-límì	mú-límì	‘farmer (C1)’	/ú-mu-limi/
	b. í-my-óóngólólò	my-óóngólólò	‘backbones (C4)’	/i-mi-ongololo/
	c. á-má-pápíkò	má-pápíkò	‘wings (C6)’	/á-ma-papiko/
(167)	a. ú-mú-límì mù-sù má	mú-límì mù-sù má	‘good farmer’	/ú-mu-limi mu-sumá/
	b. í-my-óòngòlòlò mì-sù má	my-óòngòlòlò mì-sù má	‘good backbones’	/i-mi-ongololo mi-sumá/
	c. á-má-pápíkò yà-sù má	má-pápíkò yà-sù má	‘good wings’	/á-ma-papiko ya-sumá/

- (168) a. ú-kú-mù-lás-à      kú-mù-lás-à      ‘to hit him/her’      /ú-ku-mu-lás-a/  
 b. í-cí-!sá!ánzi      cí-!sá!ánzi      ‘broom’      /i-ci-sánzi +H/  
 c. ú-mú-!lú!mééndò      mú-!lú!mééndò      ‘boy’      /ú-mu-lúmendo +H/

What is interesting here is that in the cases where the form appears without the preprefix, it retains its exact same tonal pattern (both phrase-finally and non-phrase-finally). This is actually rather unexpected for the following reason. The tonal pattern of the forms with a preprefix were said to result in part from the preprefix being underlyingly H-toned, and the class prefix being underlyingly toneless. This preprefix H undergoes unbounded spreading in cases like (166), and bounded spreading in cases like (167) and (168). It does not fuse with the root H in (168b-c) as the two H’s are not underlyingly adjacent. If we now consider the forms in (166)-(168) without a preprefix, we must somehow account for the fact that the class prefix, which we have analyzed as toneless, surfaces with a H tone. Were we to change our hypothesis about the class prefix and analyze it as underlyingly H, that would not be problematic for the forms in (166), but would be quite problematic for the forms in (167) and (168). If the class prefix were H-toned, then we would expect it to spread to the following mora in (167) (168a), which it does not, and to fuse with the following H in (168b-c) which it does not.

To account for these forms I assume that in isolation forms (and other contexts where a noun appears without any overt preprefix to signal indefiniteness) the tonal element of the preprefix (namely the H tone) is in fact present. I.e. what signals indefiniteness is not the lack of the full preprefix (a H-toned vowel), but the lack of the segmental component of the preprefix. I posit a rule which docks this floating H onto the noun-initial mora. Crucially, this Floating Preprefix H Docking rule must follow both General Doubling and Heterosyllabic Doubling, but must precede Unbounded Spreading. This is illustrated below for (166a), (167a) and (168c).

- (169) a. mu-limi      b. mu-limi mu-suma      c. mu-lumeendo      U.R. + MH Docking
- H                      H                      H                      H      H      H
- Fusion
- mu-lumeendo
- H      H      H
- Gen Dbling & Het Dbling
- mu-limi                      mu-limi mu-suma                      mu-lumeendo
- |                      |                      |                      |      |      |
- H                      H                      H                      H      H      H
- Floating PP H Docking
- mu-limi
- | /
- H
- Unbounded Spreading

An alternative would be to adopt an analysis whereby the morphology always initially includes the full preprefix (i.e. both the segmental and tonal components) in isolation forms. After the various phonological rules have applied, including Fusion and binary spreading, the preprefix would undergo a morphologically conditioned deletion rule when indefiniteness is to be signaled. While this is clearly a type of “Duke of York” derivation morphologically, it also produces the correct results.

## 7.8.2 The preprefix of nouns in non-phrase-initial position

All the examples of nouns (excluding proper nouns) we have seen up to this point have been in phrase-initial position. Let us consider the behavior of nouns (including class 15 verbal infinitives) when they are preceded by another word in the same phrase, paying special attention to the behavior of the preprefix in such nouns and its effect on adjacent TBUs.

Below we find representative nouns preceded by verbs with toneless roots.

- |       |    |                                     |                                  |                            |
|-------|----|-------------------------------------|----------------------------------|----------------------------|
| (170) | a. | tú-kú-sh ùú-mú-sè                   | ‘we are grinding the basket’     | /tú-ku-si-a ú-mu-se/       |
|       | b. | tú-kú-lòl ùú-mú-tì                  | ‘we are seeing the tree’         | /tú-ku-lol-a ú-mu-ti/      |
|       | c. | tú-kú-fùl íí-sótè                   | ‘we are washing the grass’       | /tú-ku-ful-a í-sote/       |
|       | d. | tú-kú-fùl ùú-mú-sè                  | ‘we are washing the basket’      | /tú-ku-ful-a ú-mu-se/      |
|       | e. | tú-kú-fùl íí-m-bázò                 | ‘we are washing the ribs’        | /tú-ku-ful-a í-m-bazo/     |
|       | f. | tú-kú-fùl ùú-mú-nwé                 | ‘we are washing the finger’      | /tú-ku-ful-a ú-mu-nue/     |
|       | g. | tú-kú-sùkil-il ùú-mú-sè             | ‘we are accompanying the basket’ | /tú-ku-sukil-il-a ú-mu-se/ |
|       | h. | yá-kú-lònd ùú-mú-nwé                | ‘they want the finger’           | /yá-ku-lond-a ú-mu-nue/    |
|       |    |                                     |                                  |                            |
| (171) | a. | tú-kú-s ì-víí-ntù                   | ‘we are grinding the things’     | /tú-ku-si-a í-vi-ntu/      |
|       | b. | tú-kú-fùl ù-múú-ntù                 | ‘we are washing the person’      | /tú-ku-ful-a ú-mu-ntu/     |
|       | c. | tú-kú-fùl ù-mú-lómò                 | ‘we are washing the mouth’       | /tú-ku-ful-a ú-mu-lomo/    |
|       | d. | tú-kú-fùl ù-ú-lálò                  | ‘we are washing the bridge’      | /tú-ku-ful-a ú-bu-lalo/    |
|       | e. | tú-kú-fùl ù-lú-nyélélè              | ‘we are washing the ant’         | /tú-ku-ful-a ú-lu-ñele/    |
|       | f. | tú-kú-ful ì-zééngò                  | ‘we are washing the pole’        | /tú-ku-ful-a í-zengo/      |
|       | g. | tú-kú-fùl ì-pápikò                  | ‘we are washing the wing’        | /tú-ku-ful-a í-papiko/     |
|       | h. | tú-kú-fùl ì-m-péléémbè              | ‘we are washing the antelope’    | /tú-ku-ful-a í-m-pelembe/  |
|       | i. | tú-kú-lònd ù-kú-sh-á                | ‘we want to grind’               | /tú-ku-lond-a ú-ku-si-a/   |
|       | j. | tú-kú-lònd ù-kú-fúl-à               | ‘we want to wash’                | /tú-ku-lond-a ú-ku-ful-a/  |
|       |    |                                     |                                  |                            |
| (172) | a. | tú-kú-lònd ù-kw-ìimb-il-à Chòòlà    | ‘we want to dig for Chola’       |                            |
|       |    | /tú-ku-lond-a ú-ku-imb-il-a Choola/ |                                  |                            |
|       |    |                                     |                                  |                            |
|       | b. | tú-kú-lònd ù-kw-èèlèk-à sàaná       | ‘we want to cook a lot’          |                            |
|       |    | /tú-ku-lond-a ú-ku-elek-a sàaná/    |                                  |                            |

As can be seen, when the verb is followed by a noun, the vowel before the class prefix sometimes surfaces as long, with a rising tone (170), and sometimes surfaces as short, with a Low tone (171). Specifically, this vowel is short if there are more than two morae following it within the noun, and long if there are only two.<sup>12</sup> This turns out to be the same pattern in the length of a pre-stem morpheme that we found in the Persistentive /lii-/ in section 5.1.10, the infinitival andative /yaa-/ in section 6.1.3 and in the copulative in section 7.7. To account for this, a rule of Pre-stem Shortening was proposed in §3.1.6 which removes a mora when more than two morae follow in the word.

Let us now address the tone on the preprefix in the above words. In the case of the forms in (170), the preprefix bears a High tone and the mora of the final vowel, which has totally assimilated in quality to the

<sup>12</sup> The domain for which the mora count is relevant is the noun following the verb and not, e.g. all elements in the rest of the phrase. E.g. *ú-kú-lònd ùú-mú-tì ù-sù má* ‘to want the good tree’.

preprefix (due to deletion and compensatory lengthening), surfaces as Low. The input and output of (170d) are shown below.

(173)	tu-ku-ful-a u-mu-se	Input
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  H</div> <div style="text-align: center;">  H</div> </div>	
	tu-ku-ful-u u-mu-se	General Doubling & Unbounded Spreading
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  / H</div> <div style="text-align: center;">  / H</div> </div>	

Spreading takes place as predicted. The H on the SM undergoes binary spreading and the H on the preprefix undergoes unbounded spreading.

Let us now turn to the forms in (171). In each case vowel shortening applies, and the preprefix ultimately surfaces as Low. This can be accounted for by having the shortening rule prune the rightmost mora (the one associated to the preprefix of the noun). The derivation of (171e) is given below.

(174)	tu-ku-ful-a u-lu-nyelele	Input
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  H</div> <div style="text-align: center;">  H</div> </div>	
	tu-ku-ful-u u-lu-nyelele	Deletion & CL
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  H</div> <div style="text-align: center;">  H</div> </div>	
	tu-ku-ful-u u-lu-nyelele	General Doubling
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  / H</div> <div style="text-align: center;">  / H</div> </div>	
	tu-ku-ful-u lu-nyelele	Pre-Stem Shortening (pruning of 2 <sup>nd</sup> mora)
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  / H</div> <div style="text-align: center;">  H</div> </div>	
	tu-ku-ful-u lu-nyelele	Unbounded Spreading
	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  / H</div> <div style="text-align: center;">  / / H</div> </div>	

It is not only the verbal Final Vowel + Preprefix which illustrates the shortening and subsequent tonal changes presented above. The same behavior can be seen when the toneless conjunction /na/ precedes a noun.

(175)	a. Mùlèèngà nà Chòòlà	‘Mulenga and Chola’	/Mulenga na Choola/
	b. Chòòlà n-ù-mú-lími	‘Chola and the farmer’	/Choola na ú-mu-limi/
	c. Mùsòòndà n-ù-mú-ká <sup>1</sup> zyáánà	‘Musonda and the girl’	/Musonda na ú-mu-kázyaana +H/
	d. Chòòlà n-ùú-mú-tì	‘Chola and the tree’	/Choola na ú-mu-ti/

The conjunction /na/ is toneless as seen in (175a). (It should be treated as a proclitic since it must always appear before a following word.) When, /na/ precedes the preprefix /ú-/ , the /a/ in the conjunction deletes, after which the second mora (linked to the H tone) is deleted.

Now let us consider toneless verbs followed by nouns with a H tone in the stem.

- (176) a. tú-kú-fùl-il ùú-mú-<sup>1</sup>cís ‘we are washing for the wife’ /tú-ku-ful-il-a ú-mu-cí/  
 b. tú-kú-lòònd ùú-lú-kwì ‘we want the firewood log’ /tú-ku-lond-a ú-lu-kúi +H/  
 c. tú-kú-fùl íí-sú<sup>1</sup>mó ‘we are washing the spear’ /tú-ku-ful-a í-súmo +H/  
 d. tú-kú-fùl íí-m-bá<sup>1</sup>ví ‘we are washing the paddle’ /tú-ku-ful-a í-n-bávi +H/
- (177) a. ú-kú-lòl ì-cí-póòmá ‘to see the waterfall’ /ú-ku-lol-a í-ci-poomá/  
 b. ú-kú-lòl ù-mú-lálààm<sup>1</sup>futí ‘to see the rainbow’ /ú-ku-lol-a ú-mu-lalamfutí/  
 c. yá-kú-lòl ù-mú-pé<sup>1</sup>ní ‘they are seeing the knife’ /yá-ku-lol-a ú-mu-pení/  
 d. ú-kú-lòl ù-mú-sá<sup>1</sup>nó ‘to see the chief wife’ /ú-ku-lol-a ú-mu-sanó/  
 e. ú-kú-lòònd ù-kú-mú-<sup>1</sup>sópólól-à ‘to want to untie him’ /ú-ku-lond-a ú-ku-mu-sópolol-a/
- (178) a. tú-kú-fùl ù-mú-ká<sup>1</sup>zyáánà ‘we are washing the girl’ /tú-ku-ful-a ú-mu-káziana +H/  
 b. ú-kú-lòl ì-cí-bá<sup>1</sup>tá ‘to see the duck’ /tú-ku-lol-a í-ci-báta +H/  
 c. tú-kú-lòl ì-sú<sup>1</sup>kúlù ‘we are seeing the school’ /tú-ku-lol-a í-súkulu +H/  
 d. ú-kú-lòònd ù-kú-só<sup>1</sup>pólól-à ‘to want to untie’ /tú-ku-lond-a ú-ku-sópolol-a +H/  
 e. ú-kú-lòl ì-cí-sá<sup>1</sup>ánzì ‘to see the broom’ /tú-ku-lol-a í-ci-sánzi +H/  
 f. ú-kú-lòònd ù-kú-yá-<sup>1</sup>lém-à ‘to want to grab them’ /tú-ku-lond-a ú-ku-yá-lem-a +H/  
 g. ú-kú-lòònd ù-kú-yá-<sup>1</sup>sópólól-à ‘to want to untie them’ /tú-ku-lond-a ú-ku-yá-sópolol-a +H/

The tonology of the nouns in (176) is as expected. There is no Pre-Stem Shortening and therefore a long rise occurs since there is a H linked to the preprefix of the noun. This prefix H spreads exactly as it does in the isolation form. In (177)-(178) we see the very same tonal patterns that we saw in the copulative forms in section 7.7. In each case the preprefix is Low-toned and is followed by a H on the class prefix (with the exception of class 5 nouns where it is the stem-initial mora which is H). In each case this H spreads onto the following TBU, in some cases creating an OCP violation. If the noun in isolation has a H tone on each of the first two morae (due to the addition of a melodic H on stems with a single stem-initial H) then no downstep is realized between the class prefix and the stem-initial TBU (178) due to the rule of Post-L Fusion (84). Two derivations are provided below.

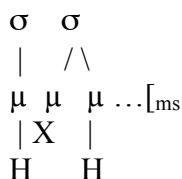
(179)	<u>ú</u> -ku-ful-a <u>ú</u> -mu- <u>kází</u> ána	<u>ú</u> -ku-lol-a <u>í</u> -ci-poomá	Input + MH docking
	<u>ú</u> -ku-ful-a <u>ú</u> -mu- <u>kázyá</u> ána		Gliding & CL
	<u>ú</u> -ku-ful-u <u>ú</u> -mu- <u>kázyá</u> ána	<u>ú</u> -ku-lol-i <u>í</u> -ci-poomá	Deletion & CL
	<u>ú</u> - <u>kú</u> -ful-u <u>ú</u> - <u>mú</u> - <u>kázyá</u> ána	<u>ú</u> - <u>kú</u> -lol-i <u>í</u> - <u>cí</u> -poomá	General Doubling
	<u>ú</u> - <u>kú</u> -ful-u <u>mú</u> - <u>kázyá</u> ána	<u>ú</u> - <u>kú</u> -lol-i <u>cí</u> -poomá	Pre-Stem Shortening
	<u>ú</u> - <u>kú</u> -ful-u <u>mú</u> - <u>kázyá</u> ána	n/a	Post L Fusion
	n/a	<u>ú</u> - <u>kú</u> -lol-i <u>cí</u> - <u>póomá</u>	Heterosyllabic Doubling

Let us now examine nouns which are preceded by verbs with a H tone in the stem. We begin with nouns with short stems where no shortening is triggered.

(180)	a. tú-kú- <sup>1</sup> ly úú-mú-tì	‘we are eating the tree’	/tú-ku-lí-a ú-mu-ti/
	b. tú-kú- <sup>1</sup> sí í-sòtè	‘we are leaving the grass’	/tú-ku-sí a í-sote/
	c. yàà-ngá-lámùk úú-mú- <sup>1</sup> cí	‘they can greet the wife’	/ya-ngá-lamuk-á ú-mu-cí/
	d. yá-lá-lòl úú-mú-tì	‘they will see the tree’	/yá-la-lol-a +H ú-mu-ti/
	e. yá-lá- <sup>1</sup> léét úú-mú-tì	‘they will bring the tree’	/yá-la-léet-a +H ú-mu-ti/
(181)	a. yá-kú- <sup>1</sup> lās ùú-mú-tì	‘they are hitting the tree’	/yá-ku-lás-a ú-mu-ti/
	b. tú-kú- <sup>1</sup> súl íí-n-zòvù	‘we are sculpting the elephant’	/tú-ku-súl-a í-n-zovu/
	c. yá-kú- <sup>1</sup> léét ùú-mú-tì	‘they are bringing the tree’	/yá-ku-léet-a ú-mu-ti/
	d. tú-kú- <sup>1</sup> sópólól ùú-mú-tì	‘we are untying the tree’	/tú-ku-sópolol-a ú-mu-ti/

In the examples in (180) there is a H tone in the final syllable of the verb. This H tone will fuse with the H on the preprefix of the noun, resulting in a long H. The phrases in (181) have a Rising tone on the long vowel. But we have seen that a macrostem H (where no H follows in the stem) will undergo unbounded spreading to the word-final TBU. Therefore, how does the verb-final TBU become toneless? The tone patterns in (181) can be accounted for if the unbounded spreading of the macrostem H precedes Intrasyllabic Downstep Retraction (repeated below in (182)). Unbounded Spreading will create a fall from H to downstepped H, after which Intrasyllabic Downstep Retraction will apply since this fall is not wholly contained within the macrostem. This is illustrated for (181d) in the derivation presented in (183).

(182) Intrasyllabic Downstep Retraction



(183)	tú-ku-sópolol-a ú-mu-ti	Input
	tú-ku-sópolol-u ú-mu-ti	Deletion & CL
	tú-kú-sópólol-u ú-mú-ti	General Doubling
	tú-kú-sópólól-ú ú-mú-ti	Unbounded Spreading (macrostem H)
	tú-kú-sópólól-u ú-mú-ti	Intrasyllabic Downstep Retraction

While this successfully accounts for the rise on the long [uu], it forces us to reconsider the rule of Unbounded Spreading. Let us recall that from the outset of the discussion of the tonology (§5.1) we have noted that there are really two distinct cases of unbounded spreading. One case affects a macrostem H whenever it is the rightmost H in the word. The other case affects a non-macrostem H whenever it is the rightmost H of a *phrase-final* word. The derivation in (183) suggests that these rules should be formalized separately since they require different ordering. The unbounded spreading of a macrostem H, as shown in (183), must precede Intrasyllabic Downstep Retraction. But, as we will see below in (186) Intrasyllabic Downstep Retraction must precede Pre-Stem Shortening, and Pre-Stem Shortening, as seen in (123), must precede Heterosyllabic Doubling, which in turn must precede the Unbounded Spreading of a non-macrostem H, as seen in (169). I therefore conclude that these must be formalized as two separate rules.

Let us now turn to cases where there is a H in the verb stem, but where shortening applies.

(184)	a.	ú-kú- <sup>1</sup> sh ú-mú-lími	‘you are leaving the farmer’	/ú-ku-sí-a ú-mu-limi/
	b.	tú-kú- <sup>1</sup> s í-pápíkò	‘we are leaving the wing’	/tú-ku-sí-a í-papiko/
	c.	tù- <sup>1</sup> ngá-súl- í-ví-ntù	‘we can sculpt the things’	/tu-ngá-súl-á í-vi-ntu/
	d.	yà- <sup>1</sup> ngá-lámùk ú-mú-lími	‘they can greet the farmer’	/ya-ngá-lamuk-á ú-mu-limi/
	e.	yá-lá-lámùk ú-mú-lími	‘they will greet the farmer’	/yá-la-lamuk-a +H ú-mu-limi/
	f.	yá-lá- <sup>1</sup> léét ú-mú-tì	‘they will bring the tree’	/yá-la-léet-a +H ú-mu-ti/
(185)	a.	tú-kú- <sup>1</sup> lās ù-mú-ntù	‘we are hitting the person’	/tú-ku-lás-a ú-mu-ntu/
	b.	tú-kú- <sup>1</sup> lās ì-pápíkò	‘we are hitting the wing’	/tú-ku-lás-a í-papiko/
	c.	tú-kú- <sup>1</sup> léét ì-m-bálámínwé	‘we are bringing the ring’	/tú-ku-léet-a í-m-balaminue/
	d.	tú-kú- <sup>1</sup> sópólól ù-mú-lími	‘we are untying the farmer’	/tú-ku-sópolol-a ú-mu-limi/
	e.	tú-kú- <sup>1</sup> súl ù-mú-ká <sup>1</sup> zyáánà	‘we are sculpting the girl’	/tú-ku-súl-a ú-mu-káziana+H/
	f.	tú-kú- <sup>1</sup> léét ù-mú-lú <sup>1</sup> mééndò	‘we are bringing the boy’	/tú-ku-léet-a ú-mu-lúmendo+H/

In the examples in (184) there is a H tone in the final syllable of the verb as well as one on the preprefix of the following noun. These Hs will fuse and the resulting V (long or short) surfaces as H.

The examples in (185) are derived the same way as the examples in (181), except that Pre-Stem Shortening has also applied. This is illustrated below for (185e).



(186)	tú-ku-sópolol-a ú-mu-limi	Input
	tú-ku-sópolol-u ú-mu-limi	Deletion & CL
	tú-kú-sópólol-u ú-mú-limi	General Doubling
	tú-kú-sópólól-ú ú-mú-limi	Unbounded Spreading (macrostem H)
	tú-kú-sópólól-u ú-mú-limi	Intrasyllabic Downstep Retraction
	tú-kú-sópólól-u mú-limi	Pre-Stem Shortening
	tú-kú-sópólól-u mú-lími	Unbounded Spreading (non-macrostem H)

Next are examples of verbal infinitives (as opposed to conjugated forms used in all the examples previous to this point) with H-toned roots followed by a noun with a toneless root.

(187)	a. ú-kú- <sup>1</sup> ly ú- <sup>1</sup> ú-mú-tì	‘to eat the tree’	/ú-ku-lí-a+H ú-mu-ti/
	b. ú-kú- <sup>1</sup> láš ú- <sup>1</sup> ú-mú-tì	‘to hit the tree’	/ú-ku-lás-a +H ú-mu-ti/
	c. ú-kú- <sup>1</sup> sú <sup>1</sup> úl ùú-mú-tì	‘to ignore the tree’	/ú-ku-súul-a+H ú-mu-ti/
	d. ú-kú- <sup>1</sup> só <sup>1</sup> pólól ùú-mú-tì	‘to untie the tree’	/ú-ku-sópolol-a+H ú-mu-ti/
(188)	a. ú-kú- <sup>1</sup> sh ú- <sup>1</sup> mú-lími	‘to leave the farmer’	/ú-ku-sí-a+H ú-mu-limi/
	b. ú-kú- <sup>1</sup> láš ú- <sup>1</sup> mú-lími	‘to hit the farmer’	/ú-ku-lás-a+H ú-mu-limi/
	c. ú-kú- <sup>1</sup> só <sup>1</sup> pólól ú- <sup>1</sup> mú-lími	‘to untie the farmer’	/ú-ku-sópolol-a+H ú-mu-limi/

In (187c-d) the melodic H of the verbal infinitive spreads in an unbounded fashion, but, as noted above, will not create a fall from H to downstepped H and so the long vowel results in a rise, exactly parallel to (181). In (187b) the MH docks onto the FV and then fuses with the H on the preprefix of the following noun. In (187a) the melodic H is placed on the FV of the verbal infinitive. As presented in §6.2.1 this nominal MH never fuses with the preceding H within the macrostem, but does fuse with an initial H in the following word. (This was accounted for by ordering nominal MH docking between two Fusion rules, the first of which applies within the word and the second of which applies within the phrase.) Trimoraic Shortening will apply, removing the final mora, and the result is a syllable which falls from High to downstepped High. Intrasyllabic Downstep Retraction (182) does not apply in this case since the first mora of the Fall is singly, and not doubly linked.

The form in (188c) is derived in the same way as the forms in (185), except that the H undergoing unbounded spreading is the melodic H and not the root H. In (188b) the MH which docks onto the FV will fuse with the H on the preprefix of the following word. Pre-Stem Shortening then removes one of these morae. Finally, in (188a), gliding, compensatory lengthening and palatalization produce the sequence /shú<sup>1</sup>úú/. Trimoraic Shortening produces /shú<sup>1</sup>ú/ after which Phrasal Shortening removes the second mora, producing the correct surface form.

## CHAPTER 8: COMPOUND TAMs

There are a number of compound TAMs in Cilungu which are made up of two parts. While it is beyond the intended scope of this study to provide an exhaustive account of the morpho-syntax of the language, many of the compounds below could probably be analyzed as AUX + VERB units, where the VERB portion is sometimes an infinitival form with no SM, but more often a conjugated form (i.e. one which contains a SM) of some single word TAM already presented in chapter 5. Therefore, in each case the tonology is not really new since each part of the compound exhibits the tonology of a TAM already discussed. For that reason only a couple of examples of each compound TAM are listed for most of the compound TAMs to be presented below (one containing a toneless root and one containing an H-toned one). Where there are any unexpected or exceptional tonal properties of the form, such will be noted.

It will be seen that the first member of the compound form draws on a very small number of verbs. As will be seen below, one of the most commonly used verbs of this kind is *u-ku-l-a* (with a toneless root) which is a form of the verb ‘to be’.

### 8.1 Compounds where the second element in the verbal infinitive

We begin with compound verbs whose second element is the infinitive (cf. §6).

#### 8.1.1 Continuative

We begin with a tense I have labeled the Continuative. In the course of eliciting this tense I have actually received a range of glosses: ‘these days we verb’, ‘we keep verb-ing’, ‘we have kept on verb-ing’, ‘we are still verb-ing.’ Its underlying structure is given below.<sup>1</sup>

(1) SM – ku – la - a + Infinitive

The first part of this compound is a conjugated form (in the Present Progressive) of *u-ku-l-a* ‘to be’ which has a toneless root. While the analysis of this TAM as a compound correctly predicts the tonology (as we will see below), native speakers write it as a single word and so I will do that here. Representative forms from this tense/aspect are given below. We begin with forms with a toneless macrostem-initial TBU

- |     |    |                               |                              |
|-----|----|-------------------------------|------------------------------|
| (2) | a. | tú-kú-l-ù-kú-sh-á             | ‘we keep grinding’           |
|     | b. | tú-kú-l-ù-kú-fúl-à            | ‘we keep washing’            |
|     | c. | tú-kú-l-ù-kw-íimb-à           | ‘we keep digging’            |
|     | d. | tú-kú-l-ù-kú-zíík-à           | ‘we keep burying’            |
|     | e. | tú-kú-l-ù-kú-súkíl-íl-à       | ‘we keep accompanying’       |
|     | f. | tú-kú-l-ù-kú-súkíl-íl-à sàaná | ‘we keep accompanying a lot’ |

---

<sup>1</sup> We will see evidence in §8.3.2 below for setting up the root of ‘to be’ as CV rather than just C.

- (3)
- |    |  |                                      |
|----|--|--------------------------------------|
| a. | tú-kú-l-ù-kú-mú- <sup>1</sup> t-á                          | ‘we keep releasing him’              |
| b. | tú-kú-l-ù-kú-mú- <sup>1</sup> léét-él-à                    | ‘we keep bringing for him/her’       |
| c. | tú-kú-l-ù-kú-mú- <sup>1</sup> swéél-él-à                   | ‘we keep fishing for him/her’        |
| d. | yá-kú-l-ù-kú-n-déét-à                                      | ‘they keep bringing me’              |
| e. | yá-kú-l-ù-kú-n-déét-él-à                                   | ‘they keep bringing for me’          |
| f. | tú-kú-l-ù-kú-mú- <sup>1</sup> léét-él-á <sup>1</sup> sààná | ‘we keep bringing for him/her a lot’ |

As seen above, the Final Vowel of the first verb *u-ku-l-a* has assimilated to the quality of the preprefix of the following infinitive (via deletion and compensatory lengthening) after which the preprefix on the infinitive elides—just as we saw with other verb-complement phrases in section 7.8. The surviving /u/ is realized as short in each case as following ku + stem unit always contains at least three morae. This /u/ surfaces as Low since the second underlying mora (which sponsored the H) is deleted by the rule of Pre-Stem Shortening (§3.1.6). This H, as can be seen above, behaves as predicted. When no H follows it, it will spread to the penult (2). Otherwise it undergoes bounded spreading (3).

- (4)
- |    |  |    |   |  |
|----|--|----|---|--|
| a. | <u>tú</u> -ku-la-a <u>ú</u> -ku-sukil-il-a | b. | <u>tú</u> -ku-la-a <u>ú</u> -ku-mu- <u>léét</u> -il-a | U.R.   |
|    | tú-ku-l u ú-ku-sukil-il-a                  |    | tú-ku-l u ú-ku-mu- <u>léét</u> -el-a                  | Deletion, CL, Mid V Harmony & Trimoraic Shortening |
|    | <u>tú-kú</u> -l u <u>ú-kú-súkíl</u> -íl-a  |    | <u>tú-kú</u> -l u <u>ú-kú-mu-léét</u> -él-a           | General Doubling & Unbounded Spr                   |
|    | <u>tú-kú</u> -l u <u>kú-súkíl</u> -íl-a    |    | <u>tú-kú</u> -l u <u>kú-mu-léét</u> -él-a             | Pre-Stem Shortening                                |
|    |  |    | <u>tú-kú</u> -l u <u>kú-mú-léét</u> -él-a             | Heterosyllabic Doubling                            |

Let us now turn to the forms with an H-initial macrostem.

- (5)
- |    |   |  |
|----|---|--|
| a. | tú-kú-l-ù-kú-lú <sup>1</sup> k-á                              | ‘we keep vomiting’                         |
| b. | tú-kú-l-ù-kú-lú <sup>1</sup> k-íl-à                           | ‘we keep vomiting onto’                    |
| c. | tú-kú-l-ù-kú-lé <sup>1</sup> ét-à                             | ‘we keep bringing’                         |
| d. | tú-kú-l-ù-kú-yá- <sup>1</sup> zíík-íl-à                       | ‘we keep burying for them’                 |
| e. | tú-kú-l-ù-kú-só <sup>1</sup> pólól-à                          | ‘we keep untying’                          |
| f. | tú-kú-l-ù-kú-pá <sup>1</sup> ápáátík-à                        | ‘we keep flattening’                       |
| g. | yá-kú-l-ù-kú-fú <sup>1</sup> kám-íl-án-á <sup>1</sup> sààná   | ‘they keep crouching for each other a lot’ |
| h. | yá-kú-l-ù-kú-bé <sup>1</sup> lééng-él-án-á <sup>1</sup> sààná | ‘they keep reading for each other a lot’   |

As can be seen above, the tonology of these forms corresponds exactly to the patterns we saw in section 7.8.2 where the infinitival verb was a complement of a preceding verb. The nominal MH will dock onto the second TBU of the macrostem of the verbal infinitive. The rule of Post L Fusion will eliminate the downstep between the /ku/ and the macrostem-initial TBU. This is illustrated below.

(6)	<u>tú</u> -ku-l-a <u>ú</u> -ku-lúk-il-a +H	U.R.
	<u>tú</u> -ku-l-a <u>ú</u> -ku-lúk-íl-a	MH Docking
	<u>tú</u> -ku-l-u <u>ú</u> -ku-lúk-íl-a	Vowel Deletion & CL
	<u>tú</u> -kú-l-u <u>ú</u> -kú-lúk-íl-a	General Doubling & Unbounded Spreading
	<u>tú</u> -kú-l-u kú-lúk-íl-a	Pre-Stem Shortening
	<u>tú</u> -kú-l-u kú-lúk-íl-a	Post L Fusion

There is no direct negation of this TAM. My consultant felt the closest way to express the idea of to not keep doing something would be to use the negative of the Present Progressive (§5.1.1.8) with a reduplicated stem (§5.5).

### 8.1.2 Present Obligative 1

The Present Obligative 1 has the morphological structure in (7). Examples are given in (8).

- (7) SM-lí na + Infinitive
- (8) a. tú-lí n-ú-<sup>l</sup>kú-lím-à                      ‘we have to farm’ or ‘we will have to farm’  
b. tú-lí n-ú-<sup>l</sup>kú-lé<sup>l</sup>ét-à                      ‘we have to bring’ or ‘we will have to bring’

The stem of the first member of this compound is /lí/. Since Cilungu does not have a productive FV /-i/, I will assume that this stem is underlyingly monomorphemic, though it certainly could be a historical remnant of the verb root *u-ku-l-a* ‘to be’ where the FV is /-i/. The following morpheme is toneless /na/ meaning ‘with’ or ‘and’. The third part of this construction is simply the infinitival form of the verb. The negative of this TAM is the same as the negative of the Remote Future (§5.3.4).

### 8.1.3. Present Obligative 2

The Present Obligative can also be expressed by using the verb *ú-kú-fw-à* ‘to die’ in the Perfect (§5.3.7). The structure of this is shown in (9) and representative examples are given in (10).

- (9) SM-fú-il-e +H + Infinitive
- (10) a. tú-fw-ííl ú-kú-lím-à                      ‘we ought to farm’  
b. tú-fw-ííl ú-kú-<sup>l</sup>lé<sup>l</sup>ét-à                      ‘we ought to bring’

I note here that my consultant did not intuitively feel that the verb being used in the first member of this compound structure should be identified as ‘to die’ as the semantics did not warrant it. Synchronically, then, its use is purely idiomatic here. The structure and examples of the negative are given below.

- (11) N: SM-tá-fú-ilé + Infinitive

- (12) a. tù-tá-fw-ííl ù-kú-lím-à ‘we ought not to farm’ or ‘we should not farm’  
 b. tù-tá-fw-ííl ù-kú-lé<sup>l</sup>ét-à ‘we ought not to bring’ or ‘we should not bring’

The negative of this TAM is simply the negative of the Perfect, followed by the infinitive. (It should be remembered that while the Perfect is generally a V2 TAM, the negative of H-toned verbs is formed by having a H-toned FV (§5.3.7).)

### 8.1.4 Past Obligative 1 (Yesterday Past)

The Present Obligative 1 presented in 8.1.2 can be put into the Yesterday Past (cf. §5.2.2) or the Far Past (cf. §5.3.1). To indicate the Yesterday Past it uses the TAM prefix /á-/. Its morphological structure is shown in (13) and examples are given in (14).

- (13) SM-á-lí + na + Infinitive

- (14) a. tw-áá-lí n ù-kú-lím-à ‘we had to farm’ ‘we were to farm’  
 b. tw-áá-lí n ù-kú-lé<sup>l</sup>ét-à ‘we had to bring’ ‘we were to bring’

The structure of the negative of this compound TAM and representative examples are given in (15) and (16) respectively.

- (15) SM-tá-á-lí + na + Infinitive

- (16) a. tù-tá-á-lí n ù-kú-lím-à ‘we were not to farm’  
 b. tù-tá-á-lí n ù-kú-lé<sup>l</sup>ét-à ‘we were not to bring’

As can be seen, the negative TAM /tá-/ appears before the TAM prefix /á-/.

### 8.1.5 Past Obligative 1 (Far Past)

To put the Past Obligative into the Far Past (cf. §5.3.1), the TAM prefix /a-/ is used. Its morphological structure is shown in (17) and examples are given in (18).

- (17) SM-a-lí + na + Infinitive

- (18) a. tw-áà-lí n ù-kú-lím-à ‘we had to farm’ ‘we were to farm’  
 b. tw-áà-lí n ù-kú-lé<sup>l</sup>ét-à ‘we had to bring’ ‘we were to bring’

The structure of the negative of this compound TAM and representative examples are given in (19) and (20) respectively.

- (19) SM-tá-a-lí + na + Infinitive

- (20) a. tù-tá-à-lí n ù-kú-lím-à ‘we were not to farm’  
 b. tù-tá-à-lí n ù-kú-lé<sup>l</sup>ét-à ‘we were not to bring’

As can be seen the negative TAM /tá-/ appears before the TAM prefix /a-/.

### 8.1.6 Past Obligative 2

The morphological structure of this TAM is given in (21) and representative examples are given in (22). (The time-frame of this TAM is a few days ago to Far Past.)

(21) SM-á-lí SM-lí + na + Infinitive

- (22) a. tw-áá-lí tú-lí n- ù-kú-lím-à ‘we were meant to have farmed’, ‘we should have farmed’  
 b. tw-áá-lí tú-lí n- ù-kú-lé<sup>1</sup>ét-à ‘we were meant to have brought’, ‘we should have brought’

This compound verb begins with a word that is formally the Recent Perfect (5.2.6) with the stem /lí/. This is followed by the Obligative 1 presented above in §8.1.2. The negative is presented below.

(23) N: SM-tá-lí SM-lí + na + Infinitive

- a. tù-tá-á-lí tú-lí n- ù-kú-lím-à ‘we were meant not to have farmed’, ‘we should not have farmed’  
 b. tù-tá-á-lí tú-lí n- ù-kú-lé<sup>1</sup>ét-à ‘we were meant not to have brought’, ‘we should not have brought’

The first word of the negative of this TAM is formed by the addition of the negative prefix /tá-/. All remaining elements are identical to the affirmative.

We now turn to cases where the final element of the compound verb is finite.

## 8.2 Compounds where the final element is the subjunctive

We now turn to compound verbs whose final element is the Subjunctive (cf. §5.3.9).

### 8.2.1 ‘must just’ TAM

The morphological structure of this TAM is given in (24) and representative examples are given in (25).

(24) SM-ngá-la-á + Subjunctive

- (25) a. tùù-ngá-l-á <sup>1</sup>tú-lím-<sup>1</sup>é ‘we must just farm’  
 b. tùù-ngá-l-á <sup>1</sup>tú-léèè-é ‘we must just bring’

The first part of this compound is the Potential (§5.2.1) form of the verb *ú-kú-l-à* ‘to be’ and it is followed by the subjunctive of the main verb. The negative is given below.

(26) N: SM-tá-ng-á + Subjunctive

- (27) a. tù-táá-ng-á tú-lím-<sup>1</sup>é ‘we cannot farm’  
 b. tù-táá-ng-á tú-léèè-é ‘we cannot bring’

### 8.2.2 Obligative 3

The morphological structure of this TAM is given in (28) and representative examples are given in (29).

(28) SM-la-é + Subjunctive

- (29) a. tú-l-é 'tú-lím-<sup>1</sup>é 'we must farm' or 'let us just farm'  
b. tú-l-é 'tú-léèt-é 'we must bring' or 'let us just bring'

The first part of this compound is the Subjunctive form of *ú-kú-l-à*, followed by the Subjunctive form of the main verb. The negative of this verb is the same as the negative subjunctive (see section 5.3.9).

### 8.2.3 Near Future

The morphological structure of this TAM is given in (30) and representative examples are given in (31).

(30) SM-á-sí-á + Subjunctive

- (31) a. tw-áá-sh-á tú-lí<sup>1</sup>m-é 'we will soon farm'  
b. tw-áá-sh-á tú-léèt-é 'we will soon bring'

The first portion of this TAM is the Recent Perfect (§5.2.6) of the verb *ú-kú-sh-à* 'leave', followed by the Subjunctive. The negatives are given below.

- (32) a. tù-tá-á-sh-á tú-lí<sup>1</sup>m-é 'we will not soon farm'  
b. tù-tá-á-sh-á tú-léèt-é 'we will not soon bring'

## 8.3 Compounds where the final element is the Recent Perfect

Now let us examine compound TAMs where the last element is the Recent Perfect (§5.2.6).

### 8.3.1 Past of earlier today

The morphological structure of this TAM is given in (33) and representative examples are given in (34).

(33) SM-á-lí + Recent Perfect

- (34) a. n-áá-lí n-áá-lí<sup>1</sup>m-á 'I farmed'  
b. w-áá-lí w-áá-lí<sup>1</sup>m-á 'you (sg.) farmed'  
c. w-àá-lí w-àá-lím-à 'he/she farmed'  
d. tw-áá-lí tw-áá-lí<sup>1</sup>m-á 'we farmed'  
e. tw-áá-lí tw-áá-léèt-à 'we brought'

The first member of this compound is the Recent Perfect of the verb /lí/ followed by the Recent Perfect of the main verb.

In addition to the forms listed above in (34), it is also possible to express this TAM in a slightly abbreviated way where the entire first word of the compound is replaced by a H-toned pro-clitic /iCi/.

- (35) a. íí n-áá-lí<sup>1</sup>m-á 'I farmed'  
 b. íí w-áá-lí<sup>1</sup>m-á 'you (sg.) farmed'  
 c. íí w-áá-lím-à 'he/she farmed'  
 d. íí tw-áá-lí<sup>1</sup>m-á 'we farmed'  
 e. íí tw-áá-léét-à 'we brought'

This pro-clitic is set up as /iCi/ where /C/ could be set up as either /b/ or /g/, both of which delete intervocalically (cf. §3.3).

The negative of this TAM is given below.

- (36) N: SM-tá-á-lí + Perfect

- (37) a. tù-tá-á-lí tú-lí<sup>1</sup>m-íl-é 'we didn't farm'  
 b. tù-tá-á-lí tú-léés-íl-é 'we didn't bring'

The first portion of the negative has a structure very similar to the negative of the Yesterday Past (5.2.2), except that the stem is simply a H-toned /lí/ rather than a root + /-íl-é/. The second portion is formally identical to the Perfect (5.3.7).

### 8.3.2 Post Recent Completive

The morphological structure of this TAM is given in (38) and representative examples are given in (39).

- (38) á-la-ile +H + Recent Perfect

- (39) a. á-l-í<sup>1</sup>íl-é tw-áá-lí<sup>1</sup>m-á 'as soon as we had farmed', 'upon farming'  
 b. á-l-í<sup>1</sup>íl-é tw-áá-léét-à 'as soon as we had brought', 'upon bringing'

The first portion of this compound verb is the Perfect of the verb *ú-kú-l-à* 'to be'. The subject marker for these forms is H-toned /á-/. This does not correspond straightforwardly to the 3 sg. since the 3 sg. in the Perfect is normally toneless (§5.3.7). This might well be evidence for an impersonal SM, distinct from the 3 sg. The second portion is the Recent Perfect of the main verb. The fact that the second vowel in the first member of this construction surfaces as long indicates that like other verbs whose stems in the infinitive are [C-a], the root itself seems to be moraic. Thus, just as verbs such as *ú-kú-p-à* 'to give' and *ú-kú-t-à* 'to stop, release, lay egg' were shown to have moraic (i.e. CV) roots, such seems to be true of this verb *u-ku-l-a* as well.<sup>2</sup>

<sup>2</sup> With regard to exactly what vowel should be postulated, it seems it could be any of the unrounded vowels (since a rounded vowel would glide, yielding *\*u-ku-lw-a*. It does not seem possible to tell whether the vowel is mid or not since the vowel of the Perfective /-ile/ does not undergo Mid Vowel Harmony, and I have found no context where this verb appears with an extension.



### 8.3.3 Post Remote Completive

The morphological structure of this TAM is given in (40) and representative examples are given in (41).

(40) á-a-la-ile +H + Recent Perfect

- (41) a. á-á-l-ííl-é tw-áá-lim-á 'as soon as we had farmed', 'upon farming'  
b. á-á-l-ííl-é tw-áá-léét-á 'as soon as we had brought', 'upon bringing'

The first portion of this compound verb is the Far Past (§5.3.1) of the verb *ú-kú-l-à*, again with the impersonal SM /á-/ (as opposed to the 3 sg /a-/ which is toneless in the Far Past). The second portion is the Remote Perfect of the main verb.

### 8.3.4 Post Recent Progressive Completive

The morphological structure of this TAM is given in (42) and representative examples are given in (43).

(42) á-a-la-ang-á +H + Recent Perfect

- (43) a. á-á-l-ààng-á tw-áá-lí<sup>l</sup>m-á 'as soon as we had just finished farming' (YP)  
b. á-á-l-ààng-á tw-áá-léét-<sup>l</sup>á 'as soon as we had just finished bringing' (YP)

The first part of this compound TAM is in the Yesterday Past Progressive (5.2.3), while the second part is in the Recent Perfect.

### 8.3.5 Compound Completive

The morphological structure of this TAM is given in (44) and representative examples are given in (45).

(44) á-a-la-a +H + Recent Perfect

- (45) a. á-à-l-á tw-áá-lí<sup>l</sup>m-á 'once we have farmed'  
b. á-à-l-á tw-áá-léét-à 'once we have brought'

The first portion of this verb is the Remote Perfect (§5.3.5) form of *ú-kú-l-à*. The second part is the Recent Perfect form of the main verb.

### 8.3.6 Conditional Persistent

The morphological structure of this TAM is given in (46) and representative examples are given in (47).

(46) á-la-la-a +H Remote Perfect

- (47) a. á-lá-<sup>l</sup>l-á tw-áá-lí<sup>l</sup>m-á 'once we have farmed', 'when we will have farmed'  
b. á-lá-<sup>l</sup>l-á tw-áá-léét-à 'once we have brought', 'when we will have brought'

The first part of this verb is the Remote Future of *ú-kú-l-à* while the second portion is the Recent Perfect of the main verb.

### 8.3.7 Post Remote Progressive Completive

The morphological structure of this TAM is given in (48) and representative examples are given in (49).

(48) á-a-la-ang-a +H Remote Perfect

- (49) a. á-á-l-àáng-á tw-áá-lí<sup>l</sup>m-á ‘as we finished farming’ (Far Past)  
 b. á-á-l-àáng-á tw-áá-léét-à ‘as we finished bringing’ (Far Past)

The first part of this compound TAM is in the Far Past Progressive, while the second part is in the Recent Perfect.

## 8.4 Compounds where the final element is the Remote Perfect

The next TAMs to be presented are those whose final element is the Remote Perfect (5.3.5).

### 8.4.1 Future Anterior 1

The morphological structure of this TAM is given in (50) and representative examples are given in (51).

(50) á-la-é Remote Perfect

- (51) a. á-l-é <sup>l</sup>tw-áá-lím-á ‘we will have farmed’  
 b. á-l-é <sup>l</sup>tw-áá-léét-á ‘we will have brought’

The first portion of this compound TAM is the Subjunctive of *ú-kú-l-à*. The second portion is the Remote Perfect. The structure of the negative and representative examples are given below:

(52) á-la-é + Neg Remote Perfect

- (53) a. á-l-é tù-tá-á-lím-á ‘we will not have farmed’  
 b. á-l-é tù-tá-à-léét-á ‘we will not have brought’

### 8.4.2 Compound Remote Perfect

The morphological structure of this TAM is given in (54) and representative examples are given in (55).

(54) a-la-a +H + Remote Perfect

- (55) a. à-l-á tw-áá-lím-á ‘we had (already) farmed’  
 b. à-l-á tw-áá-léét-á ‘we had (already) brought’

The first member of this compound verb is in the Narrative Past (5.3.8). The SM is a toneless /a/, consistent with the fact that all Class 1 SMs in the Narrative Past are underlyingly toneless. The second member of the compound is the Remote Perfect. The structure of the negative and representative examples are given below:

(56) a-la-a +H + SM-tá-lí + Subjunctive

- (57) a. à-l-á tú-<sup>1</sup>tá-lí tú-lí<sup>1</sup>m-é                    ‘we had not yet farmed’  
 b. à-l-á tú-<sup>1</sup>tá-lí tú-léèt-é                    ‘we had not yet brought’

## 8.5 Compounds where the final element is the Present Progressive

Next let us examine cases where the final element is the Present Progressive (§5.1.1). Some of these have a persistive meaning as well.

### 8.5.1 Future Persistent

The morphological structure of this TAM is given below and representative examples follow.

(58) SM-la-é + Present Progressive

- (59) a. tú-l-é <sup>1</sup>tú-kú-lím-à                    ‘we will/would still be farming’  
 b. tú-l-é <sup>1</sup>tú-kú-<sup>1</sup>léét-à                    ‘we will/would still be bringing’

The first part of this compound is the Subjunctive form of *ú-kú-l-à*, followed by the Present Progressive of the main verb.

To form the negative, the negative of the Present Progressive is used as the second part of the compound.

(60) SM-la-é + Neg Present Progressive

- (61) a. tú-l-é tù-táà-kù-lím-à                    ‘we will/would not still be farming’  
 b. tú-l-é tù-táà-kù-léét-à                    ‘we will/would not still be bringing’

### 8.5.2 Immediate Past Progressive

The morphological structure of this TAM is given in (62) and representative examples are given in (63). The time frame for the action in all these verbs is within the last hour.

(62) SM-á-lí + Present Progressive

- (63) a. n-áá-líí n-kú-lím-à                    ‘I was just farming’  
 b. w-áá-l ú-kú-lím-à                    ‘you (sg.) were just farming’  
 c. w-áá-l á-<sup>1</sup>kú-lím-à                    ‘he/she was just farming’  
 d. tw-áá-lí tú-kú-lím-à                    ‘we were just farming’  
 e. mw-áá-lí mú-kú-lím-à                    ‘you (pl.) were just farming’  
 f. yá-á-lí yá-kú-lím-à                    ‘they were just farming’  
 g. tw-áá-lí tú-kú-<sup>1</sup>léét-à                    ‘we were just bringing’

It is possible to shorten these forms as illustrated below.

- (64)
- |    |                               |                               |
|----|-------------------------------|-------------------------------|
| a. | íi-n- <sup>1</sup> kú-lím-à   | ‘I was just farming’          |
| b. | íi-tú-kú-lím-à                | ‘we were just farming’        |
| c. | íi-mú-kú-lím-à                | ‘you (pl.) were just farming’ |
| d. | íi-yá-kú-lím-à                | ‘they were just farming’      |
| e. | íi-tú-kú- <sup>1</sup> léét-à | ‘we were just bringing’       |

As can be seen, if the second verb, in the present progressive, begins with a consonant, then the first verb can be replaced by /iCi/, just as it was in the Past of Earlier Today (8.3.1). In every case but one the H from this proclitic fuses with the H on the following SM. The sole exception is the 1 sg. where a downstep is found, perhaps to clearly distinguish it from the Present Progressive (cf. *i-n-kú-lím-à* ‘I am farming’). The other interesting thing here is that the /i/ in /lí-/ actually deletes rather than glides when it is followed by a vowel (cf. §3.1.2).

The negative is presented below.

- (65) N: SM-tá-á-lí + Present Progressive

- (66)
- |    |                                       |                            |
|----|---------------------------------------|----------------------------|
| a. | tù-tá-á-lí tú-kú-lím-à                | ‘we weren’t just farming’  |
| b. | tù-tá-á-lí tú-kú- <sup>1</sup> léét-à | ‘we weren’t just bringing’ |

The first part of this negative compound is identical to the one we just discussed in 8.2.4. The second part is the Present Progressive.

### 8.5.3 Persistent 2

The morphological structure of this TAM is given in (67) and representative examples are given in (68).

- (67) SM-cí-lí + Present Progressive

- (68)
- |    |                                     |                         |
|----|-------------------------------------|-------------------------|
| a. | tú-cí-lí tú-kú-lím-à                | ‘we are still farming’  |
| b. | tú-cí-lí tú-kú- <sup>1</sup> léét-à | ‘we are still bringing’ |

This compound TAM is quite similar to the Persistent discussed in section 5.1.12. (In fact the latter appears to just be a shortened form of this TAM.) Here, both the /cí-/ and /lí-/ prefixes are underlyingly High and short, whereas in the Persistent described in 5.1.12, the latter was set up as long and falling /líi-/. The second portion is the Present Progressive. The negative of this TAM is the one presented in 5.3.6.

### 8.5.4 Past Persistent 1

The morphological structure of this TAM is given in (69) and representative examples are given in (70). (The time-frame for this TAM is within the last hour.)

- (69) SM-á-lí + SM-cí-lí + Present Progressive

- (70) a. tw-áá-lí tú-cí-lí tú-kú-lím-à ‘we were still farming’  
 b. tw-áá-lí tú-cí-lí tú-kú-<sup>1</sup>léét-à ‘we were still bringing’

This TAM simply adds the recent past of /lí/ to the Persistent 2 (§8.5.3). As was the case in the other TAMs which use SM-á-lí (§8.3.1, 8.5.2), it can be shortened to /íí/, as seen below.

- (71) a. íí-tú-cí-lí tú-kú-lím-à ‘we were still farming’  
 b. íí-tú-cí-lí tú-kú-<sup>1</sup>léét-à ‘we were still bringing’

The negative of this TAM is given below.

- (72) N: SM-tá-á-lí + Present Progressive

- (73) a. tù-tá-á-lí tú-kú-lím-à ‘we weren’t farming’  
 b. tù-tá-á-lí tú-kú-<sup>1</sup>léét-à ‘we weren’t bringing’

### 8.5.5 Past Persistent 2

The morphological structure of this TAM is given in (74) and representative examples are given in (75).

- (74) a-la-a +H + SM-cí-lí + Present Progressive

- (75) a. à-l-á tú-cí-lí tú-kú-lím-à ‘we were still farming when...’  
 b. à-l-á tú-cí-lí tú-kú-<sup>1</sup>léét-à ‘we were still bringing when...’

The first member of this compound is in the Narrative Past. The second and third members comprise the Persistent 2 (§8.5.3). The negative of this TAM is given below.

- (76) N: a-la-a +H + SM-tá-á-cí-lí + Present Progressive

- (77) a. à-l-á tú-<sup>1</sup>tá-á-cí-lí tú-kú-lím-à ‘we were not still farming when...’  
 b. à-l-á tú-<sup>1</sup>tá-á-cí-lí tú-kú-<sup>1</sup>léét-à ‘we were not still bringing when...’

The first member of this compound is the Narrative Past, while the second is the same as the *tù-tá-á-lí* used above in (66) with the addition of the H-toned persistent prefix /cí-/ added to it. The third and final word in the verb is the Present Progressive.

### 8.5.6 Conditional Persistent

The morphological structure of this TAM is given in (78) and representative examples are given in (79).

- (78) á-la-é SM-cí-lí + Present Progressive

- (79) a. á-l-é <sup>1</sup>tú-cí-lí tú-kú-lím-à ‘we would still be farming’  
 b. á-l-é <sup>1</sup>tú-cí-lí tú-kú-<sup>1</sup>léét-à ‘we would still be bringing’

The first part of this verb is in the Subjunctive. The second and third parts comprise the Persistent 2 presented in §8.5.3. The negative is shown below.

(80) N: á-la-é + SM-cí-lí + Neg Present Progressive

- (81) a. á-l-é 'tú-cí-lí tú-'táà-kù-lim-à 'we wouldn't still be farming'  
 b. á-l-é 'tú-cí-lí tú-'táà-kù-léét-à 'we wouldn't still be bringing'

This negative is the same as the affirmative except that the third word is the negative of the Present Progressive.

## 8.6 Compounds where the final element is the Narrative Past

Next we turn to compound TAMs whose last element is the Narrative Past (§5.3.8).

### 8.6.1 Immediate Perfect

The morphological structure of this TAM is given in (82) and representative examples are given in (83). The time frame for this TAM is within the past hour.

(82) SM-á-ti + Narrative Past

- (83) a. n-áá-t í'ín-dí'm-á 'I have just farmed'  
 b. w-áá-t ú'ú-lí'm-á 'you (s.g.) have just farmed'  
 c. (w)á-á-t á'á-lí'm-á 'he/she has just farmed'  
 d. tw-áá-tí 'tú-lí'm-á 'we have just farmed'  
 e. mw-áá-tí 'mú-lí'm-á 'you (pl.) have just farmed'  
 f. yá-á-tí 'yá-lí'm-á 'they have just farmed'

The first member of this compound TAM is the Recent Perfect (§5.2.6) using the verb stem /ti/. In the 2 sg. and 3 sg. forms the /i/ of the /ti/ elides before the vowel which begins the following word. (We recall that the /i/ of /li-/ showed the same phonological behavior in the Immediate Past Progressive (§8.5.2).) Tonally, it appears that /ti/ is underlyingly toneless. However, it is quite possible to analyze these forms as having a toneless /tV/ root followed by H-toned word-final /-í/, where that H tone could be thought of as a H-toned FV of the Recent Perfect. The form in (83d) would be derived /tú-á-tV-í tú-lim-a +H/ > *tw-áá-tí'í tú-lí'm-é* (H Spreading) > *tw-áá-tí 'tú-lí'm-é* (Word-final Shortening).

If the stem is greater than two morae, then Pre-Stem Shortening will apply, as seen below.

- (84) a. w-áá-t ú-'lí'm-íl-á 'you (sg.) have just farmed for'  
 b. w-áá-t ú-'léét-á 'you (sg.) have just brought'

This TAM can be shortened, just as we saw was possible in the TAMs discussed in §8.3.1 & §8.5.2. But in this case the shortening is realized as /iCi/, where the final V is toneless (as is /ti/ or /tV/) as opposed to High (as was /lí/ in the two previously discussed TAMs).

- (85) a. íí-<sup>1</sup>tú-lí<sup>1</sup>m-á ‘we have just farmed’  
 b. íí-<sup>1</sup>mú-lí<sup>1</sup>m-á ‘you (pl.) have just farmed’  
 c. íí-<sup>1</sup>yá-lí<sup>1</sup>m-á ‘they have just farmed’  
 d. íí-<sup>1</sup>tú-léét-á ‘we have just brought’

As mentioned previously Cilungu does not tolerate a long H followed by a downstep. However, there are attested sequences of two consecutive identical vowels where the underlying consonant between the V’s has deleted. (E.g. á-á-<sup>1</sup>ká<sup>1</sup>zyáánà ‘girls’ < /á-ba-káziana +H/)

The negative of this TAM is shown below.

- (86) N: SM-tá-li + Subjunctive

- (87) a. tù-tá-lí<sup>1</sup>tú-lí<sup>1</sup>m-é ‘we haven’t just farmed’  
 b. tù-tá-lí<sup>1</sup>tú-léèt-é ‘we haven’t just brought’

As there is no TAM prefix following the negative prefix /tá-/, this negative appears to be in the Perfective. Morphologically the stem is odd in that it does not have /-il-e/ (although we noted in §4.7 that certain verbs had very irregular endings where we would normally expect /-il-e/). Additionally, the /li/ appears to be behaving as toneless, whereas it is generally H-toned. The tonology The second portion of this compound tense is the Subjunctive form of the main verb.

## 8.6.2 Remote Completive

The structure of the Remote Completive is given in (88) and representative examples are given in (89).

- (88) á-a-la-ang-a +H + SM-á-ti + Narrative Past

- (89) a. á-á-l-àáng-á tw-áá-tí<sup>1</sup>tú-lí<sup>1</sup>m-á ‘we had finished farming when...’  
 b. á-á-l-àáng-á tw-áá-tí<sup>1</sup>tú-léét-á ‘we had finished bringing when...’

In this compound TAM, the first element is structurally the Far Past progressive of the verb *ú-kú-l-à* ‘to be’ with the impersonal H-toned /á-/ as the SM. It is followed by the Immediate Perfect presented in section 8.6.1. It was noted that the Immediate Perfect could be shortened, and this is true when it is used in this TAM as well.

- (90) a. á-á-l-àáng íí-<sup>1</sup>tú-lí<sup>1</sup>m-á ‘we had finished farming when...’  
 b. á-á-l-àáng íí-<sup>1</sup>tú-léét-á ‘we had finished bringing when...’

The negative of this TAM is given below.

- (91) N: á-a-la-ang-a +H + SM-ta-l-i + Narrative Past

- (92) a. á-á-l-àáng-á tú-<sup>1</sup>tá-lí<sup>1</sup>tú-lí<sup>1</sup>m-é ‘we hadn’t farmed yet’  
 b. á-á-l-àáng-á tú-<sup>1</sup>tá-lí<sup>1</sup>tú-léèt-é ‘we hadn’t brought yet’

The first part of the negative is the same as the first portion in the affirmative. The second two parts are identical to the negative of the Immediate Perfect (§8.6.1). As can be seen, the MH of the first verb spreads onto the word-initial TBU of the second verb.

### 8.6.3 Compound Perfect

The morphological structure of this TAM is given in (93) and representative examples are given in (94).

(93) á-la-ile +H + SM-á-ti + Narrative Past

- (94) a. á-l-í'ílé tw-áá-tí 'tú-lím-'á 'we had/have just farmed'  
 b. á-l-í'ílé tw-áá-tí 'tú-léét-á 'we had/have just brought'

The first portion of this compound verb is the Perfect of the verb *ú-kú-l-à*—the same as in the Recent Completive (§8.3.2). The second two portions are the same as those found in the Immediate Perfect (§8.6.1). Like the latter TAM, shortening is possible as seen below.

- (95) a. á-l-í'ílé ì-tú-lí'm-á 'we had/have just farmed'  
 b. á-l-í'ílé ì-tú-léét-á 'we had/have just brought'

The negative of this TAM is given below.

(96) N: á-a-la-ile +H + SM-tá-li + Narrative Past

- (97) a. á-l-í'ílé tú-'tá-lí 'tú-lí'm-é 'we hadn't/haven't just farmed'  
 b. á-l-í'ílé tú-'tá-lí 'tú-léét-é 'we hadn't/haven't just brought'

### 8.6.4 Compound Remote Perfect

The morphological structure of this TAM is given in (98) and representative examples are given in (99).

(98) á-a-la-il-e +H + SM-á-ti + Narrative Past

- (99) a. á-á-l-í'ílé tw-áá-tí 'tú-lí'm-á 'we had just finished farming'  
 b. á-á-l-í'ílé tw-áá-tí 'tú-léét-á 'we had just finished bringing'

The first portion of this compound verb is the Perfect of the verb *ú-kú-l-à*. The latter two words have the same structure as the TAM presented in §8.6.1. The shortened versions of this TAM are given below.

- (100) a. á-á-lí-ílé ì-tú-lí'm-á 'we had just finished farming'  
 b. á-á-lí-ílé ì-tú-léét-á 'we had just finished bringing'

The negative of this TAM is given below.

(101) N: á-a-la-ile +H + SM-tá-li+ Narrative Past



- (102) a. á-à-lí-ílé tú-<sup>1</sup>tá-lí <sup>1</sup>tú-lí<sup>1</sup>m-é ‘we hadn’t/haven’t just farmed’  
 b. á-à-lí-ílé tú-<sup>1</sup>tá-lí <sup>1</sup>tú-léét-é ‘we hadn’t/haven’t just brought’

### 8.6.5 Future Anterior 2

The morphological structure of this TAM is given in (103) and representative examples are given in (104).

- (103) á-la-é + SM-á-ti + Narrative Past

- (104) a. á-l-é <sup>1</sup>tw-áá-tí <sup>1</sup>tú-lí<sup>1</sup>m-á ‘we will have farmed’  
 b. á-l-é <sup>1</sup>tw-áá-tí <sup>1</sup>tú-léét-á ‘we will have brought’

The first verb is the Subjunctive of *ú-kú-l-à* (also found in §8.4.1 & §8.5.6) The second and third parts are the same as the TAM presented in §8.6.1. The second and third parts can be shortened as seen below.

- (105) a. á-l íi-tú-lí<sup>1</sup>m-á ‘we will have farmed’  
 b. á-l íi-tú-léét-á ‘we will have brought’

My consultant did not find any discernable meaning difference between the Future Anterior 1 and the Future Anterior 2.

Two negative forms are possible for these Future Anteriors.

- (106) N: á-la-é + SM-tá-li + Subjunctive

- (107) a. á-l-é tù-tá-lí <sup>1</sup>tú-lí<sup>1</sup>m-é ‘we will not have farmed’  
 b. á-l-é tù-tá-lí <sup>1</sup>tú-léét-é ‘we will not have brought’

The first part of this compound TAM is in the Subjunctive. The second and third parts are the same as those in the TAM described in §8.6.1.

- (108) N: á-la-ile +H SM-tá-li Subjunctive

- (109) a. á-lí-<sup>1</sup>íl-é tù-tá-lí <sup>1</sup>tú-lí<sup>1</sup>m-é ‘we will not have farmed’  
 b. á-lí-<sup>1</sup>íl-é tù-tá-lí <sup>1</sup>tú-léét-é ‘we will not have brought’

The negative is identical to the one above except that the first part of the verb is in the Perfect instead of the Subjunctive.

## 8.7 Compounds where the final element is the Past Inceptive

Next let us consider cases where the last element in the compound verb is the Past Inceptive (§5.1.2).

### 8.7.1 Imminent Future

The morphological structure of this TAM is given in (110) and representative examples are given in (111).

(110) SM-á-ti + Past Inceptive

- (111) a. tw-áá-tí<sup>1</sup> tw-áá-lím-à                    ‘we will now be farming’  
b. tw-áá-tí<sup>1</sup> tw-áá-léét-à                    ‘we will now be bringing’

The first portion of this TAM has the same structure as the Recent Perfective, with /ti/ as the stem. (The reason a downstep follows this first verb was explained in §8.6.1). The second portion of this TAM is formally identical to the Past Inceptive (cf. §5.1.2).

The first word in this compound TAM can be shortened to /iCi/, just as it was in §8.6.1.

- (112) a. íí<sup>1</sup> n-áá-lím-à                    ‘I will now be farming’  
b. íí<sup>1</sup> w-áá-lím-à                    ‘you (sg.) will now be farming’  
c. íí<sup>1</sup> tw-áá-lím-à                    ‘we will now be farming’  
d. íí<sup>1</sup> tw-áá-léét-à                    ‘we will now be bringing’

The negative of this TAM is formally the same as the Immediate Future Progressive (cf. §5.1.8).

### 8.7.2 Conditional

The morphological structure of this TAM is given in (113) and representative examples are given in (114).

(113) á-máa-la-a + Past Inceptive

- (114) a. á-máa-l-à tw-áá-lím-à                    ‘if we do farm’  
b. á-máa-l-à tw-áá-sópólòl-à Chóólà                    ‘if we do untie’

The first part of this verb is the Immediate Future (§5.1.5) of the verb *ú-kú-l-à* followed by the Past Inceptive of the main verb. The negative is given below.

(115) á-maa-la-a SM-tá-VR-e

- (116) a. á-máa-là tù-tá-lí<sup>1</sup>m-íl-è                    ‘if we do not farm’  
b. á-máa-là tù-tá-léés-il-é                    ‘if we do not bring’

The first word in this TAM is identical to the first word in the affirmative. The second word is the negative Perfect of the main verb.

## 8.8 Compounds where the final element is the Hortative

Next let us examine compound forms whose last element is the Hortative (5.1.6).

### 8.8.1 Near Future Progressive

The morphological structure of this TAM is given in (117) and representative examples are given in (118).

(117) SM-á-sí-á + Hortative

- (118) a. tw-áá-sh-á tw-áà-lim-à ‘we will soon be farming’  
 b. tw-áá-sh-á tw-áà-léét-à ‘we will soon be bringing’

The first part of this compound TAM is the Recent Perfect (§5.2.6) of the verb *ú-kú-sh-à* ‘leave’, exactly as in §8.2.3 above. The second part is formally identical to the Hortative. The negative is given below, where the first element is simply the negative Recent Perfect.

- (119) a. SM-tá-á-VR-á + Hortative

- (120) a. tù-tá-á-sh-á tw-áà-lim-à ‘we will not soon be farming’  
 b. tù-tá-á-sh-á tw-áà-léét-à ‘we will not soon be bringing’

## 8.9 Compounds where the final element is the Perfect

Finally, we turn to the last compound TAM whose final element is the Perfect (5.3.7).

### 8.9.1 Past Anterior

The morphological structure of this TAM is given in (121) and representative examples are given in (122).

- (121) SM-á-lí + Perfect

- (122) a. tw-áá-lí tú-lí<sup>l</sup>m-ílé ‘we had farmed’  
 b. tw-áá-lí tú-léés-ílé ‘we had brought’

The first member of this compound is the Recent Perfect (§5.2.6) of /li/. The second part is the Perfect of the main verb. The structure of the negative and representative examples are given below.

- (123) SM-tá-á-lí + Perfect

- (124) a. tù-tá-á-lí tú-lí<sup>l</sup>m-ílé ‘we had not farmed’  
 b. tù-tá-á-lí tú-léés-ílé ‘we had not brought’

## CHAPTER 9: PHRASAL TONOLOGY

### 9.1 The Prosodic Hierarchy

Prior to this point, our primary focus has been on the tonology of single words. It is well known, however, that many phonological processes are sensitive to phrasal phonological boundaries and only apply within certain phrasal prosodic domains. Domains which are widely recognized as constraining phonological processes include the following (See, *inter alia*, Selkirk (1984), Nespor & Vogel (1986), Inkelas & Zec (1990)):

- (1) a. Phonological Word
- b. Clitic Group
- c. Phonological Phrase
- d. Intonational Phrase
- e. Utterance

While our focus up to this point has been the phonology of individual words, we have in fact presented a number of short two word phrases which have shed light on the underlyingly representation of various morphemes. These two word phrases have all been of the form head-complement (e.g. verb–direct object) or head-modifier (e.g. verb–adverb, noun–adjective), a syntactic relationship which characterizes elements generally shown to belong to the same phonological phrase (1c).

The purpose of this chapter will be to explore and make explicit the ways in which the domains in (1) are relevant for various tonological rules which operate in Cilungu.

### 9.2 Evidence for Phonological Phrases: Bounded vs. Unbounded Spreading

Let us begin with specifying when a High will undergo unbounded spreading and when it will undergo bounded spreading. It was noted in chapter 5 that a pre-macrostem H will undergo unbounded spreading if it is the rightmost H of a phrase-final word. However, a pre-macrostem High in one word will always undergo bounded spreading if another word follows. I would now like to show that this distinction is true so long as the “phrase” in question is the phonological phrase. To illustrate this, consider the examples below where we focus on the spreading of pre-macrostem Hs:

- |     |                                      |                                 |                               |
|-----|--------------------------------------|---------------------------------|-------------------------------|
| (2) | a. yá-kú-súkíl-íl-à                  | ‘they are accompanying’         | /yá-ku-sukil-il-a/            |
|     | b. yá-kú-zíik-íl-à                   | ‘they are burying for’          | /yá-ku-ziik-il-a/             |
| (3) | a. ú-mú-lím-i                        | ‘farmer’                        | /ú-mu-lim-i/                  |
|     | b. ú-m-óóngólólò                     | ‘windpipe’                      | /ú-mu-ongololo/               |
| (4) | a. yá-kú-sùkíl-il-à sáaná            | ‘they are accompanying a lot’   | /yá-ku-sukil-il-a sáaná/      |
|     | b. tú-làá-zíik-à mùtóóndò            | ‘they will bury tomorrow’       | /tú-laá-ziik-a mutóndo/       |
|     | c. tú-làá-zíik-à lyúúzè              | ‘they will bury later’          | /tú-laá-ziik-a líuze/         |
|     | d. yá-kú-fùl-àl ù-mú-ng’àandá        | ‘they are bathing in the house’ | /yá-ku-ful-al-a ú-mu-ng’andá/ |
|     | e. yá-kú-sùkíl-il-à Chòòlà           | ‘they are accompanying Chola’   | /yá-ku-sukil-il-a Choola/     |
|     | f. yá-kú-fùl-à móótó <sup>1</sup> ká | ‘they are washing the car’      | /yá-ku-ful-a móotoká/         |

- (5)
- |    |                     |                 |                        |
|----|---------------------|-----------------|------------------------|
| a. | ú-mú-limì mù-sùmá   | ‘good farmer’   | /ú-mu-lim-i mu-sumá/   |
| b. | ú-mú-limì mù-tifi   | ‘black farmer’  | /ú-mu-lim-i mu-tifi/   |
| c. | ú-mòòngòlòlò ù-sùmá | ‘good windpipe’ | /ú-mu-ongololo u-sumá/ |

The examples in (2) and (3) show that when a verb or noun (with a toneless stem) is phrase-final, the pre-macrostem H will spread in an unbounded fashion to the penult. In (4) the verb is followed by another word—an adverb in (4a-c), a locative in (4d) and a direct object NP in (4e-f). In (5) the noun is followed by an adjective. In all cases in (4) and (5) the two words are part of the same phonological phrase, and in each case the pre-macrostem High undergoes bounded instead of unbounded spreading. To show, however, that there is a prosodic domain constraining the application of this rule, and that it is not the case, e.g. that binary spreading simply applies whenever any word follows, let us consider the following phrases. We begin with the noun.

- (6)
- |    |                               |  |                                   |
|----|-------------------------------|--|-----------------------------------|
| a. | ú-mú-lím-í à-kú-mú-zíik-à     | ‘the farmer is burying him’                | /ú-mu-lim-i [p á-ku-mu-ziik-a/    |
| b. | yá-kú-fùl ù-mú-lím-í nìngó    | ‘they are washing the farmer well’         | /yá-ku-ful-a ù-mu-lim-i [p nìngó/ |
| c. | yá-kú-fùl-il ù-mú-lím-í cùulá | ‘they are washing the frog for the farmer’ | /yá-ku-ful-a ú-mu-limi [p cuulá/  |

As can be seen, in each of the phrases in (6) above, the H on the preprefix of the noun (‘farmer’) undergoes unbounded spreading, as it did in the phrase-final case in (3). In (6a) the noun is followed by a conjugated verb. Since the verb is not a syntactic complement of the noun, a noun and the following verb will not be part of the same phonological phrase; instead each will be members of separate phonological phrases. In (6b) the NP direct object is followed by an adverb. Since the adverb is not a complement or modifier of the noun (but rather the verb which precedes it), the direct object NP and the adverb will be part of different phonological phrases. Similarly in (6c) the second object NP is not a complement or modifier of the first NP object, so there again they will be parsed into two separate phonological phrases.

Let us now turn to verbs. It is possible in Cilungu to postpose the subject NP. In such constructions, this NP will not, of course, be a complement of the verb and the two will be part of different phonological phrases. This is illustrated below.

- (7)
- |    |                        |                               |                              |
|----|------------------------|-------------------------------|------------------------------|
| a. | à-kú-súkìl-il-à Chòòlà | ‘he/she will accompany Chola’ | /á-ku-sukil-il-a Choola/     |
| b. | à-kú-súkìl-il-á Chòòlà | ‘Chola will accompany’        | /á-ku-sukil-il-a [p Choola / |

The pre-stem H in the verb in (7a) undergoes bounded spreading since the following word is in the same phonological phrase, but this same H will undergo unbounded spreading in (7b) since the following noun begins a new phonological phrase.

When a full NP object as well as a coindexed OM are both present, then the object NP will be part of a different phonological phrase. This is illustrated below.

- (8)
- |    |                           |                               |                                |
|----|---------------------------|-------------------------------|--------------------------------|
| a. | à-kú-súkìl-il-à Chòòlà    | ‘he/she will accompany Chola’ | /á-ku-sukil-il-a Choola/       |
| b. | à-kú-mú-súkìl-il-à sáaná  | ‘he/she will accompany well’  | /á-ku-mu-sukil-il-a sáaná/     |
| c. | à-kú-mú-súkìl-il-á Chòòlà | ‘he/she will accompany Chola’ | /á-ku-mu-sukil-il-a [p Choola/ |

In (8c), the H undergoes unbounded spreading since it is the final word in its phonological phrase. (8b) shows that the mere presence of an OM does not trigger the unbounded spreading. It is only in (8c) where both the OM and the full object NP are present that the pre-macrostem H undergoes unbounded spreading, diagnosing the two words as belonging to different phonological phrases.

Another construction which yields multiple phonological phrases in a sentence stems from the presence of conjunctions, which initiate a separate phonological phrase from the preceding word.

- (9)
- |    |   |                                       |                                      |
|----|---|---------------------------------------|--------------------------------------|
| a. | ú-mú-límí nà Chòòlà                                       | ‘the farmer and Chola’                | /ú-mu-limi [p na Choola/             |
| b. | yá-kú-fúl-á n-ù-kú-láánd-à                                | ‘they are washing and talking’        | /yá-ku-ful-a [p na ú-ku-land-a/      |
| c. | ú-mú-límí nààndì móótó <sup>1</sup> ká                    | ‘the farmer or the car’               | /ú-mu-limi [p nandì móotoká/         |
| d. | yá-kú-fúl-ál-á <sup>1</sup> wén á- <sup>1</sup> kú-púúz-à | ‘they are bathing, but he is resting’ | /yá-ku-ful-al-a [p wéné á-ku-puuz-a/ |

As can be seen in the examples above the word-initial H of the first word undergoes unbounded spreading diagnosing it as part of a different phonological phrase from the following word. The example below shows that the word *na* also initiates a new phonological phrase when it has an instrumental meaning.

- (10) yá-kú-fúl-á nà bùlááshò ‘they are washing with a brush’ /yá-ku-ful-a [p na buláasió/

To summarize, then, if we define phonological phrases in Cilungu as containing a lexical head and any immediately following complement or modifier, then we can account for the application of bounded (as opposed to unbounded) spreading by formalizing it such that a pre-macrostem High will undergo unbounded spreading if it is the rightmost H in the word and that word is at the end of a phonological phrase. If either of these criteria are not met, i.e. if another H follows in the word, or if another word follows in the same phonological phrase, then that pre-stem H will undergo bounded spreading.

### 9.3 Evidence for Intonational Phrases: Unbounded Spread to the penult

We can see from some of the examples in the preceding section that in some cases unbounded spreading will spread a H tone to the penultimate TBU of the word (2) and in other cases to the final TBU (7b). To account for this, I propose that it is the final TBU of intonational phrases (and not phonological phrases) which is immune from the spreading of a High tone. (Whether this is accomplished by extraprosodicity or by a boundary Low tone linking to it is not crucial for the generalization being accounted for here.) This can be illustrated by the following examples.

- (11)
- |    |                          |                                    |                              |
|----|--------------------------|------------------------------------|------------------------------|
| a. | ú-mú-límì                | ‘farmer’                           | /ú-mu-limi/                  |
| b. | yá-kú-súkíl-íl-à         | ‘they are accompanying’            | /yá-ku-sukil-il-a/           |
| c. | yá-kú-súkíl-íl ù-mú-límì | ‘they are accompanying the farmer’ | /yá-ku-sukil-il-a ú-mu-limi/ |
- (12)
- |    |                           |                               |                                |
|----|---------------------------|-------------------------------|--------------------------------|
| a. | ú-mú-límí à-kú-mú-zíík-à  | ‘the farmer is burying him’   | /ú-mu-limi [p á-ku-mu-ziik-a/  |
| b. | à-kú-súkíl-íl-á Chòòlà    | ‘Chola is accompanying’       | /á-ku-sukil-il-a [p Choola/    |
| c. | à-kú-mú-súkíl-íl-á Chòòlà | ‘he/she will accompany Chola’ | /á-ku-mu-sukil-il-a [p Choola/ |

The final word in the examples in (11) is at the end of an intonational phrase and in each case the H tone undergoing unbounded spreading spreads to the penult. In (12a) the subject NP belongs to a different phonological phrase than the following verb, as demonstrated above (6a), but both will belong to the same intonational phrase. Since the NP is not at the end of the intonational phrase, the word-final TBU is accessible to the spreading rule and the H of the preprefix will spread onto it. The cases in (12b-c) are explained in the same way. In each case the verb and following NP are in different phonological phrases, but in the same intonational phrase and the pre-macrostem H in the verb will therefore undergo unbounded spreading to the verb-final TBU.

This analysis predicts that a H will undergo unbounded spreading to the penult within one intonational phrase, even if another one follows it in the same sentence. That this is true can be seen in the examples below which contain a vocative noun at the end of the sentence.

- (13) a. yá-kú-lím-à, Músòndé ‘they are farming, Musonde’ /yá-ku-lim-a [<sub>I</sub> Músondé/  
 b. tú-kú-<sup>1</sup>yá-sópólól-à, mùlámù ‘we are untying them, brother-in-law’ /tú-ku-yá-sópolola [<sub>I</sub> mulámu/

If we assume that the vocative noun initiates its own intonational phrase, then we correctly account for the fact that the H on the SM in (13a) and the macrostem H in (13b) will undergo unbounded spreading to the penult of their intonational phrase.

#### 9.4 H tone spreading across words

Having established the existence of basic phonological phrase and intonational phrase boundaries, let us now attempt to diagnose the domain of application of some of the most productive tonological rules in Cilungu. Let us begin with General Doubling. Consider the noun phrases below, focusing on the behavior of the word-final H tone in the noun.

- (14) a. í-cí-pààpá cí-sùmá ‘good rind’ /í-ci-paapá ci-sumá/  
 b. ú-mú-sààlú ú-sùmá ‘good green vegetable’ /ú-mu-saalú u-sumá/  
 c. í-ví-sìkí ví-sùmá ‘good tree stumps’ /í-vi-sikí vi-sumá/

As can be seen the H on the final TBU of the noun undergoes binary spreading across a word boundary. It has spread onto the word-initial toneless TBU of the following adjective.

This spreading of a High onto a following word can be exemplified within verb phrases as well. We begin with verbs with no Melodic H (§5.1). The only verbs of this kind which will have a H in the final syllable are those with H-toned CV roots. If the word following the verb has a H in it, then the H on the CV root of the verb will undergo bounded spreading, as seen below.

- (15) a. yá-kú-<sup>1</sup>sh-á cípùzí ‘they are leaving the pumpkin’ /yá-ku-sí-a cipuzí/  
 b. yá-kú-<sup>1</sup>sh-á mú<sup>1</sup>lámù ‘they are leaving the bro-in-law’ /yá-ku-sí-a mulámu/  
 c. yá-kú-<sup>1</sup>ví-ly-á nìngó ‘they are eating them (C8) well’ /yá-ku-ví-lí-a ningó/  
 d. yá-kú-<sup>1</sup>ly-á sí<sup>1</sup>lé ‘they are eating only’ /yá-ku-lí-a silé/

If the macrostem H is not in the final syllable, it will spread to the final syllable, but not into the following word as seen below.

- (16) a. yá-kú-<sup>1</sup>lás-á Mùlèngà ‘they are hitting Mulenga’ /yá-ku-lás-a Mulenga/  
 b. yá-kú-<sup>1</sup>yá-zíík-á nìngó ‘they burying them well’ /yá-ku-yá-ziik-a ningó/

If the word following a verb with a H on the final syllable is completely toneless, then the H on the CV root will undergo unbounded spreading as seen in (17).

- (17) a. ví-kú-<sup>1</sup>ly-á Músóondà ‘they (C8) are eating Musonda’ /ví-ku-lí-a Musonda/  
 b. yá-kú-<sup>1</sup>ly-á múunjìlì ‘they are eating the warthog’ /yá-ku-lí-a munjili/  
 c. yá-kú-mù-sh-á Múlééngà ‘they are leaving Mulenga’ /yá-ku-mu-sí-a Mulenga/  
 d. yá-kú-<sup>1</sup>sh-á Múlééngà nà Chòòlà ‘they are leaving Mulenga and Chola’ /yá-ku-si-a Mulenga [p na Choola/

As can be seen above, the H tone on the final syllable of the verbs in (17) spreads in an unbounded fashion into the following word, to the penult if intonational phrase-final (17a-c), otherwise to the ultima (17d). This necessitates a refinement in the generalization regarding unbounded spreading, as up to now the unbounded spreading of a macrostem H targeted the ultimate TBU of the verb in which it is found (where the final TBU of the verb was inaccessible to spreading if the verb was intonational phrase-final as discussed above in §9.3). The way I propose to account for the data above is to order binary spreading before unbounded spreading. In the cases above, the application of binary spreading will spread the H onto the first mora of the following word. Unbounded spreading could then be formalized to target 1) any H which is the rightmost H in the phrase and is linked to a TBU of the phrase-final word, as well as 2) any macrostem H which is the right-most H in its word. In either case, the spreading would be to the ultimate (or penultimate) TBU of the phonological word containing the rightmost TBU of the H in question.

Let us now turn to verbs with a H-toned FV (cf. §5.2). We again focus on the verb-final H tone.

- (18) a. tùù-ngá-súkil-il-á mú<sup>1</sup>lámù ‘we can accompany the bro-in-law’ /tu-ngá-sukil-il-á mulámu/  
 b. yàà-ngá-lás-á ká-<sup>1</sup>súl-à ‘they can hit the blacksmith’ /ya-ngá-lás-á ka-súl-á/  
 c. yàà-ngá-súkil-il-á Kápèèmbwá ‘they will accompany Kapembwa’ /ya-ngá-sukil-il-á Kapeembwá/  
 (19) a. tùù-ngá-sópólòl-á Múlééngà ‘we can untie Mulenga’ /tu-ngá-sopolol-á Mulenga/  
 b. tùù-ngá-súkil-il-á Múlééngà ‘we can accompany Mulenga’ /tu-ngá-sukil-il-á Mulenga/  
 c. yàà-ngá-sh-á Músóondà ‘they can leave Musonda’ /ya-ngá-sí-á Musonda /  
 d. yàà-ngá-mú-<sup>1</sup>lás-á múunjìlì ‘they can wash the warthog’ /ya-ngá-mu-lás-á munjili/  
 (20) tw-áá-súkil-il-á Músóondá nà Chòòlà ‘we have just accompanied Musonda and Chola’  
 /tú-á-sukil-il-á Musonda [p na Choola/

As can be seen, in each case the H on the FV undergoes at least bounded spreading in each case. If this H is followed by another H in the same phrase, then the H spreads no further (18). If, however, it is the final H in the phonological phrase, then it will spread in an unbounded fashion—either to the penult if the word is intonational phrase-final (19), or else to the final (20). These are the very same patterns we saw above in the verbs with no melodic H in (14)-(17).

Let us now examine phrases with verbs where the MH docks onto the second and subsequent TBUs of the stem (§5.3).

- (21) a. tú-lá-lòl-á mú<sup>1</sup>lámù ‘we will see the bro-in-law’ /tú-la-lol-a +H mulámu/  
 b. yá-lá-fùl-á nîngó ‘they will wash well’ /yá-la-ful-a +H níngó/  
 (22) a. tú-lá-<sup>1</sup>lás-á Múlééngà ‘we will hit M’ /tú-la-lás-a +H Mulenga/  
 b. tú-lá-lòl-á Múlééngà ‘we will see M’ /tú-la-lol-a +H Mulenga/  
 c. tú-lá-súkil-il-á Múlééngà ‘we will accompany M’ /tú-la-sukil-il-a +H Mulenga/  
 d. yá-à-léet-á Múlééngà ‘we have already brought Mulenga’ /tú-a-léet-a +H Mulenga/  
 e. yá-lá-fùl-á múunjìlì mù-sù má ‘they will wash the good warthog’ /yá-la-ful-a+H munjili mu-sumá/  
 f. yá-lá-súkil-il-á múunjìlì mù-sù má ‘they will accompany the good warthog’ /yá-la-sukil-il-a +H munjili mu-sumá/



We find the exact same pattern in these verbs as we have in the others ((15)- (20)), i.e. that a word-final H tone will spread onto a toneless TBU in the following word. If there is another H in the phrase, then the H on the FV will spread no further (21) however if the word it spread onto is phrase-final and toneless, then the H will undergo unbounded spreading (22). In order to account for these patterns we must insure the docking and leftward spread of the MH feeds General Doubling which can spread it into the following word, which in turn precedes general unbounded spreading as the H can continue to spread to the penult within a toneless word following the verb, as seen in (22). The unbounded rightward spreading rule, as stated above, applies after General Doubling, and targets: 1) any H which is the rightmost H in the phrase and is linked to a TBU of the phrase-final word, as well as 2) any macrostem H which is the right-most H in its word.

- |      |   |          |                                    |
|------|---|----------|------------------------------------|
| (23) | <u>tú</u> -la-sukil-il-a+H                | Muleenga | U.R.                               |
|      | <u>tú</u> -la-sukil-il- <u>á</u>          | Muleenga | MH Docking                         |
|      | <u>tú</u> -la-suk <u>í</u> l-il- <u>á</u> | Muleenga | Leftward Unbounded Spreading to V2 |
|      | <u>tú</u> -lá-suk <u>í</u> l-il- <u>á</u> | Múleenga | General Doubling                   |
|      | <u>tú</u> -lá-suk <u>í</u> l-il- <u>á</u> | Múléenga | Unbounded Spreading                |

Let us now address the question as to what the phrasal domain is within which spreading across words applies. In all the examples above, spreading has occurred between two words which are part of the same phonological phrase. Let us now examine forms where the two words are part of separate phonological phrases. As was noted above in section 9.2, there is evidence that the subject and the following verb are part of different phonological phrases ((6a), (12a)). In that light, let us consider the examples below.

- |      |                          |                              |                                |
|------|--------------------------|------------------------------|--------------------------------|
| (24) | a. Pààndé á-là-ví-léét-á | ‘Pande will bring them (C8)’ | /Pandé [p a-la-ví-léet-a +H/   |
|      | b. kà-lim-á á-là-pít-á   | ‘the farmer will go’         | /ka-lim-a +H [p a-la-pít-a +H/ |

The fact that the H at the end of the subject NP spreads onto the verb-initial TBU indicates that the domain of application of spreading is not in fact the phonological phrase, but the intonational phrase.

That a H at the end of one intonational phrase will not spread into a following intonational phrase is shown in the sentences below, which contain vocatives.

- |      |   |                                |                                |
|------|---|--------------------------------|--------------------------------|
| (25) | a. sópólòl-á, mùlámù                    | ‘untie, brother-in-law!’       | /sópólòl-á [I mùlámù/          |
|      | b. yá-sú <sup>1</sup> kíl-ííl-é, mùlámù | ‘accompany them, bro-in-law!’  | /yá-sukil-il-ile +H [I mùlámù/ |
|      | c. yá-ku-ly-á, mùlámù                   | ‘they are eating, bro-in-law!’ | /yá-ku-lí-a [I mùlámù/         |

Let us now consider cases where there is a toneless object NP followed by another word. First, we consider the case when an adjective follows.

- |      |  |                                      |                                   |
|------|--|--------------------------------------|-----------------------------------|
| (26) | a. yá-kú- <sup>1</sup> sh-á mùnjìlì mù-sù má | ‘they are leaving the good warthog’  | /yá-ku-sí-a munjili mu-sumá/      |
|      | b. yàà-ngá-fúl-il-á mùnjìlì mù-sù má         | ‘they can wash for the good warthog’ | /ya-ngá-ful-il-á munjili mu-sumá/ |
|      | c. à-là-lòl-á càngà mù-sù má                 | ‘he can see the good squirrel’       | /a-la-lol-a +H canga mu-sumá/     |

In these examples the verb, object NP and adjective are all part of the same phonological phrase. The H at the end of the verb will spread to the following mora, but will not continue to spread in an unbounded fashion since the noun in these cases is not phonological phrase-final.

Let us now consider examples where an object NP is followed by an adverb (of manner), focusing on the spreading of the verb-final H.

- |      |    |  |                               |   |
|------|----|--|-------------------------------|---|
| (27) | a. | tú-lá-fùl-á Múlèèngà sàaná                                 | ‘they will wash M a lot’      | /tú-la-ful-a +H Mulenga sàaná/                      |
|      | b. | tú-lá-ziik-il-á Múlèèngà ñìngó                             | ‘we will bury for M well’     | /tú-la-ziik-il-a +H Mulenga ñìngó/                  |
|      | c. | yá-lá-lámúk-á Múlèèngà sàaná                               | ‘they will greet M a lot’     | /yá-la-lamuk-a +H Mulenga sàaná/                    |
|      | d. | yàà-ngá-fùl-il-á Múlèèngà sàaná                            | ‘they can wash for M a lot’   | /ya-ngá-ful-il-á Mulenga sàaná/                     |
|      | e. | yàà-ngá-lámúk-á Múlèèngà sàaná                             | ‘they can greet M a lot’      | /ya-ngá-lamuk-á Mulenga sàaná/                      |
|      | f. | yá-ziik-il-é Múlèèngà ñìngó                                | ‘that they bury for M well’   | /ya-ziik-il-é Mulenga ñìngó/                        |
| (28) | a. | ú-kú- <sup>1</sup> sh-á Múlééngà <sup>1</sup> sàaná        | ‘you are leaving M a lot’     | /ú-ku-sí-a Mulenga [ <sub>P</sub> sàaná/            |
|      | b. | tú-lá-fùl-il-á Múlééngà <sup>1</sup> sàaná                 | ‘we will wash for M a lot’    | /tú-la-ful-il-a +H Mulenga [ <sub>P</sub> sàaná/    |
|      | c. | yá-lá-lámúk-il-á Múlééngà <sup>1</sup> sàaná               | ‘they will greet for M a lot’ | /yá-la-lamuk-il-a +H Mulenga [ <sub>P</sub> sàaná/  |
|      | d. | tú-lá-sùkíl-il-á Múlééngà <sup>1</sup> sàaná               | ‘we will accompany M a lot’   | /tú-la-sukil-il-a +H Mulenga [ <sub>P</sub> sàaná/  |
|      | e. | tùù-ngá-sùkíl-il-á Múlééngà <sup>1</sup> sàaná             | ‘we can accompany M a lot’    | /tu-ngá-sukil-il-á Mulenga [ <sub>P</sub> sàaná/    |
| (29) | a. | yá-lá-mù-lámúk-á Múlééngà <sup>1</sup> sàaná               | ‘we will greet M a lot’       | /yá-la-mu-lamuk-a +H Mulenga [ <sub>P</sub> sàaná/  |
|      | b. | yá-lá-mù-fùl-il-á Múlééngà <sup>1</sup> sàaná              | ‘we will wash for M a lot’    | /yá-la-mu-ful-il-a +H Mulenga [ <sub>P</sub> sàaná/ |
|      | c. | yá-lá-mù-fùl-il-á Múlééngà ñìngó                           | ‘we will wash for M well’     | /yá-la-mu-ful-il-a +H Mulenga [ <sub>P</sub> ñìngó/ |
|      | d. | yàà-ngá-mù- <sup>1</sup> lās-á Múlééngà <sup>1</sup> sàaná | ‘we can hit M a lot’          | /ya-ngá-mu-lās-á Mulenga [ <sub>P</sub> sàaná/      |

In all cases the H on the FV of the verb spreads into the following toneless object NP. In the cases in (27), the H does not spread any further than the first TBU of the object, just as was the case in the phrases in (26) where an adjective followed the noun. In (28) and (29) the H undergoes unbounded spreading up to the final TBU of the noun. Given the generalizations formulated above regarding prosodic phrasal boundaries, these patterns can be accounted for by assuming that all three words are part of the same phonological phrase in (27), while in (28) and (29) there is a phonological phrase boundary between the object NP and adverb. But, how is it determined whether the adverb is part of the same phonological phrase as the previous object NP or not? If the verb contains an OM, then the adverb is part of a different phonological phrase (29). We already know from the example in (8c) that when a verb contains an OM, then a co-referential object NP begins a new phonological phrase. In cases where the verb does not contain an OM, there simply seems to be variation in terms of whether all three words are part of the same phonological phrase (27) or the verb and NP are part of one phonological phrase and the adverb is part of another (28). To what extent a single phrase may be parsed into one phonological phase or two (e.g. (27c), (28b)) and to what extent certain phrases of this type tend to be parsed into either a single phonological phrase or two phonological phrases remains an open question for future research.

Now let us consider cases where a verb is followed by two full (toneless) NPs.

- |      |    |  |   |   |
|------|----|--|---|---|
| (30) | a. | yá-lá-fùl-il-á Múlééngà Chòòlà               | ‘they can wash Chola for Mulenga’       | /yá-la-ful-il-a +H Mulenga [ <sub>P</sub> Choola/ |
|      | b. | yá-lá- <sup>1</sup> lās-il-á Múlééngà Chòòlà | ‘they can hit Chola for Mulenga’        | /yá-la-lās-il-a +H Mulenga [ <sub>P</sub> Choola/ |
|      | c. | yàà-ngá-fùl-il-á Múlééngà mùñjili            | ‘they can wash the warthog for Mulenga’ | /ya-ngá-ful-il-á Mulenga [ <sub>P</sub> munjili/  |

As can be seen, the H on the FV of the verb spreads in an unbounded fashion onto the ultima of the first NP object, diagnosing it as belonging to a separate phonological phrase from the second NP object. Of course, since

the domain of inter-word H spreading is the intonational phrase, we expect a H at the end of one NP object to spread into a following NP object (or adverb) since even though these are separate phonological phrases, they belong to the same intonational phrase. That this is true is seen in the examples below.

- (31)
- |    |  |  |   |
|----|--|--|---|
| a. | yá-kú- <sup>1</sup> pé-él-á Pààndé cúulá                               | ‘they are giving Pande the frog’             | /yá-ku-pé-il-a Pandé [p cuulá/          |
| b. | yá-lá-fùl-il-á Kápèèmbwá múunjìlì                                      | ‘they will wash the warthog for Kapembwa’    | /yá-la-ful-il-a +H Kapembuá [p munjili/ |
| c. | yá-kú- <sup>1</sup> pé-él-ú- <sup>1</sup> mú-sá <sup>1</sup> nó cipùzì | ‘they are giving the chief wife the pumpkin’ | /yá-ku-pé-il-a ú-mu-sanó [p cipuzi/     |
| d. | yá-kú-fùl-à Pààndé nìngó   | ‘they are washing Pande well’                | /yá-ku-ful-a Pandé [p ningó/            |

It was noted above that there is a phonological phrase boundary between a noun and a following conjunction. As seen below, a H at the end of a noun will spread onto the conjunction which is part of a separate phonological phase.

- (32)
- |    |                                   |                            |                         |
|----|-----------------------------------|----------------------------|-------------------------|
| a. | Pààndé ná Kápèèmbwá               | ‘Pande and Kapembwa’       | /Paandé [p na Kapembwá/ |
| b. | ù-mù-sà <sup>1</sup> nó ná Pààndé | ‘the chief wife and Pande’ | /ú-mu-sanó [p na Pandé/ |

### 9.5 Fusion across words

Let us now turn to the process of fusion and examine its application between words. (For a concise summary of this process, cf. §10.3.3), The phrases below contain a verb and a following word (either noun or adverb) belonging to the same phonological phrase. As can be seen, a H on the verb-final TBU will fuse with the initial H of the following word.

- (33)
- |    |  |                             |                             |
|----|--|-----------------------------|-----------------------------|
| a. | tù- <sup>1</sup> ngá-lámùk-á sáaná               | ‘we can greet a lot’        | /tu-ngá-lamuk-á sáaná/      |
| b. | tú-lá- <sup>1</sup> léét-á móótó <sup>1</sup> ká | ‘we will bring the car’     | /tú-la-léet-a +H móotoká/   |
| c. | yá-lá-fùl-á kálúkúlúkù                           | ‘they will wash the turkey’ | /yá-la-ful-a +H kálukuluku/ |
| d. | yá-lá-lòl-ú ú-mú-tì                              | ‘they will see the tree’    | /yá-la-lol-a +H ú-mu-ti/    |

If the object has a single word-initial H, then that H will undergo unbounded spreading to the penult if the object is intonational phrase-final, as seen in (33c-d), while the fused H will undergo bounded spreading if another word follows the object in the same phonological phrase, as seen below.

- (34)
- |  |                                  |                                    |
|--|----------------------------------|------------------------------------|
| yá-lá-fùl-á kálúkúlúkù mù-sù <sup>1</sup> má | ‘they will wash the good turkey’ | /yá-la-ful-a+H kálukuluku mu-sumá/ |
|--|----------------------------------|------------------------------------|

Let us now consider phrases with multiple phonological phrases, where the first phonological phrase ends in a H-toned TBU and the second one begins with one.

- (35)
- |    |  |                                  |                                |
|----|--|----------------------------------|--------------------------------|
| a. | á-á-sà <sup>1</sup> nó yá-lá-fùl-á           | ‘the chief wives will wash’      | /á-ba-sanó [p yá-la-ful-a +H/  |
| b. | yàà-cìpùzì yá-kú- <sup>1</sup> léét-w-á      | ‘the pumpkins are being brought’ | /yaa-cipuzi [p yá-ku-léet-w-a/ |
| c. | kà-lì <sup>1</sup> m-á á-pít- <sup>1</sup> é | ‘the farmer should go’           | /ka-lim-a +H [p á-pít-é/       |
- (36)
- |    |   |  |   |
|----|---|--|---|
| a. | yá-kú- <sup>1</sup> pé-él-á Kápèèmbwá móótó <sup>1</sup> ká | ‘they are giving Kapembwa the warthog’ | /yá-ku-pé-il-a Kapembuá [p móotoká/     |
| b. | yá-kú- <sup>1</sup> pé-él-á Pààndé mwáánkó <sup>1</sup> lé  | ‘they are giving Kapembwa the crow’    | /yá-ku-pé-il-a Pandé [p múankolé/       |
| c. | tú-lá-mù-fùl-il-á Pààndé móótó <sup>1</sup> ká              | ‘we will wash the car for Pande’       | /tú-la-mu-ful-il-a +H Pandé [p móotoká/ |

In (35) the subject and following verb are in different phonological phrases, and in (36) the two objects are in different phonological phrases. In both cases the adjacent H’s, even though they are in different phonological

phrases, do fuse, showing the domain of application of fusion is the intonational phrase (just as we saw was the case for H-tone spreading).

## 9.6 Evidence for the Clitic Group

Cilungu has a number of clitics, generally of the shape CV. To illustrate their tonological behavior, we will focus on one representative enclitic here, the post-verbal locative /pó/. (The proclitic /na/ ‘and’ is also briefly examined in this section and the associative proclitic will be examined in section 9.7.) The meaning that this clitic adds to the verb is not completely uniform. Depending on the meaning of the verb and the context of the sentence it can add a locative meaning of ‘on/at some location’. In other cases it adds a sense of “some” to the verb. E.g. *yá-kú-<sup>1</sup>ly-á pó* ‘they are eating some’. And in still other cases my consultant gave the same translation regardless of whether the verb had this enclitic on it or not. Since the context of the utterance will usually determine what English if any needs to be added to the gloss given the presence of *po*, the glossing of the examples simply included ‘(loc.)’.

Justification for setting up this clitic as H-toned can be seen in the examples below where it surfaces as H in each case.

- |      |    |                     |                              |                     |
|------|----|---------------------|------------------------------|---------------------|
| (37) | a. | tú-kú-fùl-à pó      | ‘we are washing (loc.)’      | /tú-ku-ful-a pó/    |
|      | b. | tú-kú-zìik-à pó     | ‘we are burying (loc.)’      | /tú-ku-ziik-a pó/   |
|      | c. | tú-kú-sùkil-il-à pó | ‘we are accompanying (loc.)’ | /tú-kusukilil-a pó/ |

Given just the examples above one could diagnose /pó/ as either an additional suffix on the verb, or as a distinct phonological word which follows, as either would correctly account for the fact that the H on the SM undergoes binary spreading. Let us now consider cases where /pó/ follows a Present Progressive verb with a H-toned root.

- |      |    |   |                            |                      |
|------|----|---|----------------------------|----------------------|
| (38) | a. | tú-kú- <sup>1</sup> lās-á <sup>1</sup> pó     | ‘we are hitting (loc.)’    | /tú-ku-lās-a pó/     |
|      | b. | tú-kú- <sup>1</sup> lúm-il-á <sup>1</sup> pó  | ‘we are biting for (loc.)’ | /tú-ku-lúm-il-a pó/  |
|      | c. | tú-kú- <sup>1</sup> sópólól-á <sup>1</sup> pó | ‘we are untying (loc.)’    | /tú-ku-sópolol-a pó/ |

Here, we see that the macrostem H spreads up to the FV. This is not consistent with /pó/ being part of the same phonological word as the verb, because we have seen quite clearly in examples such as the one provided in (39), that a macrostem H will undergo binary and not unbounded spreading if it is followed by a H in the same word.

- |      |                   |                |                    |
|------|-------------------|----------------|--------------------|
| (39) | tùù-ngá-sópólól-á | ‘we can untie’ | /tu-ngá-sópolol-á/ |
|------|-------------------|----------------|--------------------|

Given that /pó/ is not part of the same phonological word as the verb preceding it, we must now determine if it is a phonological word on its own, being part of the same phonological phrase as the verb, or if it combines with the word to form some smaller domain such as the clitic group.

Perhaps the first point in favor of considering it as a clitic and not a word is that it cannot stand on its own in isolation—unlike all the other words we have seen up to this point which follow the verb. Other evidence is tonological. One interesting aspect of the behavior of /pó/, is that its H will delete if there is a H in the syllable which immediately precedes it. This is shown below.

- (40)
- |    |                      |                               |                           |
|----|----------------------|-------------------------------|---------------------------|
| a. | yá-kú-'sh-á pò       | 'they are leaving (loc.)'     | /yá-ku-sí-a pó/           |
| b. | tùù-ngá-ziik-á pò    | 'we can bury (loc.)'          | /tu-ngá-ziik-á pó/        |
| c. | tw-áá-lól-'á pò      | 'we have just seen (loc.)'    | /tú-á-lól-á pó/           |
| d. | tú-lá-mù-fùl-il-á pò | 'we will wash for him (loc.)' | /tú-la-mu-ful-il-a +H pó/ |
| e. | tú-yá-lás-á pò       | 'and then we hit them (loc.)' | /tú-yá-lás-a +H pó/       |

As can be seen, in each case the H on the enclitic /pó/ has been deleted. The following minimal pair nicely illustrates /pó/'s tonological behavior.

- (41)
- |    |                    |                       |                    |
|----|--------------------|-----------------------|--------------------|
| a. | ú-kúù-ntá-sh-á 'pó | 'to not grind (loc.)' | /ú-ku-ntá-si-a pó/ |
| b. | ú-kúù-ntá-sh-á pò  | 'to not leave (loc.)' | /ú-ku-ntá-sí-a pó/ |

In (41a) the H on the negative prefix /ntá-/ spreads to the word-final TBU, after which /pó/ is downstepped, while in (41b) the H on /pó/ is deleted and it surfaces as Low. (Word-final shortening will apply in each case.)

The above examples are not consistent with /pó/ simply being another phonological word. As can be seen in the example below, when a word-final H on a verb is followed by another word beginning with a H, the second H does not delete; rather the two H's fuse (cf. §9.5).

- (42) yá-lá-lól-á móótó'ká mú-sù má      'they will see the good car'      /yá-la-lol-a +H móotoká mu-sumá/

In the example above the H on the FV of the verb and the NP-initial H have undergone fusion, and the fused H undergoes binary spreading. Were it the case that the NP-initial H deleted, the NP would surface as \*móótóká.<sup>1</sup>

The Clitic H Deletion rule, motivated by the OCP, is given below.

- (43)
- |       |   |                 |
|-------|---|-----------------|
| $\mu$ | ] | $[_{CL} \mu$    |
|       |   |                 |
| H     |   | H > $\emptyset$ |

Since the spreading of a H to the word-final TBU does not trigger Clitic H Deletion (38), the former must be ordered after the latter.

In many cases the presence of a clitic will have a different effect on a previous word than that of a full word. We have seen that in general when a long vowel is created in a word-final syllable, it will shorten both phrase-finally as well as before another word.

- (44)
- |    |                     |                      |                     |
|----|---------------------|----------------------|---------------------|
| a. | tùù-ngá-sh-à        | 'we can grind'       | /tu-ngá-si-á/       |
| b. | tùù-ngá-sh-á 'sáaná | 'we can grind a lot' | /tu-ngá-si-á sáaná/ |
- (45)
- |    |                    |                      |                     |
|----|--------------------|----------------------|---------------------|
| a. | tùù-ngá-sh-á       | 'we can leave'       | /tu-ngá-sí-á/       |
| b. | tùù-ngá-sh-á sáaná | 'we can grind a lot' | /tu-ngá-sí-á sáaná/ |

<sup>1</sup> Of course, since I have not found any monosyllabic nouns or adverbs, it might be possible to formulate a rule whereby a H on a monosyllabic word deleted if the previous word (in the same phonological phrase) had a H on its final TBU. Still, given the fact that the tonal behavior of /pó/ differs from that of nouns with word-initial H tones and given that /pó/ cannot stand on its own, I will analyze it as a verbal enclitic.

- |      |    |  |                              |                         |
|------|----|--|------------------------------|-------------------------|
| (46) | a. | yá-kú-sh-á                                     | ‘they are grinding’          | /yá-ku-si-a/            |
|      | b. | yá-kú-sh-à sàaná                               | ‘they are grinding a lot’    | /yá-ku-si-a sàaná/      |
| (47) | a. | yá-kú- <sup>1</sup> sh-á                       | ‘they are leaving’           | /yá-ku-sí-a/            |
|      | b. | yá-kú- <sup>1</sup> sh-á Chóólà                | ‘they are leaving Chola’     | /yá-ku-sí-a Choola/     |
| (48) | a. | yá-kú-ful-w-á                                  | ‘they are being washed’      | /yá-ku-ful-u-a/         |
|      | a. | yá-kú-fùl-w-à nìngó                            | ‘they are being washed well’ | /yá-ku-ful-u-a nìngó/   |
| (49) | a. | yá-kú- <sup>1</sup> lās-w-á                    | ‘they are being hit’         | /yá-ku-lās-u-a/         |
|      | b. | yá-kú- <sup>1</sup> lās-w-á <sup>1</sup> sàaná | ‘they are being hit a lot’   | /yá-ku-lās-u-a sàaná/   |
| (50) | a. | à-là-lās-w-á                                   | ‘he/she will be hit’         | /a-la-lās-u-a +H/       |
|      | b. | à-là-lās-w-á sàaná                             | ‘he/she will be hit a lot’   | /a-la-lās-u-a +H sàaná/ |

As can be seen in the examples above, even though gliding and compensatory lengthening in the word-final syllable predicts a long vowel, the FV actually surfaces as short both phrase-finally as well as before another word. To account for this we posited a rule of Word-final Shortening which will remove one of the two morae from the word-final syllable. The only exception to this is when the tone on the word-final long vowel is Rising. In this case shortening will not apply (cf. §10.4.4).

- |      |    |                               |                          |                  |
|------|----|-------------------------------|--------------------------|------------------|
| (51) | a. | à-sh-àà                       | ‘and then he/she ground’ | /a-si-a +H/      |
|      | b. | à-sh-á                        | ‘and then he/she left’   | /a-sí-a +H/      |
|      | c. | tùù-ngá-mú-sh-àà              | ‘we can grind him/her’   | /tu-ngá-mu-si-á/ |
|      | d. | tùù-ngá-mú- <sup>1</sup> sh-á | ‘we can leave him/her’   | /tu-ngá-mu-sí-á/ |

When words such as those in (44)-(50) are followed by a clitic, however, the vowel length in the verb-final syllable is often preserved. This can be seen in the examples below.

- |      |    |                                 |                             |                       |
|------|----|---------------------------------|-----------------------------|-----------------------|
| (52) | a. | tùù-ngá-zw-á <sup>1</sup> á pò  | ‘we can bleed (loc.)’       | /tu-ngá-zu-á pó/      |
|      | b. | tùù-ngá-lw-á <sup>1</sup> á pò  | ‘we can fight (loc.)’       | /tu-ngá-lu-á pó/      |
|      | c. | tú-lá-yá-sh-á <sup>1</sup> á pò | ‘we will grind them (loc.)’ | /tú-la-yá-si-a +H pó/ |

In the examples in (52) the productive rules of the phonology create a fall from High to Downstepped High on the final syllable. While this would shorten if the verb was phrase-final or followed by another prosodic word, the length is actually maintained here before the enclitic /pó/.

Still, it is not the case that a word-final derived long vowel obligatorily surfaces as bimoraic before an enclitic. While I will not attempt a comprehensive account of this here, it is clear that at least two factors play a role in determining the phonetic length of pre-clitic derived long vowels: 1) the tone on the derived long V and 2) whether the derived long vowel contains a root mora (i.e. a mora from a CV root) or a non-root-mora (e.g. the passive /-u/ or short causative /-i/). (See section 9.7 below for independent evidence that root and non-root morae in the final syllable exhibit different phonological behaviors.) Continuing with words having a derived word-final long vowel containing a root mora, when such vowels bear a level High tone or a level Low tone, then shortening is optional.

- (53) a. à-là-sh-á(á) pò ‘he/she will leave (loc.)’ /a-la-sí-a +H pò/  
 b. yàà-ngá-ly-á(á) pò ‘they can eat (loc.)’ /ya-ngá-lí-á pò/

- (54) a. yá-kú-sh-à(à) pò ‘they are grinding (loc.)’ /yá-ku-si-a pò/  
 b. yá-kú-lw-à(à) pò ‘they are fighting (loc.)’ /yá-ku-lu-a pò/

When the derived long vowel contains a non-root mora and is not Low toned, then shortening is also optional.

- (55) a. à-là-lás-w-á(á) pò ‘he/she will be hit (loc.)’ /a-la-lás-u-a +H pò/  
 b. tùù-ngá-fùl-w-àá pò ‘we can be washed (loc.)’ /tu-ngá-ful-u-á pò/  
 ~ tùù-ngá-fùl-<sup>1</sup>w-á pò  
 c. ví-kú-<sup>1</sup>lém-w-àà pò ‘they (C8) are being planted (loc.)’ /ví-ku-lém-u-a pò/  
 ~ ví-kú-<sup>1</sup>lém-w-á<sup>1</sup> pò

Finally, when the final syllable contains a non-root vowel and is (completely) Low, then shortening will obligatorily apply.

- (56) a. yá-kw-ìimb-w-à pò ‘they are being dug up (loc.)’ /yá-ku-imb-u-a pò/  
 b. yá-kú-lèm-w-à pò ‘they are being grabbed (loc.)’ /yá-ku-lem-u-a pò/

Now let us examine the behavior of /pò/ when it is followed by another word. First we consider cases where the FV of the verb is underlyingly toneless.

- (57) a. tú-kú-fùl-à pò Chóólà ‘they are washing Chola (loc.)’ /yá-ku-ful-a pò Choola/  
 b. tú-kú-sùkilil-à pò Chóólà ‘we are accompanying Chola (loc.)’ /tú-ku-sukil-il-a pò Choola/  
 c. tú-kú-<sup>1</sup>lás-á<sup>1</sup> pò múunjìlì ‘we are hitting the warthog (loc.)’ /tú-ku-lás-a pò munjili/  
 d. tú-kú-<sup>1</sup>léét-él-á<sup>1</sup> pò Múlééngà ‘we are bringing for Mulenga (loc.)’ /tú-ku-léet-il-a pò Mulenga/
- (58) a. yá-kú-fùl-à pò nīngó ‘they are washing well (loc.)’ /yá-ku-ful-a pò ningó/  
 b. yá-kú-mù-lúm-á<sup>1</sup> pò nīngó ‘they are hitting him well (loc.)’ /yá-ku-mu-lúm-a pò ningó/  
 c. yá-kú-fùl-à pò Kápèèmbwá ‘they are washing Kapembwa (loc.)’ /yá-ku-ful-a pò Kapembuá/  
 d. yá-kú-fùl-à pò múunjìlì mù-sùamá ‘they are washing the good warthog’ (loc.)’ /yá-ku-ful-a pò munjili mu-sumá/

As can be seen, the H on the enclitic /pò/ will spread into the following word. If there is a single following word and it is toneless then the H will undergo unbounded spreading to the penult of the intonational phrase (57); otherwise it will undergo binary spreading (58).

Let us now turn to cases where the FV of the verb is H-toned.

- (59) a. tùù-ngá-lámùk-á pò Chòòlà ‘we can greet Chola (loc.)’ /tu-ngá-lamuk-á pò Choola/  
 b. tùù-ngá-mú-fùl-á pò nīngó ‘we can wash him well (loc.)’ /tu-ngá-mu-ful-a pò ningó/  
 c. tùù-ngá-mú-fùl-il-á pò <sup>1</sup>sáaná ‘we can wash for him a lot (loc.)’ /tu-ngá-mu-ful-il-a pò sáaná/  
 d. tùù-ngá-lúm-á pò Chòòlà ‘we can bite Chola (loc.)’ /tu-ngá-lúm-á pò Choola/  
 e. tú-lá-fùl-á pò <sup>1</sup>sáaná ‘they will wash Chola (loc.)’ /tu-lá-ful-a +H pò sáaná/  
 f. tú-lá-fùl-á pò nīngó ‘we will wash well (loc.)’ /tu-lá-ful-a +H pò ningó/

In each case the FV of the verb and the following enclitic are both pronounced H. This H does not extend into any following word which begins with a toneless TBU, and a following word beginning with a H tone is downstepped. All of this is directly predicted from the ordering established above, viz. Clitic H Deletion before General Doubling. Fusion will be ordered after Clitic H Deletion. This is illustrated below.

(60)	a. /tú-ku-ful-a pó Choola/	b. /tú-la-ful-a +H pó sáaná/	c. /tu-ngá-lamuk-á pó Choola/	UR
		<u>tú-la-ful-á</u> pó <u>sáaná</u>		MH Docking
	n/a	<u>tú-la-ful-á</u> po <u>sáaná</u>	tu- <u>ngá</u> - lamuk - <u>á</u> po Choola	Clitic H Del
				Fusion
	<u>tú-kú</u> -ful-a pó <u>Chóóla</u>	<u>tú-lá</u> -ful-á pó <u>sáaná</u>	tuu- <u>ngá-lámuk-á</u> pó Choola	General Doub & Unb Spr

In (60a) the H on the enclitic does not delete and spreads in an unbounded fashion into the following toneless object NP. In (60b) and (60c) the H on the enclitic is deleted, after which the H on the FV spreads onto the now toneless enclitic.

Let us now examine the behavior of /pó/ after a downstepped H.

(61)	a. tùù-ngá-fúl- <sup>1</sup> á pó	‘we can wash (loc.)’	/tu-ngá-ful-á pó/
	b. yàà-ngá-lól- <sup>1</sup> á pó	‘they can see (loc.)’	/ya-ngá-lol-á pó/
	c. tw-áá-lém- <sup>1</sup> á pó	‘we have just grabbed (loc.)’	/tú-á-lem-á pó/

As can be seen, in these instances the H on /pó/ does not delete. This is equally evident when some word follows /pó/ as can be seen below.

(62)	a. tùù-ngá-fúl- <sup>1</sup> á pó móótó <sup>1</sup> ká	‘we can wash the car (loc.)’	/tu-ngá-ful-á pó móotoká/
	b. yàà-ngá-lól- <sup>1</sup> á pó Múlééngà	‘they can see Mulenga (loc.)’	/ya-ngá-lol-á pó Mulenga/
	c. tw-áá-lém- <sup>1</sup> á pó múúnjìlì	‘we have just grabbed the warthog (loc.)’	/tú-á-lem-á pó munjili/

In each case the enclitic retains its High. In (62a) this H fuses with the initial H of the following word. In (62b-c) the H on the enclitic undergoes spreading onto the following toneless NP. To account for this, it will be necessary to modify the Clitic H Deletion rule such that it does not apply if the H on the FV is downstepped.

Another morpheme which can be argued to be a clitic in Cilungu is the conjunction /na/. Its behavior as a proclitic can be seen in the examples below:

(63)	a. Pààndé ná Múlééngà	‘Pande and Mulenga’	/Pandé [P na Mulenga/
	b. ú-mú-sàno ná Kásóóndè	‘the chief wife and Kasonde’	/ú-mu-sanó [P na Kasonde/

In each case the H at the end of the first noun has spread onto the conjunction /na/, and has continue to spread, in an unbounded fashion up to the penult of the entire phrase. If the conjunction were an independent phonological word it would not be the phrase-final word and as such we would expect the H to spread no further (from the conjunction). Under the assumption, however, that the conjunction is a pro-clitic and that unbounded spreading targets any H which is linked to a TBU in the phrase-final clitic group—something I have



argued for above—then we can straightforwardly account for these forms. As expected, if the second noun has a H in it, then unbounded spreading will not apply and a H at the end of the first noun will simply undergo bounded spreading as seen in the example below.

- (64) Pààndé ná Kàpèèmbwá ‘Pande and Kapembwa’ /Pandé [p na Kapembwá/

### 9.7 Word-final Shortening: interaction with fusion and spread

As discussed in section 3.1.2, Cilungu exhibits compensatory lengthening when a high vowel glides before another vowel. What we have observed thus far is that when gliding takes place in a non-word final syllable, the following vowel is compensatorily lengthened (65), but when such gliding takes place in a word-final syllable, the vowel following the glide is generally short, whether this syllable is intonational phrase-final (66), or is followed by another word (67).)

- |      |                    |                  |                   |
|------|--------------------|------------------|-------------------|
| (65) | a. ú-kw-éél-à      | ‘to winnow’      | /ú-ku-el-a/       |
|      | b. ú-kw-ííz-à      | ‘to come’        | /ú-ku-iz-a/       |
| (66) | a. ú-kú-lw-á       | ‘to fight’       | /ú-ku-lu-a/       |
|      | b. ú-kú-zw-á       | ‘to bleed’       | /ú-ku-zu-a/       |
| (67) | a. ú-kú-lw-à ñìngó | ‘to fight well’  | /ú-ku-lu-a ñingó/ |
|      | b. ú-kú-zw-à sáàná | ‘to bleed a lot’ | /ú-ku-zu-a sáaná/ |

This shortening was accounted for by the rule below, first presented in §3.1.4.

- (68) Word-final Shortening

$$\begin{array}{c} \sigma w] \\ / \backslash \\ \mu \quad \mu \rightarrow \emptyset \end{array}$$

Let us now examine this word-final shortening process in greater detail.

There are two systematic exceptions to this process. First, when a word-final long vowel bears a Rising tone, then the vowel is not shortened, as a Rising tone cannot be borne by a short vowel in Cilungu. This can be seen clearly in imperatives formed with /CV/ roots. While the imperatives with H-toned roots surface as short (69), those with toneless /CV/ roots, which bear a rising tone, surface as long (70). (As described in §5.3.10, an imperative form (with no OM) take the MH on the FV only if the root is H, but a MH on V2-FV if the root is toneless.)

- |      |         |                 |        |
|------|---------|-----------------|--------|
| (69) | a. ly-á | ‘eat’           | /lí-á/ |
|      | b. sh-á | ‘leave’         | /sí-á/ |
|      | c. mw-á | ‘drink’         | /mú-á/ |
|      | d. zw-á | ‘make porridge’ | /zú-á/ |

(70)	a. sh-àá	‘grind’	/si-a +H/
	b. zw-àá	‘bleed’	/zu-a +H/
	c. lw-àá	‘fight’	/lu-a +H/
	d. y-àá	‘go’	/i-a +H/

The non-imperatives below exemplify the same phenomenon.

(71)	a. yàà-ngá-mú- <sup>1</sup> sh-á	‘they can leave him’	/ya-ngá-mu-sí-á/
	b. tw-áá-mú- <sup>1</sup> sh-á	‘we have just left him’	/tú-á-mu-sí-á/
	c. tú-lá- <sup>1</sup> sh-á	‘we will leave’	/tú-la-sí-a+H/
(72)	a. yàà-ngá-mú-sh-àá	‘they can grind him’	/ya-ngá-mu-si-á/
	b. tw-áá-mú-sh-àá	‘we have just ground him’	/tú-á-mu-si-á/
	c. tú-lá-sh-àá	‘we will grind’	/tú-la-si-a +H/

The examples below show that rising word-final Vs remain long even when non-phrase-final.

(73)	a. lw-àá níngó	‘fight well’	/lu-á níngó/
	b. sh-àá sáaná	‘grind a lot!’	/si-á sáaná/
	c. yàà-ngá-mú-sh-àá sáaná	‘they can grind him a lot’	/ya-ngá-mu-si-á sáaná/
	d. tw-áá-mú-sh-àá pò	‘we have just ground him’	/tú-á-mu-si-á pò/
	e. tú-lá-sh-àá pò	‘we will grind’	/tú-la-si-a +H pò/

The second exception can be seen when the phonology creates a word-final syllable with a falling tone from H to downstepped H. As noted above in §9.6 when such verbs are followed by an enclitic, word-final shortening will not apply and the fall surfaces on the long vowel as seen in (74). However, if the phonology creates a word-final ĆV́, then shortening is optional before the enclitic, but obligatory before another word as seen in (75).

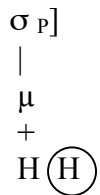
(74)	a. tùù-ngá-zw-á <sup>1</sup> á pò	‘we can bleed’	/tu-ngá-zu-á pò/
	b. tùù-ngá-sh-á <sup>1</sup> á pò	‘we can grind’	/tu-ngá-si-á pò/
	c. tw-áá-sh-á <sup>1</sup> á pò	‘we have just ground’	/tú-á-si-á pò/
(75)	a. tùù-ngá-sh-á(á) pò	‘we can leave’	/tu-ngá-sí-á pò/
	b. tw-áá-ly-á(á) pò	‘let us start eating’	/tú-a-lí-á pò/
	c. yá-kú- <sup>1</sup> sh-á(á) pò	‘they are leaving’	/yá-ku-sí-a pò/
	d. tw-áá-ly-á sáaná	‘let us start eating a lot’	/tú-a-lí-á sáaná/

When the phonology creates a word-final syllable with a falling tone from H to downstepped H and the verb is phrase-final, shortening will apply and the resulting monomoraic syllable cannot bear a contour tone. As seen below, such syllables surface as Low.

(76)	a. tùù-ngá-sh-à	‘we can grind’	/tu-ngá-si-á/
	b. tùù-ngá-yá-sh-à	‘we can grind them’	/tu-ngá-yá-si-á/
	c. tw-áá-sh-à	‘we have just ground (some)’	/tú-á-si-á/
	d. tú-lá- <sup>1</sup> yá-sh-à	‘we will grind’	/tú-la-si-a +H/
	e. tw-áà-mú-sh-à	‘we have already ground you (pl.)’	/tú-a-mú-si-a +H/
	f. tú-sh-à	‘and then we ground’	/tú-si-a +H/
	g. tú-yá-sh-à	‘and then we ground them’	/tú-yá-si-a +H/
	h. tú-sh-è	‘that we grind’	/tú-si-é/

As introduced in section 5.2.1, the rule which accounts for this is Pre Floating H Delinking, given below in (77) and illustrated in (78).

(77) Pre Floating H Delinking



(78) tu-nga-si-a U.R.



tu-nga-sh-aa Gliding, CL & Palatalization

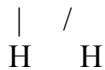


n/a Fusion (word)

tu-nga-sh-a Word-final Shortening



tu-nga-sh-a General Doubling



tu-nga-si-a Pre Floating H Delinking



Word-final Shortening removes the second mora of the word-final long syllable, after which General Doubling and Phrase-final Delinking apply.

The rule of Pre Floating H Delinking finds support in other structures as well. Consider the infinitival form of verbs with H-toned CV roots, an example of which is given below in (79c).

- |      |    |                         |                              |                |
|------|----|-------------------------|------------------------------|----------------|
| (79) | a. | ú-kú-sh-á               | ‘to grind, you are grinding’ | /ú-ku-si-a/    |
|      | b. | ú-kú- <sup>!</sup> sh-á | ‘you are leaving’            | /ú-ku-sí-a/    |
|      | c. | ú-kú-sh-à               | ‘to leave’                   | /ú-ku-sí-a +H/ |

As expressed in section 6.1, the infinitival form has a melodic H which docks onto the leftmost free mora. This results in the word-final syllable being linked to 2 H tones when the CV root is H-toned and this syllable ultimately surfaces as toneless. This is illustrated below.

- |      |               |                          |
|------|---------------|--------------------------|
| (80) | u-ku-si-a     | U.R.                     |
|      |               |                          |
|      | H   H   H     |                          |
|      | u-ku-sh-aa    | Gliding & CL             |
|      |               |                          |
|      | H         HH  |                          |
|      | n/a           | Fusion (word)            |
|      | u-ku-sh-a     | Word-final shortening    |
|      |               |                          |
|      | H         H H |                          |
|      | n/a           | Nominal MH Docking       |
|      | u-ku-sh-a     | General Doubling         |
|      | /             |                          |
|      | H         HH  |                          |
|      | u-ku-sh-a     | Pre Floating H Delinking |
|      | /             |                          |
|      | H       H H   |                          |

Let us now consider what happens when words such as those in (76) are followed by another word (and not an enclitic). In the examples in (81) a H-initial word follows, while in (82) a toneless-initial word follows.

- |      |    |  |                             |                        |
|------|----|--|-----------------------------|------------------------|
| (81) | a. | tù- <sup>!</sup> ngá-sh-á <sup>!</sup> sáaná               | ‘we can grind a lot’        | /tu-ngá-si-á sáaná/    |
|      | b. | tù- <sup>!</sup> ngá-yá-sh-á <sup>!</sup> sáaná            | ‘we can grind them well’    | /tu-ngá-yá-si-á sáaná/ |
|      | c. | tw-áá-sh-á <sup>!</sup> sáaná                              | ‘we have just ground a lot’ | /tú-á-si-á sáaná/      |
|      | d. | tú-lá- <sup>!</sup> yá-sh-á <sup>!</sup> sáaná             | ‘we will grind them a lot’  | /tú-la-si-a +H sáaná/  |
|      | e. | tú-sh-á <sup>!</sup> sáaná                                 | ‘and then we ground a lot’  | /tú-si-a +H sáaná/     |
|      | f. | ú-kú- <sup>!</sup> sh-á <sup>!</sup> móótó <sup>!</sup> ká | ‘to leave the car’          | /ú-ku-sí-a +H móotoká/ |
|      | g. | ú-kú- <sup>!</sup> ly-á <sup>!</sup> sáaná                 | ‘to eat a lot’              | /ú-ku-lí-a +H sáaná/   |

(82)	a. tú-sh-é nìngó	‘that we grind well’	/tú-si-é ningó/
	b. tw-áá-sh-á nìngó	‘we have just ground well’	/tú-á-si-á ningó/
	c. tùù-ngá-sh-á nìngó	‘we can grind well’	/tu-ngá-si-á ningó/
	d. yàà-ngá-sh-á Mùlèngà	‘they can grind Mulenga’	/ya-ngá-si-á Mulenga/
	e. ú-kú-sh-á Chòòlà	‘to leave a lot’	/ú-ku-sí-a +H Choola/
	f. ú-kú- <sup>1</sup> ly-á nìngó	‘to eat well’	/ú-ku-lí-a +H ningó/

Since the H on the final mora of the verb is not phrase-final, Phrase-final Delinking will not apply. This is illustrated in the derivations below.

(83)	a. tu-nga-si-a saana	b. tu-nga-si-a niingo	U.R.
	$\begin{array}{cccc}   &   &   &   \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array}$	$\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$	
	tu-nga-sh-aa saana	tu-nga-sh-aa niingo	Gliding & CL & Palatalization
	$\begin{array}{cccc}   &   &   &   \\ \text{H} & \text{H} & \text{H} & \text{H} \end{array}$	$\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$	
			Fusion (word)
	tu-nga-sh-a saana	tu-nga-sh-a niingo	Word-final Shortening
	$\begin{array}{cccc}   & &   &   \\ \text{H} & & \text{H} & \text{H} \end{array}$	$\begin{array}{ccc}   & &   \\ \text{H} & & \text{H} \end{array}$	
	n/a	n/a	Fusion (phrase)
	tu-nga-sh-a saana	tu-nga-sh-a niingo	General Doubling
	$\begin{array}{cccc}   & / &   &   \\ \text{H} & & \text{H} & \text{H} \end{array}$	$\begin{array}{ccc}   & / &   \\ \text{H} & & \text{H} \end{array}$	
	n/a	n/a	Pre Floating H Delinking

(84)	a.	u-ku-si-a saana	b.	u-ku-si-a niingo	U.R.
		 H    HH H    H		 H    H H    H	
		u-ku-sh-aa saana		u-ku-sh-aa niingo	Gliding, CL & Palatalization
		 H        HH H    H		 H        HH    H	
		n/a		n/a	Fusion (word)
		u-ku-sh-a saana		u-ku-sh-a niingo	Word-final Shortening
		 H        HH H    H		 H        HH    H	
		n/a		n/a	MH Docking
					Fusion (phrase)
		u-ku-sh-a saana		u-ku-sh-a niingo	General Doubling
		/                 H        HHH H		/           H        HH    H	
		n/a		n/a	Pre Floating H Delinking

The nominal MH never fuses with an immediately preceding H since it is ordered after Fusion (word). And as seen in (84) the H on a H-toned CV root will not fuse with a H in the following word when the floating MH intervenes. This contrasts with the behavior of the verbal MH (presented in §5.2 and §5.3), as seen below.

(85)	a.	tùù-ngá-sh-á	‘we can leave’	/tu-ngá-sí-á/
	b.	tùù-ngá-lás-á	‘we can hit’	/tu-ngá-lás-á/
	c.	tùù-ngá-yá-lás-á	‘we can hit them’	/tu-ngá-yá-lás-á/
(86)	a.	tùù-ngá-sh-á sáaná	‘we can leave a lot’	/tu-ngá-sí-á sáaná/
	b.	tùù-ngá-lás-á móótó <sup>1</sup> ká	‘we can hit the car’	/tu-ngá-lás-á móotoká/
	c.	tùù-ngá-yá-lás-á sáaná	‘we can hit them a lot’	/tu-ngá-yá-lás-á sáaná/

The derivation of (85a) and (86a) are provided below.

(87)	a.	tu-nga-si-a       H HH	b.	tu-nga-si-a saana           H HH H H	U.R. + Verbal MH Docking
		tu-nga-sh-aa       H HH		tu-nga-sh-aa saana           H HH H H	Gliding, CL & Palat
		tu-nga-sh-aa     H H		tu-nga-sh-aa saana \   H H H	Fusion (word)
		tu-nga-sh-a     H H		tu-nga-sh-a saana \ /     H H H	Word-final Shortening
		tu-nga-sh-a     H H		tu-nga-sh- a saana       H H H	Fusion (phrase)

By ordering Word-final Shortening after Fusion (word), but before Fusion (phrase) we account for the fact that in forms like those above Word-final Shortening does not produce a floating H which would block the phrase-level Fusion rule.

While these rules in this order make correct predictions for all the forms examined to this point, let us now consider the forms below, where the high vowel in the verb-final syllable is not a root vowel, but rather an extension.

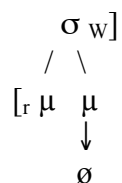
(88)	a.	yàà-ngá-lúm-w-á	‘they can be bitten’	/ya-ngá-lúm-u-á/
	b.	yàà-ngá-lém-w-á	‘they can be planted’	/ya-ngá-lém-u-á/
	c.	yáá-lúm-w-á	‘they have just been bitten’	/yá-á-lúm-u-á/
	d.	tùù-ng-áázw-á	‘we can help’	/tu-ngá-ázu-á/
(89)	a.	tùù-ngá-kúz-y-á	‘we can raise’	/tu-ngá-kúl-ì-á/
	b.	tùù-ngá-písh-á	‘we can drive’	/tu-ngá-pít-ì-á/
	c.	tw-áá-kúz-y-á	‘we have just raised’	/tu-á-kúl-ì-á/

Given our current rules and ordering, these forms will be incorrectly predicted to surface with a word-final Low (cf. (78)) as seen below in the derivation of (88a).

(90)	ya-nga-lum-u-a       H H H	U.R.
	ya-nga-lum-w-aa       H H H	Gliding & CL
	ya-nga-lum-w-aa \ /   H H	Fusion (word)
	ya-nga-lum-w-a \   H H	Word-final Shortening
	ya-nga-lum-w-a \ / / H H	General Doubling
	ya-nga-lum-w-a \ / H H	Phrase-final Delinking
	*yàà-ngá-lúm-w-à	

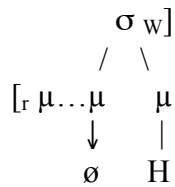
To account for this, I propose that there are in fact two separate Word-final Shortening rules. One shortens a word-final syllable which contains a root-initial mora (e.g. the examples preceding (88) where the stem is composed of a CV root + FV), and one shortens a word-final syllable which contains a non-root-initial mora ((88)-(89)). Each rule differs from the other in two important respects. First, the former rule must apply before Fusion (see (83),(84)), while the latter rule will be shown immediately below to apply after Fusion. Second, the former rule always deletes the second of the two tautosyllabic morae, while this is not true of the latter, as it must delete the first mora in (88)-(89). These two rules are formalized in (91) and (92) and are then contrasted in my proposed derivations of (88a) and (76a):

(91) Word-final Shortening (root-initial)





(92) Word-final Shortening (non-root-initial)



(93)	$  \begin{array}{c}  \text{ya-nga-lum-u-a} \\    \quad   \quad   \\  H \quad H \quad H  \end{array}  $	$  \begin{array}{c}  \text{tu-nga-si-a} \\    \quad   \\  H \quad H  \end{array}  $	U.R.
	$  \begin{array}{c}  \text{yaa-nga-lum-w-aa} \\    \quad   \quad   \\  H \quad H \quad H  \end{array}  $	$  \begin{array}{c}  \text{tuu-nga-sh-aa} \\    \quad   \\  H \quad H  \end{array}  $	Gliding, Nas Dem, CL & Palatalization
	$  \begin{array}{c}  \text{yaa-nga-lum-w-a} \\    \quad   \quad   \\  H \quad H \quad H  \end{array}  $	n/a	Word-final Shortening (non-root-initial)
	$  \begin{array}{c}  \text{yaa-nga-lum-w-a} \\  \backslash \quad   \quad / \\  \quad H  \end{array}  $	n/a	Fusion (word)
		$  \begin{array}{c}  \text{tuu-nga-sh-a} \\    \\  H \quad H  \end{array}  $	Word-final Shortening (root mora)
		$  \begin{array}{c}  \text{tuu-nga-sh-a} \\    \quad / \\  H \quad H  \end{array}  $	General Doubling
		$  \begin{array}{c}  \text{tuu-nga-sh-a} \\    \\  H \quad H  \end{array}  $	Phrase-final Delinking
	yàà-ngá-lúm-w-á	tùù-ngá-sh-à	

The reason that the H is included on the second mora in (92) is that, when the the non-root-initial mora is involved, if both morae are toneless then it is the second mora which is deleted as shown in §5.1.1.3 which accounts for unbounded spreading onto the word-final TBU in cases where a high vowel glides in the word-final syllable. Thus, to generalize across all cases of Word-final Shortening: when the first mora of the word-final syllable is the sole root mora, then the second mora is deleted; otherwise, a toneless mora is deleted in preference to a H-toned mora; otherwise the rightmost mora is deleted.

Finally, let us consider data where the syllable that shortens is underlyingly /á-a/.

- (94)
- |    |                      |                                    |                       |
|----|----------------------|------------------------------------|-----------------------|
| a. | yá-kú-'sh-á sáàná    | 'they are leaving a lot'           | /yá-ku-sí-a sáaná/    |
| b. | yá-kú-'sh-á móótó'ká | 'they are leaving the car'         | /yá-ku-sí-a mótoká/   |
| c. | mú-kú-'yá-sh-á sáàná | 'you (pl.) are leaving them a lot' | /yá-ku-mú-sí-a sáaná/ |
| d. | à-kú-'yá-ly-á sáàná  | 'he is eating them a lot'          | /á-ku-yá-ly-á sáaná/  |

As can be seen, the H on the CV roots fuses with the H on the first mora of the following word. The rule in (91) which removes the second mora when the root-initial mora is part of the final syllable makes the correct prediction in these forms as seen in the derivation below.

- (95)
- |   |                                  |   |   |   |   |   |   |   |   |   |  |
|---|----------------------------------|---|---|---|---|---|---|---|---|---|--|
| ya-ku-sí-a saana  | U.R.                             |   |   |   |   |   |   |   |   |   |  |
| <table border="0"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td>H</td><td>H</td><td>H</td><td>H</td></tr> </table>                     |                                  |   |   |   | H | H | H | H |   |   |  |
|   |                                  |   |   |   |   |   |   |   |   |   |  |
| H   | H                                | H | H |   |   |   |   |   |   |   |  |
| ya-ku-sh-aa saana   | Gliding, CL & Palatallization    |   |   |   |   |   |   |   |   |   |  |
| <table border="0"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td>H</td><td>H</td><td>H</td><td>H</td></tr> </table>                     |                                  |   |   |   | H | H | H | H |   |   |  |
|   |                                  |   |   |   |   |   |   |   |   |   |  |
| H   | H                                | H | H |   |   |   |   |   |   |   |  |
|   | Word-final Shortening (non-root) |   |   |   |   |   |   |   |   |   |  |
|   | Fusion (word)                    |   |   |   |   |   |   |   |   |   |  |
| ya-ku-sh-a saana  | Word-final Shortening (root)     |   |   |   |   |   |   |   |   |   |  |
| <table border="0"> <tr><td> </td><td> </td><td> </td><td> </td></tr> <tr><td>H</td><td>H</td><td>H</td><td>H</td></tr> </table>                     |                                  |   |   |   | H | H | H | H |   |   |  |
|   |                                  |   |   |   |   |   |   |   |   |   |  |
| H   | H                                | H | H |   |   |   |   |   |   |   |  |
| ya-ku-sh-a saana  | Fusion (phrase)                  |   |   |   |   |   |   |   |   |   |  |
| <table border="0"> <tr><td> </td><td>\</td><td>/</td><td> </td></tr> <tr><td>H</td><td>H</td><td>H</td><td>H</td></tr> </table>                     |                                  | \ | / |   | H | H | H | H |   |   |  |
|   | \                                | / |   |   |   |   |   |   |   |   |  |
| H   | H                                | H | H |   |   |   |   |   |   |   |  |
| ya-ku-sh-a saana  | General Doubling                 |   |   |   |   |   |   |   |   |   |  |
| <table border="0"> <tr><td> </td><td>/</td><td>\</td><td>/</td><td> </td></tr> <tr><td>H</td><td>H</td><td>H</td><td>H</td><td>H</td></tr> </table> |                                  | / | \ | / |   | H | H | H | H | H |  |
|   | /                                | \ | / |   |   |   |   |   |   |   |  |
| H   | H                                | H | H | H |   |   |   |   |   |   |  |

To summarize, there is evidence in Cilungu for positing two different Word-final Shortening rules. The first applies to a word-final syllable which does not contain a root mora and the second applies to a word-final syllable which contains a root mora. The Fusion (word) rule must be ordered between them, whereas the Fusion (phrase) rule is ordered after both.

## 9.8 Associative Phrases

As mentioned in section 2.1.2, the possessor in an associative construction in Cilungu is expressed by a possessor noun with no preprefix. (The presence of the preprefix on the possessed noun will depend on the definiteness being expressed.)

- (96) a. ú-mú-lòmò w-áá mú-<sup>1</sup>ká<sup>1</sup>zyáánà ‘the girl’s mouth’  
 b. í-cí-<sup>1</sup>ló<sup>1</sup>ótó ch-áá mú-límì ‘the farmer’s dream’  
 c. ú-mú-pèní w-áá mú-<sup>1</sup>lú<sup>1</sup>mééndò ‘the boy’s knife’  
 d. í-n-gá<sup>1</sup>lá zy-áá mú-límì ‘the farmer’s fingernails’

The general structure of possessive phrases is given in (97).

- (97) NP + Assoc Agreement-a + NP (without preprefix)

Both segmentally and tonally, the associative agreement prefixes are identical to the subject prefixes given in section 2.2.1.<sup>2</sup> For convenience they are repeated below, along with their segmental realization before the associative /a/.

(98) Possessive Agreement Prefixes

Class	Prefix	Prefix + a
1	u-	w-aa
1a	u-	w-aa
2	yá	ya-a
2a	yá-	ya-a
3	ú-	w-aa
4	i-	y-aa
5	lí-	ly-aa
5a	lí-	ly-aa
6	yá-	ya-a
7	cí-	c-aa
8	ví-	vy-aa
9	i-	y-aa
10	zí-	zy-aa
11	lú-	lw-aa
12	ká-	ka-a
13	tú-	tw-aa
14	ú-	w-aa
15	kú-	kw-aa
16	pá-	pa-a
17	kú-	kw-aa
18	mú-	mw-aa

As was the case with the subject markers, class 1, 4 and 9 are toneless while all other agreement prefixes are High.

The URs of the personal possessive form stems are given in (99) and representative examples are given below.

<sup>2</sup> I note that the table in §2.2.1 shows the class 1 (3 sg.) SM to be /u-/ or /a-/. It is generally /u-/ before a following /a/, consistent with the fact that the class 1 associative prefix is invariably /u-/, as it always precedes /a/.

(99) URs of personal pronominal possessive stems <sup>3</sup>

-a-né 'my'	-a-ítú 'our'
-a-kó 'your (sg.)'	-a-inú 'your (pl.)'
-a-kúe 'his/her'	-a-bó 'their'

- (100) a. ú-mw-éènyì w-àà-né 'my guest' /ú-mu-eñi u-a-né/  
b. ú-mw-éènyì w-àà-kó 'your (sg.) guest' /ú-mu-eñi u-a-kó/  
c. ú-mw-éènyì w-àà-kwé 'his guest' /ú-mu-eñi u-a-kúe/  
d. ú-mw-éènyì w-ìtú 'our guest' /ú-mu-eñi u-a-ítú/  
e. ú-mw-éènyì w-ìnú 'your (pl.) guest' /ú-mu-eñi u-a-inú/  
f. ú-mw-éènyì w-àà-bó 'their guest' /ú-mu-eñi u-a-bó/
- (101) a. í-vii-ntù vy-áá-nè 'my thing' /í-vi-ntu vi-a-né/  
b. í-vii-ntù vy-áá-kò 'your (sg.) thing' /í-vi-ntu vi-a-kó/  
c. í-vii-ntù vy-áá-kwè 'his thing' /í-vi-ntu vi-a-kúe/  
d. í-vii-ntù ví-ítú 'our thing' /í-vi-ntu vi-a-ítú/  
e. í-vii-ntù ví-inú 'your (pl.) thing' /í-vi-ntu vi-a-inú/  
f. í-vii-ntù vy-áá-ò 'their guest' /í-vi-ntu vi-a-bó/

It should be noted that whenever a class 1a/2a noun is used as the possessor (including any proper noun) the personal pronominal possessive stem must be present.

- (102) a. mùkòló w-àà-kwé Múlééngà 'Mulenga's hoe' (\*mukolo w-aa Muleenga)  
b. ú-mú-lòmò w-àà-kwé cùulá 'the frog's mouth' (\*u-mu-lomo w-aa cuula)  
c. í-vii-ntù vy-áá-kwé mùlámù 'the bro-in-law's things' (\*i-vi-ntu vy-aa mulamu)

Having briefly described the morpho-syntax of associative phrases, let us now turn to their tonology. We begin with associative phrases where the possessed NP is toneless.

- (103) a. yèèmbà w-àà mùlimì 'the farmer's lake' /yemba u-a- mu-limi/  
b. mùùnjìlì w-àà mùlimì 'the farmer's warthog' /munjili u-a mu-limi/
- (104) mùùnjìlì w-àà mùlámù 'the bro-in-law's warthog' /munjili u-a mulámu/

In (103) we see phrases containing no H tone either underlyingly or on the surface. In (104) the possessor noun has a High. These diagnose both the class 1 associative agreement marker /u-/ as well as the associative morpheme itself /a/ as underlyingly toneless.

Next, let us turn to cases where the possessed noun has a single H on its preprefix. In (105) the phrases begin with nouns which have toneless associative agreement prefixes (i.e. classes 1, 4, 9), while in (106) the phrases begin with nouns which have H-toned associative agreement prefixes.

<sup>3</sup> There is a general phonological process by which /a/ deletes before another vowel (§3.1.1), something which will apply in the 1 pl. and 2 pl. forms.

- (105) a. í-mí-lyààngò y-àà mù-lìmi 'the farmer's doorways' /i-mi-liango i-a mu-limi/  
 b. í-mí-tì y-àà mù-lìmi 'the farmer's trees' /i-mi-ti i-a mu-limi/  
 c. í-n-tólómilò y-àà mù-kázyáána 'the girl's windpipe' /i-n-tolomilo i-a mu-káziana +H/  
 d. í-n-dá y-àà-mù-lúmééndò 'the boy's stomach' /i-n-da i-a mu-lúmendo +H/  
 e. ú-mú-lìmi w-àà mw-àána 'the child's farmer' /ú-mu-limi u-a mu-ána/
- (106) a. í-n-gálà zy-áá mú-lìmi 'the farmer's crowns' /i-n-gala zí-a mu-limi/  
 b. á-á-lìmi y-áá múú-ntù 'the person's farmers' /á-ba-limi yá-a mu-ntu/  
 c. ú-kú-sh-à kw-áá mú-lìmi 'the farmer's grinding' /ú-ku-si-a kú-a mu-limi/  
 d. ú-mú-lòmò w-áá cí-ùùngú 'the caterpillar's mouth' /ú-mu-lomo ú-a cí-bungú/  
 e. ú-mú-lòmò w-áá mù-kázyáána 'the girl's mouth' /ú-mu-lomo ú-a mu-káziana +H/

In each case in (105) the H on the preprefix of the possessed noun undergoes binary spreading. This is directly accounted for by our rules if we define these associative phrases as containing elements which belong to a single phonological phrase. Since the preprefix H is not both the rightmost H in the word as well as the phonological phrase, then it will undergo binary rather than unbounded spreading.

The examples in (106) show that the H on the associative agreement prefix can spread into the following word. If there are no other H tones in the possessor noun (106a-c), then the H will spread in an unbounded fashion to the penult. This is predicted by our analysis where a H undergoes bounded spreading first and then if the rightmost link of the H is in the final word of the phonological phrase and no H's follow, then it undergoes unbounded spreading (§9.4). If there is an H in the noun stem, then the H on the associative agreement prefix undergoes bounded spreading (106d-e).

Next let us consider associative phrases where the possessed noun has a H tone in the stem. We begin with nouns where the stem-final TBU is H-toned.

- (107) a. cìpùzí w-áá mú-lìmi 'the farmer's pumpkin' /cipuzí u-a mu-limi/  
 b. í-n-<sup>l</sup>dá y-áá mú-lìmi 'the farmer's louse' /i-n-dá i-a mu-limi/  
 c. í-mí-pèní y-áá mú-lìmi 'the farmer's knives' /i-mi-pení i-a mu-limi/  
 d. móótó<sup>l</sup>ká w-áá-mú-lìmi 'the farmer's car' /móotoká u-a mu-limi/
- (108) a. cìpùzí w-àà mù-lìmi mù-sùamá 'the good farmer's pumpkin' /cipuzí u-a mu-limi mu-sumá/  
 b. í-mí-pèní y-àà mù-lúmééndò 'the boy's knives' /i-mi-pení i-a mu-lúmendo +H/  
 c. ú-mú-pèní w-áá mú-lìmi 'the farmer's knife' /ú-mi-pení ú-a mu-limi/  
 d. ú-mú-pèní w-áá mù-lúmééndò 'the boy's knife' /ú-mi-pení ú-a mu-lúmendo +H/

In (107) the H on the stem-final TBU of the possessed noun undergoes unbounded spreading to the end of the phrase. Our analysis predicts that the H should spread onto the initial TBU of the following word via General Doubling, which in this case is the associative /a/ preceded by the agreement prefix. But if this element is a free-standing word, then we would predict the spreading of the H to not proceed any further—yet it does. The account I propose for the above forms is the same one I proposed for the very same tonal patterns found in the conjunctive phrases in (63) and (64). The unit comprised of the agreement prefix plus the associative /a/ is a pro-clitic to the following noun. This finds support in the fact that this small unit cannot stand on its own but is always pronounced in conjunction with a following word. We then refine the generalization about unbounded spreading to operate within the clitic group, rather than the phonological word, i.e. after binary spreading takes place, if the rightmost TBU to which the H is linked is in the phrase-final clitic group and no other H follows,

then that H will undergo unbounded spreading (to the ultima if the clitic group is phonological phrase-final, and to the penult if it is intonational phrase-final).

In (108a) the H on the word-final TBU of the possessed noun undergoes binary spreading since the clitic group it has spread to is not phonological phase-final. This word-final H undergoes binary spreading in (108b) since another H follows in the clitic group. In (108c-d) the word-final H fuses with the H on the associative agreement prefix. This H undergoes unbounded spreading in (108c) and bounded spreading in (108d).

Let us now consider associative phrases where the H in the possessed noun is stem-initial. We begin with cases where both the associative agreement prefix as well as the possessor are toneless.

- (109) a. í-n-ká'ándá y-àà mù-lìmi 'the farmer's skin' /i-n-kánda+H i-a mu-limi/  
 b. ú-mw-á'ána w-àà mù-lìmi 'the farmer's child' /ú-mu-ána +H u-a mu-limi/  
 c. ú-mú-'lú'mééndó w-àà mù-lìmi 'the farmer's boy' /ú-mu-lúmendo+H u-a mu-limi/  
 d. ú-mú-'ká'zyáána w-àà mù-lìmi 'the farmer's girl' /ú-mu-káziana +H u-a mu-limi/

In each case the nominal MH undergoes unbounded spreading to the end of the noun. This, it will be recalled, is the exact same pattern we saw when these nouns were followed by an adjective (§7.2).

Now let us consider cases like those above, but where the associative agreement prefix is H-toned.

- (110) a. á-á-'lú'mééndó 'y-áá mú-lìmi 'the farmer's boys' /á-a-lúmendo+H yá-a mu-limi/  
 b. í-kó'kólá 'ly-áá mú-lìmi 'the farmer's knee' /i-kókola+H lí-a mu-limi/  
 c. í-cí-'ló'ótó 'c-áá mú-lìmi 'the farmer's dream' /i-ci-lóoto+H cí-a mu-limi/  
 (111) a. ú-mú-'cé'lé w-áá mú-lìmi 'the farmer's salt' /ú-mu-céle +H ú-a mu-limi/  
 b. ú-mú-'sá'ná w-áá mú-lìmi 'the farmer's waist' /ú-mu-sána+H ú-a mu-limi/

In the examples in (110) the nominal MH in the stem of the possessed noun spreads to the end of the noun causing a downstep before the initial H of the following word. In (111) the nominal MH docks onto the word-final TBU and then fuses with the following H. Again, these are the same patterns we found in noun – adjective phrases.

Next let us turn to cases where the H in the noun is stem-medial. We noted in section 7.2.4 that when such nouns are followed by adjectives the H in the noun is realized on the second and subsequent TBUs of the stem. The rule of General Doubling then spreads the H onto a toneless initial TBU of the following word. (The rule of Unbounded Spreading would then continue the spreading if the word following the noun was toneless and phrase-final.) This same pattern is evident in associative phrases as seen below.

- (112) a. í-n-siindáánó y-áá mú-lìmi 'the farmer's needle' /i-n-sindáno i-a mu-limi/  
 b. í-mí-sùúzu y-áá mú-lìmi 'the farmer's hens' /i-mi-suúzu i-a mu-limi/  
 c. mùlámú w-áá mú-lìmi 'the farmer's bro-in-law' /mulámu u-a mu-limi/  
 d. mùsátó w-áá mú-lìmi 'the farmer's python' /musáto u-a mu-limi/  
 e. mùsátó w-àà mù-lìmi mù-sù má 'the good farmer's python' /musáto u-a mu-limi mu-sumá/

Let us now consider what happens when the associative prefix in the word following the noun is H-toned.

- (113) a. í-n-kòòngólé zy-áá mú-lìmi 'the farmer's debts' /i-n-kongóle zí-a mu-limi/  
 b. yàà-mùsátó yá-á mú-lìmi 'the farmer's pythons' /yaa-musáto yá-a mu-limi/  
 c. yàà-mùlámú y-áá mú-lìmi 'the farmer's bros-in-law' /yaa-mulámu yá-a mu-limi/

In each case the H in the noun and the H on the associative prefix fuse. In §7.2.4 two possible analyses were presented to account for the fact that the medial H in the noun spread onto a initial toneless TBU in the following word. In one account the nominal H docked onto the stem-final TBU of the noun and spread leftward to the peninitial mora. This would be followed by General Doubling which could spread this H into the following word. In the second account, the H on the stem-medial TBU is present underlyingly and a new rule of unbounded rightward spreading would target a stem-medial H and spread it to the stem-final TBU. This rule would also need to precede General Doubling. What the forms in (113) make clear is that either the docking and leftward spreading of the first analysis or the unbounded spreading of the second analysis must precede Fusion (phrase).

When the possessed noun is modified by an adjective, then a H-toned preprefix is added to the associative agreement clitic, as seen below.<sup>4</sup>

- (114) a. í-cíi-ntù cì-sùm í-càà mù-lìmi ‘the farmer’s good thing’ /í-ci-ntu ci-sumá í-ci-a mu-limi/  
 b. ú-mú-lìmi mù-sùm ú-wàà mù-ntù ‘the person’s good farmer’ /ú-mu-limi mu-sumá ú-u-a mu-ntu/

Just as was true with plain nouns and adjectives, associative phrases can be made into copulatives (§7.7). This is accomplished by adding /a-/ before the preprefix. The rule of Pre-Stem Shortening will shorten the preprefix by removing the second mora whenever more than three morae follow within the clitic group. This is illustrated below.<sup>5</sup>

- (115) a. í-cíi-ntù ì-c-àà mù-lìmi ‘the thing is the farmer’s’ /í-ci-ntu a-í-ci-a mu-limi/  
 b. ú-mú-lìmi ù-w-àà mù-ntù ‘the farmer is the person’s’ /ú-mu-limi a-ú-u-a mu-ntu/  
 c. í-tààngá ì-ly-àà mù-lìmi ‘the cattle-pen is the farmer’s’ /í-tangá a-í-li-a mu-limi/  
 d. ì-vyàà mù-lìmi ‘they (C8) is the farmer’s’ /a-í-ci-a mu-limi/  
 e. ù-wàà mù-lìmi ‘he/she (C1) is the farmer’s’ /a-ú-u-a mu-limi/

The forms in (115d-e) show that the presence of a subject NP before the copulative associative word is optional.<sup>6</sup> The mora on the preprefix ultimately deletes resulting in a word-initial Low, signaling the copulative, exactly as it did in nouns and adjectives (§7.7), two examples of which are shown below.

- (116) a. á-má-pápíkò ‘wings’ /á-ma-papiko/  
 b. à-má-pápíkò ‘they are wings’ /a-á-ma-papiko/  
 c. cì-tifi ‘black’ (C7) /ci-tifi/  
 d. ì-cí-tifi ‘it (C7) is black’ /a-í-ci-tifi/

<sup>4</sup> The reason for which the H on the preprefix on the associative unit does not undergo unbounded spreading into the possessor noun is discussed immediately below.

<sup>5</sup> In every case the preprefix added is simply the vowel of the associative agreement prefix shown in the table in (98). However, for classes 2 and 6, when the preprefix /a-/ is added to the associative agreement prefix /ya-/, the /y/ in the latter prefix is not realized. E.g. á-má-zèngò à-á-à mù-lìmi ‘the farmer’s poles’ (< /á-ma-zengo á-ya-a mu-limi/). This avoidance of [a-ya] was also seen in double adjective constructions in §7.1.

<sup>6</sup> If the preprefix is not present, then the meaning is possessive, but not copulative. E.g. cáà mù-lìmi ‘the farmer’s (C7)’, w-àà mù-lìmi ‘the farmer’s (C1)’

The H on the preprefix of the possessed noun in (115a-b) undergoes unbounded spreading to the penult. This is somewhat surprising. In other examples presented above, the subject and a following verb were shown to be members of different phonological phrases, but part of the same intonational phrase (cf. (12a)). Were this the case in the forms in (115) we would expect the H of the preprefix of the possessed noun to spread to the ultima (as it did in (12a)), but instead it spreads to the penult. This means that the subject and following copulative word must be in separate intonational phrases. This is actually confirmed by the tonology of (115c). In the case of a normal subject verb sentence, a H at the end of a subject will spread onto the following verb, as we saw in (24), as both are part of the same intonational phrase. But the H on the final TBU of the possessed noun in (115c) does not spread, again suggesting that there is an intonational phrase boundary separating the two words, as this was shown to be the boundary over which an H would not undergo General Doubling (cf. (25)).

In the case of the copulative forms of the noun and adjective in (116b,d), the H on the preprefix of the associative unit will spread in an unbounded fashion after which it delinks from the word-initial TBU via Pre-Stem Shortening. But looking back at the copulative phrases in (115) the H on the preprefix (of the possessor noun) does not undergo unbounded spreading, as it did in the forms in (116), rather it has only undergone binary spreading. Why?

One way to account for this is to posit a floating H in the underlying representation of the associative morpheme /a/. This would mean that the H on the preprefix in forms such as those in (115) would no longer be the rightmost H in the phrase-final word, and therefore bounded and not unbounded spreading would result. This is illustrated below for (115d).

(117)	a- i-vi-a mu-limi	U.R.
	H H	
	i -i-vy-aa mu-limi	VD, Gliding, & CL
	H H	
	i-i-vy-aa mu-limi	General Doubling
	/	
	H H	
	n/a	Unbounded Spreading
	i-vy-aa mu-limi	Pre-Stem Shortening
	H H	

Since unbounded spreading only targets the rightmost H in a word, it will not apply to the preprefix H in this case. Of course, we must make sure that positing a floating H on the associative morpheme does not make incorrect predictions in other forms. We examine two cases below ((107a) & (106a)), where a H undergoes unbounded spreading to the penult of the phrase. (In the final line of the derivation below, the parenthesized H signals that it is floating.)



(118) a.	cipuzi u-a mu-limi	b.	i-n-gala zi -a mu-limi	U.R
	 H H		 H H H	
	cipuzi w-aa mu-limi		i-n-gala zy-aa mu-limi	Nasal Demor, Gliding & CL
	 H H		 H H H	
	cipuzi w-aa mu-limi		i-n-gala zy-aa mu-limi	General Doubling
	/ H H		/   H H H	
	cipuzi w-aa mu-limi		i-n-gala zy-aa mu-limi	Unbounded Spreading
	// / / H (H)		/   / / H H (H)	

In example (118a) General Doubling spreads the word-final H onto the first (toneless) TBU of the following word. We know from the cases discussed in (22) that a MH, having spread onto the initial TBU of a following word, will then undergo unbounded spreading. Of course in the forms in (22), the word following the verb was completely toneless, whereas in (118a) the clitic group following the possessed noun has, on this analysis, a floating H. If this analysis is correct then the generalization seems to be that while a floating H will block a non-macrostem H from undergoing unbounded spreading, it will not block a macrostem H from doing so. In (118b) it is the H on the associative agreement prefix which undergoes unbounded spreading, even though a floating H follows. To account for this we must either admit this agreement prefix into the domain of the macrostem or posit a rule (ordered before General Doubling) which deletes the floating H on the associative morpheme, when it is immediately preceded by a H-toned TBU, something which would delete the floating H in (118a) and (118b), but (crucially) not in (117). I must leave this as an open question.

## 9.9 Non-tonal rules applying within units larger than a phonological word

In section 7.8.2, we saw that when a verb (which will always end in a vowel) is immediately followed by a noun which begins with a vowel, the first vowel deletes and the second is compensatorily lengthened. Then, the second mora of the long V deletes (by Pre-Stem Shortening) if it is followed by more than two morae in the stem.

(119) a.	tú-kú-lòl ùú-mú-tì ù-sù má	‘we are seeing the good tree’	/tú-ku-lol-a ú-mu-ti u-sumá/
b.	tú-kú-fùl ù-mú-ntù	‘we are washing the person’	/tú-ku-ful-a ú-mu-ntu/
c.	tú-kú-fùl ù-mú-lómò	‘we are washing the mouth’	/tú-ku-ful-a ú-mu-lomo/
d.	tú-lól 'ù-mú-límì	‘that we see the farmer’	/tú-lol-é ú-mu-limi/

As seen below the preprefix will surface as short, if followed by more than two morae, even when there is a sequence of three underlying morae between the two words.

(120)	tú-kú-s ì-ví-ntù	‘we are grinding the things’	/tú-ku-si-a í-vi-ntu/
-------	------------------	------------------------------	-----------------------

The preprefix exhibits the same behavior when it is preceded by a clitic—whether it be a proclitic, such as /na/, or an enclitic on the previous word, such as /pó/.

- (121) a. yá-kú-fùl-à p ùú-mú-tì ‘they are washing the tree (loc.)’ /yá-ku-ful-a pó ú-mu-ti/  
 b. à-là-fùl-il-á p ú-<sup>l</sup>mú-límì ‘he/she will wash for the farmer (loc.)’ /a-la-ful-il-a +H pó ú-mu-limi/
- (122) a. Chòòlà n ùú-mú-tì ‘Chola and the tree’ /Choola na ú-mu-ti/  
 b. Pààndé n ú-<sup>l</sup>mú-límì ‘Pande and the farmer’ /Pandé na ú-mu-limi/

In section 9.8, we provided evidence that the associative unit (agreement prefix plus /a/) behaved like a clitic and that it always surfaces as long.

- (123) a. í-n-gálà zy-áá mú-límì ‘the farmer’s crowns’ /i-n-gala zí-a mu-limi/  
 b. mùnjìlì w-àà mùlímì ‘the farmer’s warthog’ /munjili u-a mu-limi/  
 c. yàà-cààngà y-áá mú-límì ‘the farmer’s squirrels’ /yaa-canga yá-a mu-limi/

This shows that the process of Final Shortening discussed in section 9.7 above must have as its domain, the clitic group.

Let us conclude this section by examining what happens to other VV sequences which occur over a word boundary. The examples presented in section 7.8.2 (a sample of which were given in (119)) are quite limited in two ways. First, as we have shown above the verb and a following object will be members of the same phonological phrase. But will shortening still occur if the two adjacent words are part of separate phonological phrases? Next, the first vowel in each underlying (inter-word) cluster is either /a/ or /e/ (the two possible Final Vowels in Cilungu). Each of these completely assimilates to the following vowel (which is subsequently deleted), but would a different vowel (i.e. /i/, /u/) behave the same way?

The first thing to note is that the V1-V2 sequences found at the juncture between two consecutive words do not exemplify all 25 logical possibilities, given the 5 phonemic vowels of Cilungu. This is because, while a noun or adjective, e.g. can end in any of the 5 vowels, all verbs, nouns and adjectives will begin with one of only three vowels /i/, /u/ or /a/. The environments which I tested needed to consist of a noun followed by another word. Four types of phrases where this is true are 1) noun – adjective, 2) noun – demonstrative, 3) subject noun – verb and 4) two NP objects (which follow a verb, of course). While the phrases described in 1) and 2) constitute a single phonological phrase, the phrases in 3) and 4) contain words which straddle a phonological phrase boundary.

While vowel deletion in verb – noun sequences like those in (119) is obligatory, we find in general that the deletion or gliding of the first vowel in most other cases is quite variable. It can occur both within and across phonological phrases and is highly dependent on speech rate, being more likely to occur in rapid speech and less likely to occur in slower speech.

If the first underlying vowel in the sequence is /a/ or /e/, then when deletion occurs it is the second vowel which surfaces. This is shown below.

(124) Underlying /a + V/

- |    |  |  |
|----|--|--|
| a. | ú-mú- <sup>1</sup> sá'n úú- <sup>1</sup> kúlù<br>/ú-mu-sána +H u-kúlu/                           | ‘big waist’                                  |
| b. | yá-lá-fùl-il-á Múlééng í- <sup>1</sup> víi-ntù<br>/yá-la-ful-il-a +H Mulenga í-vi-ntu/           | ‘they will wash the things for Mulenga’      |
| c. | yá-kú- <sup>1</sup> pé-él ù-mw-á'án í- <sup>1</sup> víi-ntù<br>/yá-ku-pé-il-a ú-mu-ána í-vi-ntu/ | ‘they are giving the things to the children’ |
| d. | yá-kú- <sup>1</sup> pé-él-á Chòòl ù-mw-á'ánà<br>/yá-ku-pé-il-a Choola ú-mu-ána/                  | ‘they are giving the child to Chola’         |

(125) Underlying /e + V/

- |    |   |   |
|----|---|---|
| a. | ú-mú- <sup>1</sup> tóowáàn á- <sup>1</sup> kú-fúl-à<br>/ú-mu-tóowaané á-ku-ful-a/                         | ‘the sibling is washing’                    |
| b. | ú-mw-èènyì w-àà-n á- <sup>1</sup> kú-fúl-à<br>/ú-mu-enyi u-a-né á-ku-ful-a/                               | ‘my guest is washing’                       |
| c. | í-m-péléémb ì-kú-fúl-w-á<br>/í-m-pelembe í-ku-ful-u-a/  | ‘the antelope is being washed’              |
| d. | yá-kú- <sup>1</sup> pé-él ù-mú-lé'mál ú- <sup>1</sup> mw-á'ánà<br>/yá-ku-pé-il-a ú-mu-lémale +H ú-mu-ána/ | ‘they are giving the lame person the child’ |

Next we turn to vowel sequences where the first vowel is /i/. As seen below, an underlying /i/ sometimes glides and sometimes deletes outright.<sup>7</sup>

- |          |   |                             |                                  |
|----------|---|-----------------------------|----------------------------------|
| (126) a. | ù-mú-pé <sup>1</sup> ny úù-sùmá               | ‘it is a good knife’        | /ú-mu-pení u-sumá/               |
| b.       | Chòòlà nàànd ù-mú-límì                        | ‘Chola or the farmer’       | /Choola nandi ú-mu-limi/         |
| c.       | yàà-ngá-lól 'u- <sup>1</sup> mú-sàànz úù-sùmá | ‘they can see the good bed’ | /ya-ngá-lol-á ú-mu-sanzí u-sumá/ |
| d.       | ú-mú-lím á- <sup>1</sup> kú-fúl-à             | ‘the farmer is washing’     | /ú-mu-limi á-ku-ful-a/           |

When the first vowel is /u/, it will generally glide, as shown below.

- |          |  |   |
|----------|--|---|
| (127) a. | yá-kú- <sup>1</sup> pé-él ù-múú-ntw á- <sup>1</sup> má-zééngò<br>/yá-ku-pé-il-a ú-mu-ntu á-ma-zengo/ | ‘they are giving the person the wooden poles’ |
| b.       | ú-múú-ntw à-kú-fúl-à<br>/ú-mu-ntu á-ku-ful-a/  | ‘the person is washing’                       |
| c.       | ú-mw-èènyì w-ìitw á- <sup>1</sup> kú-fúl-à<br>/ú-mu-enyi u-itú á-ku-ful-a/                           | ‘my guest is washing’                         |
| d.       | yá-kú- <sup>1</sup> pé-él ù-múú-ntw ì-víi-ntù<br>/yá-ku-pé-il-a ú-mu-ntu í-vi-ntu/                   | ‘they are giving the person the things’       |
| e.       | í-ny-úùgw í- <sup>1</sup> kú-fúl-w-á<br>/í-nyungú í-ku-ful-u-a/                                      | ‘the pot is being washed’                     |

<sup>7</sup> It should be recalled that there were instances where the /i/ verbal allomorph of ‘to be’ /li-/ deleted instead of glided before another vowel. (Cf. §8.6.2)

Finally, if the first vowel is /o/, a number of things can happen. Before a high vowel /i/ or /u/ it can glide. The resulting [w] will then delete before /u/ as detailed in §3.1.

- (128) a. yá-kú-<sup>1</sup>pé-él ù-mú-sá<sup>1</sup>nw í-víí-ntù      ‘they are giving the chief wife the things’  
           /yá-ku-pé-il-a ú-mu-sanó í-vintu/  
       b. yá-kú-<sup>1</sup>pé-él ù-mú-sá<sup>1</sup>n ú-mw-á<sup>1</sup>ánà      ‘they are giving the chief wife the child’  
           /yá-ku-pé-il-a ú-mu-sanó ú-mú-ána/

When /o/ occurs before /a/ it is sometimes the case that /o/ deletes, sometimes the case that /a/ deletes, and sometimes the case that /o/ glides. This is illustrated shown below.

- (129) a. yá-kú-<sup>1</sup>pé-él ù-mú-sán <sup>1</sup>á-má-zééngò      ‘they are giving the chief wife the wooden poles’  
           /yá-ku-pé-il-a ú-mu-sanó á-ma-zengo/  
       b. ú-mú-sàn á-lá-fùl-á      ‘the chief wife is washing’  
           /ú-mu-sanó a-la-ful-á/  
       c. yá-kú-fùl-à p<sup>1</sup>áá-má-wé      ‘they are washing the stones’  
           /yá-ku-ful-a pó á-ma-ue/
- (130) a. ú-mw-éènyì w-àà-ó <sup>1</sup>kú-fùl-à      ‘their guest is washing’  
           /ú-mu-enyi u-a-bo á-ku-ful-a/  
       b. ú-mw-éènyì w-àà-kó <sup>1</sup>kú-fùl-à      ‘your guest is washing’  
           /ú-mu-enyi u-a-kó á-ku-ful-a/
- (131) a. símbwá w-àà-kw á-lá-<sup>1</sup>símúl-á      ‘your dog will run’  
           /símbwa u-a-kó a-la-simul-a +H/  
       b. ú-mw-éènyì w-àà-kw á-<sup>1</sup>kú-fùl-à      ‘your guest is washing’  
           /ú-mu-enyi u-a-kó á-ku-ful-a/

As can be seen by comparing (130b) and (131b) the same underlying phrase can have variable pronunciation. Clearly the factors conditioning deletion and gliding between words at the phrasal level demand additional research.

## CHAPTER 10: SUMMARY OF PROSODIC & TONAL PROCESSES

In this final chapter I provide a summary of the most productive prosodic rules presented in chapters 1-9. It is the author's hope that this will "tie together" various instances and instantiations of a single process which was described in multiple contexts (e.g. in multiple TAMs in Chapter 5, or multiple noun types in Chapter 7). Additionally, it is my hope that readers who jump into the middle of the book and encounter some process unfamiliar to them which was described earlier in the book, can come to this chapter to get a quick summary of that process. The focus will be on the tone rules, though rules affecting vowel length will be dealt with as well. Where appropriate the section in which the rule was originally introduced or exemplified is given so that the reader can refer to that section for additional elaboration and examples. In addition, I present some prosodic processes which have not been dealt with thus far. For these latter rules it was either the case that there was no natural place to present them before this point, or that they could not be well understood or analyzed until all the more basic prosodic processes were presented.

### 10.1 Tone bearing units

#### 10.1.1 Syllable vs. mora

In this work I have presented a description and analysis of Cilungu tone which rests on two important assumptions: first, that the tonological contrast within the phonology is one of H vs.  $\emptyset$ , and second that the TBU is the mora. Let us discuss these briefly in turn. An analysis which opposes H and  $\emptyset$  is, of course, a much more restrictive analysis than one which assumes H vs. L vs.  $\emptyset$ . And I would argue that a H vs.  $\emptyset$  analysis is better than a H vs. L one because the TBUs that do not bear a High tone are tonologically inert—they do not block spreading, neither do they spread (or delete) themselves. In terms of having to specify what spreads or deletes, it is always a High tone. We have seen many cases of unbounded (as well as bounded) spreading which in a H vs. L analysis would necessitate the delinking of many L tones, something not necessary if L is underspecified.

Next, if we assume that the TBU of the language is the mora, as opposed to the syllable, we can neatly account for the inventory of possible tone shapes in a syllable simply by stating that each mora can be realized as either H-toned or toneless. A summary of the possible tonal shapes of a syllable are given below.

#### (1) Tones on short vowels

- |          |               |
|----------|---------------|
| a. Low:  | C $\hat{v}$   |
| b. High: | C $\acute{v}$ |

#### (2) Tones on long vowels <sup>1</sup>

- |                              |                         |
|------------------------------|-------------------------|
| a. Level Low                 | C $\hat{v}\hat{v}$      |
| b. Level High                | C $\acute{v}\acute{v}$  |
| c. Rising                    | C $\hat{v}\acute{v}$    |
| d. Fall (H to L)             | C $\acute{v}\hat{v}$    |
| e. Fall (H to downstepped H) | C $\hat{v}'^1\acute{v}$ |

---

<sup>1</sup> I assume that the possibilities of a rise from L to downstepped H or a rise from downstepped H to H are ruled out by the definition of downstep itself.

In addition, any syllable beginning with a H tone can be downstepped after a preceding H.<sup>2</sup>

- (3)
- |   |                                |
|---|--------------------------------|
| a. Downstepped High:                    | <sup>1</sup> Cṽ                |
| b. Long downstepped High                | <sup>1</sup> Cṽṽ               |
| c. DownsteppedFall (H to downstepped H) | <sup>1</sup> Cṽ <sup>1</sup> ṽ |

### 10.1.2 Status of pre-C nasal as tone bearing unit

We begin by noting that all /CVNC/ roots have the exact same tonal and prosodic behavior as /CVVC/ roots. I therefore assume that both are phonologically bimoraic, which means the nasal in the former must be moraic. By contrast, /VNC/ roots exhibit the same tonal behavior as /VC/ roots, diagnosing them as monomoraic. This can be clearly illustrated by observing the imperative forms of toneless roots. The imperative assigns a H tone to V2-FV to stems with toneless roots (§5.3.10). This is seen below for CVC and CVVC roots.

- (4)
- |            |           |
|------------|-----------|
| a. fùl-á   | ‘wash!’   |
| b. èl-á    | ‘winnow!’ |
| c. zìik-á  | ‘bury!’   |
| d. swèél-á | ‘brew!’   |

The imperatives of stems which contain VNC and CVNC roots are given below.

- (5)
- |            |          |
|------------|----------|
| a. ìmb-á   | ‘dig!’   |
| b. èng-á   | ‘smelt!’ |
| c. viìmb-á | ‘cover!’ |
| d. lèéng-á | ‘draw!’  |

As can be seen the imperatives with VNC roots (5a-b) surface with the same length (short-short) and tonal (L-H) pattern as the forms with CVC roots (4a-b), while the CVNC roots (5c-d) surface with the same length (long-short) and tonal (Rise-High) pattern as the forms with CVVC roots (4b-c).

Another structure that diagnoses VNC roots as short and CVNC roots as long can be seen in the Persistentive. As noted in §5.1.10, the Persistentive prefix /líi-/ surfaces as short before stems with three or more morae, but long before those with less than three morae, as seen below.

- (6)
- |                    |                        |
|--------------------|------------------------|
| a. tú-cí-líi-fùl-à | ‘we are still washing’ |
| b. tú-cí-líi-sh-à  | ‘we are still digging’ |
- (7)
- |                     |                         |
|---------------------|-------------------------|
| a. tú-cí-lí-zìik-à  | ‘we are still washing’  |
| b. tú-cí-lí-làmùk-à | ‘we are still greeting’ |

As seen in (8), a VNC root is preceded by long [líi-] whereas a CVNC root is preceded by short [lí-] diagnosing the first root as monomoraic and the second root as bimoraic.

<sup>2</sup> The absence of phonetic <sup>1</sup>Cṽṽ can be attributed to the fact that an underlying syllable initial H will spread via either General Doubling or Unbounded Spreading.

- (8) a. tú-cí-lí-èng-à ‘we are still smelting’  
 b. tú-cí-lí-viimb-à ‘we are still covering’

It should next be noted that determining whether a ...VNC... sequence will behave as a monomoraic or bimoraic sequence is not in fact dependent on whether the V of that sequence has an onset on the surface (as one might assume just from the examples above in (4)-(8)). First, we recall that Cilungu has a handful of verb roots which begin with a vowel on the surface, but must clearly be set up with a root-initial C (cf. §3.3). E.g. while a V-initial root will normally trigger gliding of a preceding high vowel, these particular roots do not. To account for this, some of these roots were set up with an underlying morpheme-initial /b/ which ultimately deletes intervocally (but is preserved when it is preceded by a nasal).

- (9) a. ú-ku-<sup>1</sup>vy-é<sup>1</sup>él-à ‘to winnow them’ (< /ú-ku-ví-el-a/)  
 b. ú-ku-<sup>1</sup>vy-á<sup>1</sup>ásh-á ‘to light down’ (< /ú-ku-ví-ak-í-a/)
- (10) a. ú-kú-<sup>1</sup>ví-<sup>1</sup>ó<sup>1</sup>omb-él-à ‘to get wet for them’ (< /ú-ku-ví-bomb-el-a +H/)  
 b. ú-kú-<sup>1</sup>ví-<sup>1</sup>ú<sup>1</sup>umb-à ‘to create them’ (< /ú-ku-ví-bumb-a +H/)

These /b/-initial roots behave tonally as bimoraic like all other CVNC roots, even though they surface with no onset. This can be seen in the imperative form below (cf. (5c-d)).

- (11) òómb-á ‘be wet’ (< /bomb-a/)

As we saw in section 3.3, when the 1 sg. OM precedes a vowel-initial root, a voiced obstruent (either [g] or [j] depending on the backness of the vowel) surfaces between the nasal and the root-initial vowel, as illustrated below.

- (12) a. ú-kw-íimb-à ‘to dig’      ú-kúú-n-j-ímb-íl-à ‘to dig for me’  
 b. ú-kw-éél-à ‘to winnow’      ú-kúú-n-j-él-él-à ‘to winnow for me’  
 c. ú-kú-úm-à ‘to beat’      ú-kúú-n-g-úm-à ‘to beat me’  
 d. ú-kw-á<sup>1</sup>ám-à ‘to call, invite’      ú-kúú-n-g-ám-à ‘to call me’

As can be seen, even though the root-initial V surfaces with an onset, it is still short. This is confirmed tonally in forms such as those below from the Potential (§5.2.1).

- (13) a. yàà-ngáá-n-j-imb-á ‘they can dig me out’ /ya-ngá-n-imb-á/  
 b. yàà-ngáá-n-g-um-á ‘they can beat me’ /ya-ngá-n-um-á/

If the vowel in the root of (13a) were bimoraic, the H from /ngá-/ would spread onto the first mora of the root, yielding \*yà-ngáá-n-j-ìmb-á, but such is ungrammatical. What we conclude from this, then, is that the factor which determines whether a VNC sequence in a root behaves as monomoraic or bimoraic is not whether it has an onset on the surface, but whether the V preceding the NC is morpheme-initial *underlyingly* or not. If it is, the vowel behaves as monomoraic, and if it is not, then it behaves as bimoraic. To account for all these cases, I adopt a suggestion made by an anonymous reviewer to posit a rule which shortens the morpheme-initial V of a root. Given such a rule, we can assume that the pre-C nasal in the roots above are all assigned a mora which is then subject to Nasal Demorification (§3.1.3) and compensatory lengthening. As long as this shortening rule is ordered before /b/-deletion, then it will correctly shorten the root-initial V in forms such as (5a-b), (8a) and (12),

but will not do so to the root-initial syllable in forms such as (10) and (11). This rule also predicts that there will be no V-initial roots whatsoever (regardless if the V is followed by NC or just C) where this morpheme-initial V contrasts in length. This appears to be correct. That this morpheme-initial V shortening rule only affects roots and not all morphemes can be clearly seen in the Yesterday Past Progressive forms below which contain the Progressive suffix /-ang/.

- |      |    |                 |                      |                  |
|------|----|-----------------|----------------------|------------------|
| (14) | a. | yá-á-lúk-ààng-á | ‘they were vomiting’ | /yá-á-lúk-ang-á/ |
|      | b. | yá-á-fúl-ààng-á | ‘they were washing’  | /yá-á-ful-ang-á/ |

As can be seen the morpheme-initial /a/ surfaces as long in these examples.

There is one additional case where a pre-NC vowel (not part of a root) surfaces as short. This is the class 9/10 preprefix /i-/ , as illustrated in the following examples.

- |      |    |                          |               |                 |
|------|----|--------------------------|---------------|-----------------|
| (15) | a. | í-m-bázò                 | ‘rib(s)’      | /i-n-bazo/      |
|      | b. | í-m-péléembè             | ‘antelope(s)’ | /i-n-pelembe/   |
|      | c. | í-n-zó <sup>1</sup> ká   | ‘snake(s)’    | /i-n-zóka +H/   |
|      | d. | í-n-kú <sup>1</sup> píkò | ‘lid(s)’      | /i-n-kúpiko +H/ |

As can be seen, in each case the Class 9/10 preprefix surfaces as short. Assuming that Nasal Demorification and compensatory lengthening apply in these cases, I must posit a shortening rule which targets the class 9/10 preprefix. This rule precedes Fusion, correctly accounting for the fact that the H on the class 9/10 preprefix and a following root-initial H will fuse (as illustrated in (15c-d).)

That the phonetically short class 9/10 prefix should be accounted for by a rule which shortens the preprefix and not, e.g., by simply failing to assign the nasal class prefix a mora, can be seen in the examples below where the V preceding the class 9/10 prefix /n-/ is not the preprefix. In such cases this V does in fact surface as long.

- |      |    |                        |                     |                  |
|------|----|------------------------|---------------------|------------------|
| (16) | a. | í-m-péléembè           | ‘antelope’          | /i-m-pelembe/    |
|      | b. | ú-múú-m-péléembè       | ‘in the antelope’   | /ú-mu-m-pelembe/ |
| (17) | a. | í-m-báázò              | ‘carving axe’       | /i-m-baazo/      |
|      | b. | á-káá-m-báázò          | ‘small carving axe’ | /a-ka-m-baazo/   |
| (18) | a. | í-n-zó <sup>1</sup> ká | ‘snake’             | /i-n-zóka+H/     |
|      | b. | í-cíì-n-zókà           | ‘big snake’         | /i-ci-n-zóka+H/  |

Finally, given the fact that we have established that the mora is the tone bearing unit of the language, we predict that a mora supplied by a pre-consonantal nasal should be able to sponsor a tone. That this is true is shown below.

- |      |    |  |                    |                 |
|------|----|--|--------------------|-----------------|
| (19) | a. | ín-dí <sup>1</sup> m-é ~ n-dí <sup>1</sup> m-é     | ‘that I farm’      | /ń-lim-é/       |
|      | b. | ím-fú <sup>1</sup> l-é ~ m-fú <sup>1</sup> l-é     | ‘that I wash’      | /ń-ful-é/       |
|      | c. | ín-dúk-il-é ~ n-dúk-il-é                           | ‘that I weave for’ | /ń-luk-il-é/    |
|      | d. | ín-kú <sup>1</sup> fúl-à ~ n-kú <sup>1</sup> fúl-à | ‘I am washing’     | /ń-ku-ful-a/    |
|      | e. | ín-dá <sup>1</sup> fùl-á ~ n-dá <sup>1</sup> fùl-á | ‘I will wash’      | /ń-la-ful-a +H/ |



As can be seen in the examples above, the 1 sg. nasal SM /ń-/ sponsors a H tone which can then undergo spreading. I assume in these cases that the pre-consonantal nasal which bears the High undergoes demorification (§3.1.3). As can be seen, this mora is then either deleted or realized as a word-initial /i-/, which could be considered the “default” vowel in the language. That this word-initial [i] is short and not long is further confirmation of the fact that it is not present underlyingly, but the result of the mora contributed by /n-/. If, e.g. we set up the 1 sg. marker as /in-/, then after nasal demorification and compensatory lengthening, we would expect the word-initial [i] to be long, but it is not. This is exemplified by the examples below, which show that length of a word-initial vowel before NC is contrastive:

- |      |    |            |                           |                |
|------|----|------------|---------------------------|----------------|
| (20) | a. | ìn-dy-á    | ‘and then I ate’          | /n-lí-a +H/    |
|      | b. | ìi-n-dy-á  | ‘and then it (C9) ate me’ | /i-n-lí-a +H/  |
|      | c. | ìn-dòl-á   | ‘and then I saw’          | /n-lol-a +H/   |
|      | d. | ìi-n-dòl-á | ‘and then it (C9) saw me’ | /i-n-lol-a +H/ |

I note that if the stem begins with a nasal, then the mora of the 1 sg. SM must be realized as the default /i/ and cannot delete.

- |      |    |  |                     |            |
|------|----|--|---------------------|------------|
| (21) | a. | í-mí <sup>1</sup> l-é (*mí <sup>1</sup> l-é)   | ‘that I swallow’    | /ń-mil-é/  |
|      | b. | í-nyé <sup>1</sup> p-é (*nyé <sup>1</sup> p-é) | ‘that I tie a knot’ | /ń-nyép-é/ |

In terms of rule ordering, I assume that binary spreading precedes the optional stray mora erasure rule as shown below for (19c). This creates the relatively rare situation where binary spreading is not surface true.

(22)	n-duk-il-e       μ μ μ μ     H H	Input
	n-duk-il-e       μ μ μ μ   /   H H	General Doubling
		Heterosyllabic Doubling
	n-duk-il-e       μ μ μ μ   /   H H	Nasal Demorification
	n-duk-il-e       μ μ μ     H H	Stray Mora Erasure

One way to account for all these facts is as follows. Nearly all nasals start as non-moraic. The only exception to this is the 1 sg. SM which, as the examples in (19) and (20) show, 1) bears a H tone underlyingly and 2) is moraic. A rule then assigns every pre-consonantal nasal a mora. After syllabification in which /n/ and a following C become part of the onset, the mora associated with the nasal undergoes Nasal Demorification, becoming floating and associating to a preceding V (a type of compensatory lengthening). One rule shortens a morpheme-initial vowel of any root. Another will shorten the class 9/10 preprefix /i-/. Any remaining floating mora at the beginning of a word either deletes via Stray Mora Erasure or is realized as the default vowel /i/.

### 10.1.3 Glides, including short causative & passive

Let us consider the moraicity of the passive /-u/ and the short causative /-i/. As we saw in §5.1.1.3, in contexts where a H tone undergoes unbounded spreading to the penult, it actually spreads all the way to the final syllable when the passive or short causative is present, as seen below.

(23)	a. yá-kú-sh-á	‘they are grinding’	/yá-ku-si-a/
	b. yá-kú-fúl-w-á	‘they are being washed’	/yá-ku-ful-u-a/
	c. yá-kú-zíik-w-á	‘they are being buried’	/yá-ku-ziik-u-a/
	d. yá-kú- <sup>1</sup> sópólól-w-á	‘they are being untied’	/yá-ku-sópolol-u-a/
	e. yá-kú- <sup>1</sup> páápáátík-w-á	‘they are being flattened’	/yá-ku-páapaatik-u-a/

- (24) a. yá-kú-káz-y-á                      ‘they are selling’                      /yá-ku-kul-i-a/  
 b. yá-kú-<sup>!</sup>písh-á                      ‘they are going’                      /yá-ku-pít-i-a/

We accounted for this in the following way. When the high vowel in the word-final syllable glides the word-final vowel will become long via compensatory lengthening. The rule of Word-final Shortening (presented in §3.1.4) will then apply, removing the word-final mora. I note that while this mora was extraprosodic with respect to H tone spreading, it must not be extraprosodic with regard to Word-final Shortening. The forms in (23d), (24a), and (23a) are derived below.

(25) a. ya-ku-sopolol-u-a	b. ya-ku-kul- <u>i</u> -a	c. ya-ku-si-a	U.R.
H     H	H	H	
ya-ku-sopolol-u-<a>	ya-ku-kul- <u>i</u> -<a>	ya-ku-si-<a>	Phrase-final Extraprosodicity
H     H	H	H	
ya-ku-sopolol-w-a<a>	ya-ku-kuz-y-a<a>	ya-ku-sh-a<a>	Gliding, CL & Cons Mut
H     H	H	H	
ya-ku-sopolol-w-a	ya-ku-kuz-y-a	ya-ku-sh-a	Word-final Shortening
H     H	H	H	
ya-ku- sopolol-w-a	ya-ku-kuz-y-a	ya-ku-sh-a	General Doubling & Unbounded Spr
/     / / /	/ / /	/ /	
H     H	H	H	

Whereas the rule of unbounded spreading would normally spread to the penult due to phrase-final extraprosodicity, the final (tonally extraprosodic) mora is removed in these cases by Word-final Shortening and therefore Unbounded Spreading will spread the appropriate H to the ultima.

While the above analysis crucially relies on the passive and short causative being moraic, there are two processes which treat the passive and short causative as non-moraic and must therefore apply after gliding and shortening. One of these is Fusion. As seen below, H tones on the TBUs preceding and following the passive or short causative will fuse.<sup>3</sup>

- (26) a. yàà-ngá-lúm-w-á                      ‘they can be bitten’                      /ya-ngá-lúm-u-á/  
 b. yàà-ngá-lém-w-á                      ‘they can be planted’                      /ya-ngá-lém-u-á/  
 c. yáá-lúm-w-á                      ‘they have just been bitten’                      /yá-á-lúm-u-á/

<sup>3</sup> Fusion also applies in cases where a surface [w] or [y] is not a passive marker but simply part of the root. E.g. *tù-ng-áázw-á* ‘we can help’ /tu-ngá-ázu-á/

- |      |    |                 |                       |                  |
|------|----|-----------------|-----------------------|------------------|
| (27) | a. | tùù-ngá-kúz-y-á | ‘we can raise’        | /tu-ngá-kúl-ì-á/ |
|      | b. | tùù-ngá-písh-á  | ‘we can drive’        | /tu-ngá-pít-ì-á/ |
|      | c. | tw-áá-kúz-y-á   | ‘we have just raised’ | /tu-á-kúl-ì-á/   |

These facts necessitate the ordering: Gliding > Shortening (non-root) > Fusion (word) as seen below. (Cf. §9.7 for motivating two different Shortening and Fusion rules based on whether a root or non-root mora is part of the word-final syllable.)

- |      |  |  |
|------|--|--|
| (28) | tu-nga-lum-u-a   | U.R.                                     |
|      | $\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$ |  |
|      | tu-nga-lum-w-aa  | Gliding & CL                             |
|      | $\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$ |  |
|      | tu-nga-lum-w-a   | Word-Final Shortening (non-root-initial) |
|      | $\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$ |  |
|      | tu-nga-lum-w-a   | Fusion (word)                            |
|      | $\begin{array}{ccc} \backslash & \backslash & / \\ & \text{H} & \end{array}$ |  |

The other process that treats the passive and short causative as non-moraic is Pre-Stem Shortening (§3.1.6). As presented in section 5.1.12, the Persistent prefix /lí-/ will shorten if the macrostem it attaches to contains more than two morae. As seen below, /lí-/ does not shorten when the following CVC root has a passive or short causative suffix.

- |      |    |                   |                                  |                     |
|------|----|-------------------|----------------------------------|---------------------|
| (29) | a. | tú-cí-líi-fùl-w-à | ‘we are still being washed’      | /tú-cí-líi-ful-u-a/ |
|      | b. | ví-cí-líi-lùk-w-à | ‘they are still being woven’     | /tú-cí-líi-luk-u-a/ |
| (30) | a. | tú-cí-líi-kàz-y-à | ‘we are still selling’           | /tú-cí-líi-kal-i-a/ |
|      | b. | yá-cí-líi-ùm-y-à  | ‘they are still causing to beat’ | /yá-cí-líi-um-i-a/  |
|      | c. | tú-cí-líi-kúz-y-á | ‘we are still raising’           | /tú-cí-líi-kúl-ì-á/ |

The forms in (29)-(30) can be accounted for by ordering the Word-final Shortening rule targeting a non-root mora before the Pre-Stem Shortening rule.

## 10.2 Summary of relevant morphological domains

Here I briefly summarize a few of the phonological rules and phenomena which crucially rely on specifying the word-internal morphological unit—either the stem or macrostem—in which they apply.

### 10.2.1 Stem

One very clear process which applies with the stem domain is the leftward unbounded spreading of a verbal Melodic High which docks onto the FV and spreads to the peninitial mora. Forms with an OM (31c) clearly show that this peninitial mora is referenced from the stem edge and not the macrostem edge, as seen below.

- |      |    |                  |                                |  |
|------|----|------------------|--------------------------------|--|
| (31) | a. | à-là-ziik-á      | ‘he/she will bury’             | /a-la-[ <sub>ms</sub> [ <sub>s</sub> ziik-a +H/      |
|      | b. | à-là-fùl-il-á    | ‘he/she will wash for’         | /a-la-[ <sub>ms</sub> [ <sub>s</sub> ful-il-a +H/    |
|      | c. | à-là-mù-fùl-il-á | ‘he/she will wash for him/her’ | /a-la-[ <sub>ms</sub> mu-[ <sub>s</sub> ful-il-a +H/ |

A second process where the stem domain is targeted is reduplication (cf. §5.5). As seen below, when reduplication occurs within a verb, what gets reduplicated is the stem and not the macrostem.

- |      |    |                                      |                                   |                          |
|------|----|--------------------------------------|-----------------------------------|--------------------------|
| (32) | a. | tú-kú-fùl-á-fùl-à                    | ‘we are washing repeatedly’       | /tú-ku-ful-a-ful-a/      |
|      | b. | tú-kú-mù-fùl-á-fùl-à                 | ‘we are washing repeatedly’       | /tú-ku-mu-ful-a-ful-a/   |
|      | c. | tú-kú-mù-lém-á-lém-à                 | ‘we are grabbing repeatedly’      | /tú-ku-mu-lem-a-lem-a/   |
|      | d. | tú-kú- <sup>1</sup> yá-lúm-á-lúm-à   | ‘we are biting them repeatedly’   | /tú-ku-yá-lúm-a-lum-a/   |
|      | e. | tú-kú- <sup>1</sup> yá-léét-á-léét-à | ‘we are bringing them repeatedly’ | /tú-ku-yá-léet-a-leet-a/ |

### 10.2.2 Macrostem

A rule which very crucially relies on the notion of the macrostem is that of unbounded spreading (to be discussed in more detail below in §10.3.1). As we have seen (cf. §5.1.1.1) a macrostem H will undergo unbounded spreading whenever it is the rightmost H in the word, regardless of its position within the phrase (33a-b). This is not the case with a pre-macrostem H, which, if not the rightmost H in the phrase-final word, will undergo bounded spreading (33c).

- |      |    |  |                                  |                             |
|------|----|--|----------------------------------|-----------------------------|
| (33) | a. | tú-kú- <sup>1</sup> sópólól-á <sup>1</sup> sáaná     | ‘we are untying a lot’           | /tú-ku-sópolol-a sáaná/     |
|      | b. | tú-kú- <sup>1</sup> yá-súkíl-il-á <sup>1</sup> sáaná | ‘we are accompanying them a lot’ | /tú-ku-yá-sukil-il-a sáaná/ |
|      | c. | tú-kú-súkíl-il-à sáaná                               | ‘we are accompanying a lot’      | /tú-ku-sukil-il-a sáaná/    |

The rule of nominal MH insertion is triggered only when the macrostem-initial TBU is H-toned (34a,b). It is not triggered, e.g. when the macrostem-initial TBU is toneless (whether the stem-initial TBU is H-toned (34c) or not (34d)).

- |      |    |  |                        |                        |
|------|----|--|------------------------|------------------------|
| (34) | a. | ú-kú- <sup>1</sup> só <sup>1</sup> pólól-á   | ‘to untie’             | /ú-ku-sópolol-a +H/    |
|      | b. | ú-kú- <sup>1</sup> yá- <sup>1</sup> fùl-il-à | ‘to wash for them’     | /ú-ku-yá-ful-il-a +H/  |
|      | c. | ú-kú-mù-sópólól-à                            | ‘to untie him/her’     | /ú-ku-mu-sópolol-a +H/ |
|      | d. | ú-kú-mù-súkíl-il-à                           | ‘to accompany him/her’ | /ú-ku-mu-sukil-il-a/   |

A fall from a H to a downstepped H is only permitted if it is wholly contained within the macrostem (cf. §10.4.3).

- |      |    |                               |                                   |                 |
|------|----|-------------------------------|-----------------------------------|-----------------|
| (35) | a. | tw-áá-mw-í <sup>1</sup> imb-á | ‘we have just sung about him/her’ | /tú-á-mu-imb-á/ |
|      | b. | yá-zí <sup>1</sup> ík-é       | ‘bury them!’                      | /yá-ziik-e +H/  |

In a situation where General Doubling would create such a fall, not contained within the macrostem, then no fall is created.

- |      |    |               |                      |                  |
|------|----|---------------|----------------------|------------------|
| (36) | a. | yá-lì-ímb-á   | ‘they will sing’     | /yá-la-ímb-a +H/ |
|      | b. | yá-kw-ímb-à   | ‘they are singing’   | /yá-ku-ímb-a/    |
|      | c. | tú-mà-á-fúl-à | ‘these days we wash’ | /tú-ma-áa-ful-a/ |

### 10.3 Summary of most productive tonal processes

Three very central processes in Cilungu tonology are unbounded spreading, bounded spreading and H-tone fusion. Let us now review all three.

#### 10.3.1 Unbounded Spreading

Unbounded Spreading has been postulated for both melodic as well as non-melodic H’s. Let us first consider cases where Unbounded Spreading affects non-melodic H’s.

There are two times when a lexical H tone will undergo unbounded spreading. In the remainder of cases the H will undergo bounded spreading. The first case is when the H is final in both its word and phonological phrase.

- |      |    |                      |                                 |                        |
|------|----|----------------------|---------------------------------|------------------------|
| (37) | a. | tú-kú-súkíl-íl-à     | ‘we are accompanying’           | /tú-ku-sukil-il-a/     |
|      | b. | tú-kú-mú-lámúk-à     | ‘we are greeting’               | /tú-ku-mu-lamuk-a/     |
| (38) | a. | yàà-ngá-á-súkíl-íl-à | ‘they can keep accompanying’    | /ya-ngá-aa-sukil-il-a/ |
|      | b. | yá-màá-súkíl-íl-à    | ‘these days they accompany’     | /yá-ma-áa-sukil-il-a/  |
|      | c. | yá-làá-súkíl-íl-à    | ‘they will now accompany’       | /yá-la-áa-sukil-il-a/  |
| (39) |    | tù-táá-súkíl-íl-à    | ‘let us not start accompanying’ | /tu-tá-áa-sukil-il-a/  |
| (40) | a. | ú-m-óóngólólò        | ‘backbone’                      | /ú-mu-ongololo/        |
|      | b. | í-n-tólómìlò         | ‘windpipe’                      | /í-n-tololmilo/        |

As can be seen in the examples above the H which undergoes unbounded spreading (to the penult) can be on a variety of morphemes, including subject markers (37), TAM prefixes (38), negative prefixes (39), or nominal preprefixes (40). In each case above, if another element follows the verb—be it a clitic or another word, then the H will undergo bounded and not unbounded spreading.

- |      |    |                             |                                    |                               |
|------|----|-----------------------------|------------------------------------|-------------------------------|
| (41) | a. | tú-kú-súkíl-íl-à pó         | ‘we are accompanying (loc.)’       | /tú-ku-sukil-il-a pó/         |
|      | b. | tú-kú-súkíl-íl-à Chòòlà     | ‘we are accompanying Chola’        | /tú-ku-sukil-il-a Choola/     |
|      | c. | yàà-ngá-á-súkíl-íl-à Chòòlà | ‘they can keep accompanying Chola’ | /ya-ngá-aa-sukil-il-a Choola/ |
|      | d. | í-n-tólómìlò ì-sùm-á        | ‘good windpipe’                    | /í-n-tolomilo i-sumá/         |

The second case of unbounded spreading affects a lexical H within a verbal or nominal macrostem. As can be seen below, such a H will undergo unbounded spreading as long as it is the final H of the word. This happens regardless of whether there is a following word in the phrase or not.

- (42) a. tú-kú-<sup>1</sup>sópólól-à ‘we are untying’ /tú-ku-sópolol-a/  
 b. tú-kú-<sup>1</sup>sópólól-á <sup>1</sup>pó ‘we are untying (loc.)’ /tú-ku-sópolol-a pó/  
 c. tú-kú-<sup>1</sup>sópólól-á <sup>1</sup>sáaná ‘we are untying a lot’ /tú-ku-sópolol-a sáaná/  
 d. tú-kú-<sup>1</sup>sópólól-á Chòòlà ‘we are untying Chola’ /tú-ku-sópolol-a Choola/
- (43) a. tú-kú-<sup>1</sup>yá-súkíl-íl-à ‘we are accompanying them’ /tú-ku-yá-sukil-il-a/  
 b. tú-kú-<sup>1</sup>yá-súkíl-íl-á <sup>1</sup>pó ‘we are accompanying them (loc.)’ /tú-ku-yá-sukil-il-a pó/  
 c. tú-kú-<sup>1</sup>yá-súkíl-íl-á nìngó ‘we are accompanying them well’ /tú-ku-yá-sukil-il-a ningó/
- (44) a. í-n-tú<sup>1</sup>úngúlúzi ‘leader’ /í-n-túnguluzi +H/  
 b. í-n-tú<sup>1</sup>úngúlúzi ì-sùmá ‘good leader’ /í-n-túnguluzi +H i-sumá/

The ways in which phrasal prosodic domains constrain unbounded spreading are detailed in chapter 9.

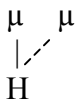
Let us now turn to melodic H's. As noted in §5.3, there are a variety of TAMs in which a melodic H docks onto the second and subsequent TBUs of the stem. The way I have suggested to account for this is to have the MH dock onto the final TBU of the stem and then undergo a process of unbounded leftward spreading to the peninitial mora of the stem. This is shown in (45a). This docking and unbounded leftward spreading will feed General Doubling (45b) which in turn feeds rightward unbounded spreading (45c).

- (45) a. à-là-súkíl-íl-á ‘he/she will accompany’ /a-la-sukil-il-a +H/  
 b. à-là-súkíl-íl-á múnjìlì mù-sùmá ‘he/she will accompany the good warthog’ /a-la-sukil-il-a +H munjili mu-sumá/  
 c. à-là-súkíl-íl-á múúnjìlì ‘he/she will accompany the warthog’ /a-la-sukil-il-a +H munjili/

### 10.3.2 Bounded spreading

In order to account for the full range tonal patterns we have seen, I have suggested that the process of bounded spreading is actually accomplished by two different rules. The first rule is “General Doubling”. This rule will spread a High tone onto the following mora—whether that mora be tautosyllabic or heterosyllabic. This is illustrated below.

- (46) General Doubling



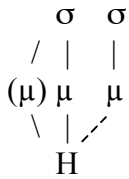
This rule will apply even if it creates an OCP violation (either inter-syllabically or intra-syllabically) with a following High, as seen below:

- (47) a. yá-kú-<sup>1</sup>símúl-à ‘they are running’ /yá-ku-símul-a/  
 b. tú-kú-<sup>1</sup>lás-á <sup>1</sup>sáaná ‘we are hitting a lot’ /tú-ku-lás-a sáaná/  
 c. tú-mw-í<sup>1</sup>ímb-íl-é ‘that we sing for him/her’ /tú-mu-ímb-il-e +H/

The next rule is “Heterosyllabic Doubling.” Its goal (often though not always realized) is to insure that a High tone span stretches over a syllable boundary. General Doubling will often accomplish this on its own, but when it does not, Heterosyllabic Doubling attempts to make sure the H is spread into a following syllable. But it

will only apply to spread a High into a following syllable if it can accomplish this by spreading onto the adjacent mora. I.e. its application is strictly local—it would never, e.g. spread a H two morae to the right just to get it into the following syllable. It is formalized below.

(48) Heterosyllabic Doubling



The gist of the rule is that a High, linked only to one or more tautosyllabic morae, spreads onto an adjacent heterosyllabic mora. The application of these two rules is illustrated below.

(49)	a. <u>só</u> pólol-á	b. <u>bé</u> leeng-á	c. <u>tú</u> -a-mu-ful-a +H	d. <u>pá</u> apaatik-á	U.R.
			<u>tú</u> -a-mu-ful-á		MH Docking
		<u>bé</u> leeng-á	<u>tw-áa</u> -mu-ful-á		Gliding, Nasal Demor & CL
	<u>só</u> pólol-á	<u>bé</u> léeng-á	<u>tw-áá</u> -mu-ful-á	<u>páá</u> apaatik-á	General Doubling
	n/a	n/a	<u>tw-áá-mú</u> -ful-á	<u>páápá</u> atik-á	Heterosyllabic Doubling
	sópólòl-á 'untie!'	béléèng-á 'read!'	tw-áá-mú-fùl-á 'we have already washed him/her'	páápáàtik-á 'flatten!'	P.R.

Heterosyllabic Doubling is blocked from spreading a multiply-linked H onto a following syllable if this would create an OCP violation. This is illustrated below.

(50)	a. <u>tú</u> -a-ful-a +H	b. <u>tú</u> -a-ziik-a +H	U.R.
	<u>tú</u> -a-ful-á	<u>tú</u> -a-ziík-á	MH Docking
	<u>tw-áa</u> -ful-a +H	<u>tw-áa</u> -ziík-á	Gliding & CL
	<u>tw-áá</u> -ful-á	<u>tw-áá</u> -ziík-á	General Doubling
	<blocked>	<blocked>	Heterosyllabic Doubling
	tw-áá-fùl-á 'we have already washed'	tw-áá-ziík-á 'we have already buried'	P.R.



This analysis correctly accounts for minimal pairs where General Doubling applies despite the creation of an OCP violation whereas Heterosyllabic Doubling will not. This is illustrated in the minimal tone pair below.

(51)	a. <u>tú</u> -a-ful-a +H	b. <u>tú</u> - <u>á</u> -ful- <u>á</u>	U.R.
	<u>tú</u> -a-ful- <u>á</u>		MH Docking
	<u>tw-áa</u> -ful- <u>á</u>	<u>tw-á</u> <u>á</u> -ful- <u>á</u>	Gliding & CL
		<u>tw-áá</u> -ful- <u>á</u>	Fusion
	<u>tw-áá</u> -ful- <u>á</u>	<u>tw-áá</u> -fúl- <u>á</u>	General Doubling
	<blocked>	n/a	Heterosyllabic Doubling
	tw-áá-fùl-á 'we have already washed'	tw-áá-fú <sup>l</sup> -á 'we have just washed'	P.R.

Minimal tonal pairs like the one in (51) show that it would be difficult to formulate binary spreading as a single rule. Such a rule could not state that a H only spreads onto the following TBU, since this is not true in cases such as (49c-d) above. Neither can it state that the spread is always onto two TBUs, as a H will never spread onto two following short syllables. Finally, it is not possible for the rule to spread the H onto the rightmost free mora of the following syllable with a following “clean-up” rule”. As should be obvious, any such all-in-one rule of binary spreading would neutralize the forms above in (50) to *tw-áá-fú<sup>l</sup>-á*. On what basis could the clean-up rule delink the H from /ful/ in the (50a) but not (50b)?

Another advantage to using these two rules in combination to account for binary spreading is that it allows for the possibility that a rule could intervene between the two. I claim that this is exactly what is needed to account for 3 sg. forms such as the following.

(52)	a. à-kú-fúl-à sàaná	'he/she is washing a lot'	/á-ku-ful-a sáaná/
	b. à-kú-mú-fùl-à pó	'he/she is washing him/her (loc.)'	/á-ku-mu-ful-a pó/
	c. à-kú-zíik-ìl-à pó	'he/she is burying for (loc.)'	/á-ku-ziik-il-a pó/
(53)	a. à-kw-ìmb-il-à pó	'he/she is digging for (loc.)'	/á-ku-imb-il-a pó/
	b. à-kú-ùm-il-à Chòòlà	'he/she is beating for Chola'	/á-ku-um-il-a Choola/

I argued in §5.1.1.6 that 3 sg. prefix /á-/ is also underlyingly H-toned and delinks by rule. While that H spreads onto the following mora in the examples in (52), it does not in (53). This can be accounted for by ordering Onsetless SM Delinking after General Doubling but before Heterosyllabic Doubling, as seen below.

(54)	a. /á-ku-imb-il-a p <sub>ó</sub> /	b. /á-ku-ziik-il-a p <sub>ó</sub> /	Input
	á-kw-iimb-il-a p <sub>ó</sub>		Gliding & CL
	á-kw-íimb-il-a p <sub>ó</sub>	á-kú-ziik-il-a p <sub>ó</sub>	General Doubling
	a-kw-íimb-il-a p <sub>ó</sub>	a-kú-ziik-il-a p <sub>ó</sub>	Onsetless SM Delinking
	n/a	a-kú-zíik-il-a p <sub>ó</sub>	Heterosyllabic Doubling

As can be seen above, after the 3 sg. H docks, the Heterosyllabic Doubling rule will not apply to (54a) since the mora following the one the H is linked to is not in the following syllable (but rather it is within the same syllable). This does not mean that Heterosyllabic Doubling will not spread a docked 3 sg. High, however, as seen in (54b). In this case Heterosyllabic Doubling will spread the H to the following mora which is in the following syllable.

As seen in examples such as (51a), Heterosyllabic Doubling will not apply to a doubly-linked tautosyllabic H if that would create an OCP violation. However, it should be noted that it will apply to a singly-linked H, even if this causes an OCP violation. This is seen below.

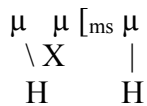
(55)	a. /á-ku-si-a sáaná/	b. /a-ú-mu-sumá/	Input
	á-ku-sh-a sáaná	u-ú-mu-sumá	Gliding, VD, CL & Word-final Shortening
	á-kú-sh-a sáaná	u-ú-mú-sumá	General Doubling
	a-kú-sh-a sáaná		Onsetless SM Delinking
		u-mú-sumá	Pre-Stem Shortening
	a-kú-sh-á 'sáaná 'he/she is grinding a lot'	u-mú-sú'má 'it (C1) is good'	Heterosyllabic Doubling

While Heterosyllabic Doubling will not apply (to a multiply linked H) to cause an OCP violation, we have maintained that General Doubling applies regardless of whether it creates an OCP violation or not. While this is generally true, there is in fact one major exception to this generalization. The effects of General Doubling are not seen on a H linked to the first mora of a bimoraic syllable when a following macrostem-initial mora is H-toned. This is illustrated below.

(56)	a. tw-áá-símúl-á	'we have already run'	/tú-a-símul-a +H/
	b. tw-áá-yá-lás-il-é	'we hit them' (Far Past)	/tú-a-yá-lás-il-e +H/
	c. tw-áá-mú-fùl-á	'we have already washed him/her'	/tú-a-mu-ful-a +H/
	d. tw-áá-fùl-á	'we have already washed'	/tú-a-ful-a +H/
	e. tw-áá-ziík-á	'we have already buried'	/tú-a-ziik-a +H/
(57)	a. tw-áá-léét-à	'we have just brought'	/tú-á-léet-á/
	b. tùù-ngá-sí-íl-à	'we can leave for'	/tu-ngá-sí-il-á/

As can be seen, the H on the SM in (56a-b) is not realized on the second mora of the word-initial syllable, while it is in (56c-e). The examples in (57) show that a H internal to the macrostem will in fact spread to a following tautosyllabic mora even if the following mora is H-toned. (Such cases will be discussed in further detail in section §10.5.) The generalization which emerges is that General Doubling seems not apply to create a long H before another H when the target of spreading is a mora which precedes the macrostem. This could be accounted for in one of two ways. First, one could posit a specific OCP constraint which would prevent the application of General Doubling just in case it created a downstep after a long H at the macrostem boundary. Alternatively, one could allow General Doubling to apply completely generally and then have a subsequent rule, formalized below, delink a H from the second mora of a long H vowel in certain cases. This latter approach is adopted here.

(58) Pre-Macrostem H Falling



### 10.3.3 Fusion

We have seen ample evidence that in Cilungu adjacent H's fuse. The formalization of this, however, depends on where fusion is ordered with respect to other rules. First, we note that it is in general the case that H's which are underlyingly adjacent will fuse, while those which are not will not. This is accounted for most straightforwardly by a very early rule of fusion which is formalized quite simply: H's on adjacent morae fuse. But there are exceptions to this in both directions—i.e. sometimes H's which are not underlyingly adjacent fuse and sometimes H's which are underlyingly adjacent do not. Let us discuss each in turn.

First, we note that the verbal MH (presented in §5.3) which is realized on the second and subsequent morae of the stem will fuse with an adjacent H which either precedes or follows it. The most straightforward way to account for this derivationally is to order Fusion after both MH docking and Leftward Spread to V2. But this contrasts with the MH in nominals (verbal infinitives (chapter 6) and nouns (chapter 7)) which, when it docks onto the stem-final TBU, does not fuse with a preceding H within the stem, but does fuse with an initial H in the following word. All of this can be accounted for by positing two Fusion rules, one which applies within the word and one which applies between words within a phrase. The verbal MH Docking and Leftward Unbounded Spreading to V2 will be ordered before both Fusion rules, whereas Nominal MH Docking will be ordered between them. This is illustrated below.

(59)	<u>ú</u> -ku- <u>lém</u> -a +H <u>sáaná</u>	<u>ú</u> -ku- <u>sópolol</u> -a +H <u>sáaná</u>	<u>tú</u> -la- <u>sópolol</u> -a +H <u>sáaná</u>	U.R.
			<u>tú</u> -la- <u>sópolol</u> - <u>á</u> <u>sáaná</u>	Verbal MH Docking
			<u>tú</u> -la- <u>sópólól</u> - <u>á</u> <u>sáaná</u>	Left Spr to V2
			<u>tú</u> -la- <u>sópólól</u> - <u>á</u> <u>sáaná</u>	Fusion (word)
	<u>ú</u> -ku- <u>lém</u> - <u>á</u> <u>sáaná</u>	<u>ú</u> -ku- <u>só</u> <sup>1</sup> <u>pólól</u> -a <u>sáaná</u>		Nominal MH Dock
	<u>ú</u> -ku- <u>lém</u> - <u>á</u> <u>sáaná</u>		<u>tú</u> -la- <u>sópólól</u> - <u>á</u> <u>sáaná</u>	Fusion (phrase)
	<u>ú</u> -kú- <u>lém</u> - <u>á</u> <u>sáaná</u>	<u>ú</u> -kú- <u>só</u> <u>pólól</u> - <u>á</u> <u>sáaná</u>	<u>tú</u> -la- <u>sópólól</u> - <u>á</u> <u>sáaná</u>	Gen Doubling, Unb Spr
	ú-kú- <sup>1</sup> lé <sup>1</sup> m- <u>á</u> <u>sáaná</u>	ú-kú- <sup>1</sup> só <sup>1</sup> <u>pólól</u> - <u>á</u> <sup>1</sup> sáaná	tú-lá- <sup>1</sup> sópólól- <u>á</u> <u>sáaná</u>	PR

A situation where non-adjacent H's fuse comes from cases involving a H in a word-final /CVV/ syllable. In the two cases shown below the two H's which eventually fuse are not underlyingly adjacent, but become adjacent through Word-final Shortening. These are illustrated below. (It should be recalled that two Word-final Shortening rules were motivated (§9.7), one which affects final syllables which contain a root vowel, where the second mora is removed, and one which affects final syllables which do not contain a root vowel, where the first mora is removed.)

(60)	a. <u>ú</u> -ku- <u>sí</u> -a <u>sáaná</u>	b. tu- <u>ngá</u> - <u>lás</u> -u- <u>á</u>	U.R.
	<u>ú</u> -ku- <u>sh</u> - <u>áa</u> <u>sáaná</u>	tu- <u>ngá</u> - <u>lás</u> -w- <u>aá</u>	Gliding & CL
		tu- <u>ngá</u> - <u>lás</u> -w- <u>á</u>	Word-final Shortening (non-root)
		tu- <u>ngá</u> - <u>lás</u> -w- <u>á</u>	Fusion (word)
	<u>ú</u> -ku- <u>sh</u> - <u>á</u> <u>sáaná</u>		Word-final Shortening (root)
	<u>ú</u> -ku- <u>sh</u> - <u>á</u> <u>sáaná</u>		Fusion (phrase)
	<u>ú</u> -kú- <u>sh</u> - <u>á</u> <u>sáaná</u>		General Doubling & Unb Spr
	ú-kú- <sup>1</sup> sh- <u>á</u> <u>sáaná</u> 'to grind a lot'	tùù-ngá-lás-w- <u>á</u> 'we can be hit'	P.R.

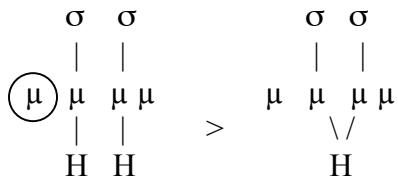
Above we see cases where two H's are separated by a mora underlyingly, but nevertheless later undergo Fusion. In each case a rule of Word-final Shortening removes the mora between the two relevant H's which then fuse.

As presented in Chapter 7, there is evidence for one additional rule of Fusion. When the phonology creates a non-phrase-final C<sup>0</sup>V<sup>0</sup>C<sup>1</sup>V<sup>1</sup>C<sup>0</sup> sequence, the downstep is removed from the sequence, i.e. the H on the second and the H on the third syllables will fuse. This is illustrated by the forms below.

- (61) a. í-cí-<sup>1</sup>bá<sup>1</sup>tá ‘duck’ /í-ci-báta +H/  
 b. ú-mú-ci-bátá cí-sù má ‘in the good duck’ /ú-mu-ci-báta +H cí-sumá/
- (62) a. í-kó<sup>1</sup>kólà ‘knee’ /í-kókola +H/  
 b. á-ká-li-kókólà ‘small knee’ /á-ka-líi-kókola +H/
- (63) a. ú-mú-<sup>1</sup>ká<sup>1</sup>zyáánà ‘girl’ /ú-mu-káziana +H/  
 b. ù-mú-<sup>1</sup>ká<sup>1</sup>zyáánà ‘it is a girl’

To account for this we posited the Post-L Fusion rule, repeated below, ordered after General Doubling.

(64) Post L Fusion



## 10.4 Review of tonal contrasts; paradigmatically & syntagmataically

### 10.4.1 Basic contrasts & neutralizations

An important type of evidence in justifying some phenomenon as phonological—as opposed, e.g., to phonetic—is the existence of minimal pairs which can provide such a confirmation. For instance, it has been claimed in this work that there is a rule of Unbounded Spreading which in many instances spreads a H to the penultimate TBU of the word. E.g. /tú-ku-lamuk-a/ > *tú-kú-lámúk-à* ‘we are greeting’. One might ask, however, whether the fact that the final TBU is pronounced on a lower pitch than the preceding ones is simply phonetic—something which the phonology need not concern itself with and will be correctly accounted for in a set of phonetic implementation rules which take as their input the output of the phonology. In that case the *phonological* output of ‘we are greeting’ could be represented as [tú-kú-lámúk-á]. Therefore, the question arises as to whether there are actually minimal pairs of the variety [ĆĆĆĆ] vs. [ĆĆĆĆ̀], which would in fact necessitate that the two forms have distinct phonological outputs. It turns out that these are plentiful, one of which is given below. (Additional examples of this type will be found later in this section.)

- (65) a. tw-áà-páápáátík-à ‘let us start flattening’ /tú-áa-páapaatik-a/  
 b. tw-áà-páápáátík-á ‘we have already flattened’ /tú-a-páapaatik-a +H/

In the Present Progressive form in (65a) the root H undergoes unbounded spreading to the penult, whereas in the Remote Perfect form in (65b) the MH insures that all stem TBUs surface as High tone. These forms illustrate the crucial difference in the tonal status of the FV.

It has also been claimed in this work that there is a rule of bounded spreading. For instance, /tu-ngá-mu-sópolol-á/ > *tùù-ngá-mú-<sup>1</sup>sópólòl-á* ‘we can untie him/her’. In this example both the H on the TAM prefix /ngá-/ as well as the root H are claimed to undergo binary spreading as neither is the final H of the word. One might wonder, however, if this might simply be a phonetic delay in the realization of F<sub>0</sub>, i.e. whether the output of the

phonology in this case might not actually be [tùù-ngá-mù-sópòlòl-á].<sup>4</sup> Minimal pairs such as those below, however, preclude such an analysis:

- |      |    |                               |  |                              |
|------|----|-------------------------------|--|------------------------------|
| (66) | a. | kú-mú- <sup>1</sup> lwááz-y-á | ‘and then it (C15) healed him/her’       | /kú-mu-lúal- <u>i</u> -a +H/ |
|      | b. | kú-mù-lwááz-y-á               | ‘to heal him/her’                        | /H-ku-mu-lúal- <u>i</u> -a/  |
| (67) | a. | kú-mú- <sup>1</sup> kóm-y-á   | ‘and then it (C15) strengthened him/her’ | /kú-mu-kóm- <u>i</u> -a +H/  |
|      | b. | kú-mù-kóm-y-á                 | ‘to strengthen him/her’                  | /H-ku-mu-kóm- <u>i</u> -a/   |

In the examples above the (a) forms are in the Narrative Past (§5.3.8). The H on the Class 15 SM /kú-/ undergoes binary spreading and the MH insures the stem surfaces as all High. The (b) forms are in the infinitive (Chapter 6). As will be recalled from §2.1.1, the inclusion of the preprefix in the pronunciation of nouns (including Class 15 verbal infinitives) is optional. The tonology of the latter forms is interesting in that the tones of these words, TBU by TBU, are identical to that of the form where the preprefix is present. This was accounted for by positing a floating H preprefix in these cases which docks onto the class prefix only after both General Doubling and Heterosyllabic Doubling have applied. Thus, in both the (a) and (b) forms above, the word-initial TBU is H-toned, and the stem is all High. The only difference between the paired forms is the tonal status of the peninitial TBU—the OM /mu-/. If, in fact, all binary spreading could be reduced to a phonetic implementation rule of late F<sub>0</sub> realization, then the (a) and (b) forms in the two examples above would be predicted to surface identically. Yet, they do not. There is a very clear tonal distinction in the second syllable of such forms, consistent with their representations in (66) and (67) where binary spreading is properly reflected as a phonological (as opposed to phonetic) process.

In this section, then, I would like to provide a number of minimal tonal pairs, which illustrate the various tonal contrasts which occur in Cilungu and support the analysis presented to this point.

Let us begin by examining tonal contrasts which are found on a phrase-final CVCV string.

- |      |    |                                  |                                  |                     |
|------|----|----------------------------------|----------------------------------|---------------------|
| (68) | a. | tw-áà-sópólól-à                  | ‘let us start untying’           | /tú-áa-sópolol-a/   |
|      | b. | tw-áà-sópólól-á                  | ‘we have already untied’         | /tú-a-sópolol-a +H/ |
| (69) | a. | ú-kú-sh-à                        | ‘to leave’                       | /ú-ku-sí-a+H/       |
|      | b. | ú-kú-sh-á                        | ‘to grind’                       | /ú-ku-si-a/         |
|      | c. | ú-kú- <sup>1</sup> sh-á          | ‘you are leaving’                | /ú-ku-si-a/         |
| (70) | a. | yàà-ngá-á-n-j-ímb-à              | ‘they can keep digging me up’    | /ya-ngá-aa-n-imb-a/ |
|      | b. | yàà-ngáá-n-j-í <sup>1</sup> mb-á | ‘they can sing about me’         | /ya-ngá-n-ímb-á/    |
|      | c. | yàà-ngáá-n-j-ìmb-á               | ‘they can dig me up’             | /ya-ngá-n-imb-á/    |
| (71) | a. | yà-táá-n-dém-à                   | ‘let them not start grabbing me’ | /ya-táa-n-dem-a/    |
|      | b. | yà-táá-n-dé <sup>1</sup> m-á     | ‘let them not plant me’          | /ya-tá-n-dém-a +H/  |
|      | c. | yà-táá-n-dèm-á                   | ‘let them not grab me’           | /ya-tá-n-dem-a +H/  |

<sup>4</sup> See, e.g. Myers (2003) who discusses phonological and phonetic properties of tone realization in Kinyarwanda.

- (72) a. ù-kú-lém-à 'it is to grab' /ú-ku-lem-a/  
 b. ù-kú-lé<sup>1</sup>m-á 'it is to plant' /ú-ku-lém-a +H/
- (73) a. tú-kú-lù-kú-lúk-à 'we keep weaving' /tú-ku-la-a ú-ku-luk-a/  
 b. tú-kú-lù-kú-lú<sup>1</sup>k-á 'we keep vomiting' tú-ku-la-a ú-ku-lúk-a +H /
- (74) a. tú-cí-lí-mù-sh-à 'we are still grinding him/her' /tú-cí-líi-mu-si-a/  
 b. tú-cí-lí-mù-sh-á 'we are still leaving him/her' /tú-cí-líi-mu-sí-a/

The above forms illustrate a number of important contrasts. The HL vs. HH contrast in (68)-(69); the HL vs. H<sup>1</sup>H contrast in (69)-(73), the HL vs. LH contrast in (70)-(71); and the LL vs. LH contrast in (74).

It is also the case that when the antepenult TBU is H-toned, <sup>1</sup>HL contrasts with both <sup>1</sup>H<sup>1</sup>H as well as HL, as seen below:

- (75) a. tù-tá-lú<sup>1</sup>s-íl-è 'we haven't woven' /tu-tá-lus-il-e +H/  
 b. tù-tá-lús-í<sup>1</sup>l-é 'we haven't vomited' /tu-tá-lús-il-e +H/
- (76) a. ú-kú-<sup>1</sup>lém-à 'you are planting' /ú-ku-lém-a/  
 b. ú-kú-<sup>1</sup>lé<sup>1</sup>m-á 'to plant' /ú-ku-lém-a +H/
- (77) a. ú-kú-<sup>1</sup>mú-sh-à 'to grind you (pl.)' /ú-ku-mú-si-a +H/  
 b. ú-kú-<sup>1</sup>mú-<sup>1</sup>sh-á 'to leave you (pl.)' /ú-ku-mú-sí-a +H/

That <sup>1</sup>HH contrasts with LL after a penult H is illustrated by the pair below:

- (78) a. tú-cí-lí-<sup>1</sup>mú-sh-á 'we are still grinding you' /tú-cí-líi-mú-si-a/  
 b. tú-cí-lí-mù-sh-à 'we are still grinding him' /tú-cí-líi-mu-si-a/

That the tones on a final CVCV sequence also contrast when the preceding TBU is L instead of H-toned is illustrated by the examples below:

- (79) a. tw-áà-lèm-à 'let us start grabbing' /tú-áa-lem-a/  
 b. tw-áà-lém-à 'let us start planting' /tú-áa-lém-a/  
 c. tw-áà-lém-á 'we have already planted' /tú-a-lém-a +H/
- (80) a. tw-áà-mù-sh-à 'let us start grinding him/her' /tú-áa-mu-si-a/  
 b. tw-áà-mù-sh-á 'let us start leaving him/her' /tú-áa-mu-sí-a/  
 c. tw-áà-mú-sh-á 'let us start leaving you' /tú-áa-mú-sí-a/

Let us now turn to word-final CVVCV sequences. Below we see that before a word-final Low the preceding long vowels contrast: level H, fall from H to L, fall from H to downstepped H and level L.

- |      |    |                                |                                      |                    |
|------|----|--------------------------------|--------------------------------------|--------------------|
| (81) | a. | w-àà-swéél-à                   | ‘he/she has just fished’             | /u-á-súel-á/       |
|      | b. | w-àà-swèèl-à                   | ‘he/she has just brewed’             | /u-á-suel-á/       |
| (82) | a. | w-àà-sí-il-è                   | ‘he/she left’ (YP)                   | /u-á-sí-il-é/      |
|      | b. | w-àà-sí-il-è                   | ‘he/she ground’ (YP)                 | /u-á-si-il-é/      |
| (83) | a. | tú-cí-lí- <sup>l</sup> swéél-à | ‘we are still fishing’               | /tú-cí-líi-súel-a/ |
|      | b. | tú-cí-lí-swèèl-à               | ‘we are still brewing’               | /tú-cí-líi-suel-a/ |
| (84) | a. | w-àà-mw-íimb-à                 | ‘he/she has just dug him/her up’     | /u-á-mu-imb-á/     |
|      | b. | w-àà-mw-í <sup>l</sup> imb-à   | ‘he/she has just sung about him/her’ | /u-á-mu-imb-á/     |
|      | c. | w-àà-mw-íimb-à                 | ‘he/she has just dug you up’         | /u-á-mú-imb-á/     |

The pair below shows that either a H or L-toned TBU can occur after a long Falling tone in penult position.

- |      |    |            |                         |              |
|------|----|------------|-------------------------|--------------|
| (85) | a. | tw-áà-sh-à | ‘let us start grinding’ | /tú-áa-si-a/ |
|      | b. | tw-áà-sh-á | ‘let us start leaving’  | /tú-áa-sí-a/ |

The pairs below show that a penult long Rise contrasts with a penult long H before a final H. Additionally, the pair in (87) where the contrast is preceded by a High, shows that a downstepped Long High is distinct from a Rise.

- |      |    |                             |   |                   |
|------|----|-----------------------------|---|-------------------|
| (86) | a. | w-àà-sì-il-é                | ‘he/she ground’ (Far Past)              | /u-a-si-il-e/     |
|      | b. | w-àà-sí-il-é                | ‘he/she left’ (Far Past)                | /u-a-sí-il-e/     |
| (87) | a. | í-ví- <sup>l</sup> káá-sh-á | ‘those (C8) who leave’ (Habit)          | /í-vi-káá-sí-a/   |
|      | b. | í-ví-káá-sh-á               | ‘those (C8) who will continue to grind’ | /í-vi-ka-áa-si-a/ |

The following shows that either a L or H tone can occur after a penult Rise.

- |      |    |           |                          |            |
|------|----|-----------|--------------------------|------------|
| (88) | a. | w-àá-sh-à | ‘he/she has just ground’ | /u-á-si-a/ |
|      | b. | w-àá-sh-á | ‘he/she has just left’   | /u-á-sí-a/ |

A contrast which one might expect to occur, but which does not is: C<sup>l</sup> V<sup>l</sup> C<sup>l</sup> vs. C<sup>l</sup> V<sup>l</sup> C<sup>l</sup>. Where the latter is created word-finally, a rule deletes a word-final downstepped H when preceded by a long level H (cf. §10.5.3). This is illustrated by the homophonous pair below.

- |      |    |                 |                               |                    |
|------|----|-----------------|-------------------------------|--------------------|
| (89) | a. | tw-áà-mw-íimb-à | ‘let us start to dig you out’ | /tú-áa-mú-imb-a/   |
|      | b. | tw-áà-mw-íimb-à | ‘we have already dug you out’ | /tú-a-mú-imb-a +H/ |

But C<sup>l</sup> V<sup>l</sup> C<sup>l</sup> does contrast with C<sup>l</sup> V<sup>l</sup> C<sup>l</sup> as seen below:

- |      |    |               |                          |                  |
|------|----|---------------|--------------------------|------------------|
| (90) | a. | tw-áà-swéél-à | ‘let us start to fish’   | /tú-áa-súel-a/   |
|      | b. | tw-áà-swéél-á | ‘we have already fished’ | /tú-a-súel-a +H/ |



- (91) a. *tw-íimb-à* ‘we have just dug’ /tú-á-imb-á/  
 b. *tw-íimb-á* ‘we have just sung’ /tú-á-imb-á/

The following examples illustrate that a long Falling syllable contrasts with a long level High in pre-penult position:<sup>5</sup>

- (92) a. *tw-áá-mù-sh-á* ‘let us start to leave him/her’ /tú-áa-mu-sí-a/  
 b. *tw-áá-mù-sh-á* ‘we have already left him/her’ /tú-a-mu-sí-a/

Finally, the following examples show that a word-final series of consecutive H toned TBUs contrasts with the same series of consecutive L toned TBUs.

- (93) a. *yá-cí-lí-swèèl-èl-w-à* ‘they are still being brewed for’ /yá-cí-líi-swel-el-u-a/  
 b. *yá-cí-lí-!swéél-él-w-á* ‘they are still being fished for’ yá-cí-líi-swél-el-u-a/  
 (94) a. *tw-áá-mú-swéél-él-á* ‘we have already fished for you’ /tú-a-mú-súel-el-a +H/  
 b. *tw-áá-mù-swèèl-èl-à* ‘let us start to brew for him/her’ /tú-áa-mu-suel-el-a/

We have posited a process whereby a H tone undergoing unbounded spreading can spread all the way into the final syllable if the input ends with a /iV/ or /uV/ sequence due to the gliding of the high vowel (cf. 5.1.1.3). This predicts that such forms will potentially be indistinguishable from other forms which end in a series of H-toned TBUs due to fusion. That such is true is illustrated below.

- (95) a. *tw-áá-lúm-w-á* ‘let us start to be bitten’ /tú-áa-lúm-u-a/  
 b. *tw-áá-lúm-w-á* ‘we have already been bitten’ /tú-a-lúm-u-a +H/  
 (96) a. *tw-áá-óómv-y-á* ‘let us start using’ /tú-áa-bómb-ì-a/  
 b. *tw-áá-óómv-y-á* ‘we have already used’ /tú-a-bómb-ì-a +H/

#### 10.4.2 Ć́́Ć́́Ć́ vs. Ć́́Ć́́Ć́

One very interesting and important part of Cilungu tonology is to account for a surface contrast between Ć́́Ć́́Ć́ and Ć́́Ć́́Ć́́, exemplified by the following minimal pairs:

- (97) a. *tw-áá-fú<sup>1</sup>l-á* ‘we have just washed’ /tú-á-ful-á/  
 b. *tw-áá-fùl-á* ‘we have already washed’ /tú-a-ful-a +H/

<sup>5</sup> While, as shown here, Ć́́ and Ć́́́ contrast before Ć́́Ć́́, they do not contrast before two Low-toned morae. Thus in a form such as *tùù-ngá-páápáàtik-il-á* ‘we can flatten for’ (< /tu-ngá-páapaatik-il-á/) there is actually some variation in terms of the phonetic realization of the tone on the second syllable of the stem, ranging from Fall to level H. Given that, a form such as the one above could be transcribed either as *tùù-ngá-páápáàtik-il-á* or *tùù-ngá-páápáátik-il-á*. The latter transcription was used in Bickmore (2003b), while the former one is being used here. The variation could be accounted for formally by an optional rule, applying after Heterosyllabic Doubling, which spread a H linked to the initial mora of a bimoraic V to the following tautosyllabic mora. The problem is that what conditions the application of such a rule—a string of two toneless morae following the target—seems to violate any notion of phonological adjacency.

- (98) a. tw-áá-mú-'sh-á 'we have just left him/her' /tú-á-mu-sí-á/  
 b. tw-áá-mù-sh-á 'we have already left him/her' /tú-a-mu-sí-a +H/  
 (Cf. tw-áà-mù-sh-á 'let's start to leave him/her' /tú-áa-mu-sí-a/)

In each case there is an input H tone in the third (monomoraic) syllable and at least one of the two morae of the first syllable has an input H as well. As noted earlier (in §10.3.2), the way I propose to account for the difference between forms such as (97a) and (97b) is by positing two parts to binary spreading: General Doubling which spread a H one mora to the right even if it creates an OCP violation, and Heterosyllabic Doubling which will not spread a multiply-linked H if that spreading would cause an OCP violation (cf. §10.3.2).

- |      |    |   |    |   |                         |
|------|----|---|----|---|-------------------------|
| (99) | a. | tú-a-ful-a +H                           | b. | tú-á-ful-á  | U.R.                    |
|      |    | <u>tú</u> -a-ful- <u>á</u>              |    |   | MH Docking              |
|      |    | <u>tw-áa</u> -ful- <u>á</u>             |    | <u>tw-á</u> <u>á</u> -ful- <u>á</u>               | Gliding & CL            |
|      |    |   |    | <u>tw-áá</u> -ful- <u>á</u>                       | Fusion                  |
|      |    | <u>tw-áá</u> -ful- <u>á</u>             |    | <u>tú-á</u> - <u>fúl</u> - <u>á</u>               | General Doubling        |
|      |    | <blocked>                               |    | n/a   | Heterosyllabic Doubling |
|      |    | tw-áá-fül-á<br>'we have already washed' |    | tw-áá-fú <sup>l</sup> -á<br>'we have just buried' | P.R.                    |

Below are additional examples containing input sequences of /Ćv-ṽ-Cv-Ćv/, where the downstep is accounted for in the same way.

- (100) a. tw-áá-mú-<sup>1</sup>lás-á      ‘we have just hit him/her’      /tú-á-mu-lás-á/  
 b. tù-tá-á-mú-<sup>1</sup>lás-í<sup>1</sup>l-é      ‘we didn’t hit him/her’ (YP)      /tu-tá-á-mu-lás-il-é/

Below are examples of additional cases where no downstep is generated because the H tone, after spreading to the following tautosyllabic TBU via General Doubling will not then spread into the following syllable due to the fact that Heterosyllabic Doubling is blocked by the OCP.

- (101) a. tw-áá-fùl-á 'we have already washed' /tú-a-ful-a +H/  
 b. tw-áá-mù-lás-á 'we have already hit him/her' /tú-a-mu-lás-a +H/  
 c. yàà-ngá-á-mù-léét-él-à 'we can keep bringing for him/her' /yá-ngá-aa-mu-léet-el-a/  
 d. tù-ngá-á-mù-sh-á 'we can keep on leaving him/her' /tu-ngá-aa-mu-sí-a/  
 e. tù-tá-á-fùl-á 'we have not already washed' /tu-tá-a-ful-a +H/  
 f. tù-tá-á-mù-lás-íl-á 'we have not already hit for him/her' /tu-tá-a-mu-lás-il-a +H/  
 g. tù-ngá-á-sh-à sààná 'we can keep on grinding a lot' /tu-ngá-aa-si-a sààná/

As seen below, it is also the case that no downstep results when the TBU following the input H is a nasal (followed by a toneless TBU).

- |       |    |                |                            |                    |
|-------|----|----------------|----------------------------|--------------------|
| (102) | a. | yáá-m-fùl-á    | ‘and then they washed me’  | /yá-n-ful-a +H/    |
|       | b. | yáá-m-fùl-é    | ‘that they wash me’        | /yá-n-ful-e +H/    |
|       | c. | yáá-m-fùl-il-é | ‘that they wash for me’    | /yá-n-ful-il-e +H/ |
|       | d. | yáá-m-fùz-il-á | ‘and then they washed for’ | /yá-n-ful-il-a +H/ |

In each case above the /n-/ prefix will undergo demorification, lengthening the previous vowel. The H on the word-initial mora will then spread onto the tautosyllabic mora (contributed by the nasal) and then spread no further, just as was the case in (101) above.

### 10.4.3 C<sup>́</sup>↘C<sup>́</sup> vs. C<sup>́</sup>’<sup>́</sup>C<sup>́</sup>

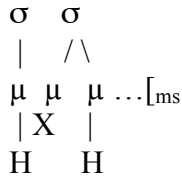
It has been noted that there are two types of falling tones in Cilungu—those that fall from High to Low and those that fall from High to downstepped High. That there is a phonological contrast between these two types of falling tones can be seen below.

- |       |    |  |                                     |                     |
|-------|----|--|-------------------------------------|---------------------|
| (103) | a. | tw-áá-mw-ìmb-á                                 | ‘we have just dug him/her up’       | /tú-á-mu-imb-á/     |
|       | b. | tw-áá-mw-í <sup>́</sup> imb-á                  | ‘we have just sung about him/her’   | /tú-á-mu-ímb-á/     |
| (104) | a. | tw-áá-mw-ìmb-il-á                              | ‘we have just dug for him/her’      | /tú-á-mu-imb-il-á/  |
|       | b. | tw-áá-mw-í <sup>́</sup> imb-í <sup>́</sup> l-á | ‘we have just sung for him/her’     | /tú-á-mu-ímb-il-á/  |
| (105) | a. | tú-mw-ìmb-il-é                                 | ‘that we dig for him/her’           | /tú-mu-imb-il-e +H/ |
|       | b. | tú-mw-í <sup>́</sup> imb-il-é                  | ‘that we sing for him/her’          | /tú-mu-ímb-il-e +H/ |
| (106) | a. | yá-zí <sup>́</sup> ík-é                        | ‘bury them!’                        | /yá-ziik-e +H/      |
|       | b. | yá-ziik-é                                      | ‘that they bury’                    | /yá-ziik-é/         |
| (107) | a. | tù-tá-mw-ìmb-á                                 | ‘that we do not dig him/her up’     | /tu-tá-mu-imb-a +H/ |
|       | b. | tù-tá-mw-í <sup>́</sup> imb-á                  | ‘that we do not sing about him/her’ | /tu-tá-mu-ímb-a +H/ |

As can be seen, a H tone will spread onto the first mora of a following bimoraic syllable. If the second mora of that syllable is toneless, then a fall from High to Low is created (the (a) forms in the examples above)); however if the second mora of that syllable is H-toned, then a fall from High to downstepped High is created (the (b) forms in the examples above)).

It turns out, however, that these intra-syllabic OCP violations do have some restrictions. It should be noted that in each case above the syllable containing the intra-syllabic OCP violation (which immediately follows the H-toned SM) is wholly within the macrostem. In the event that the syllable following the H-toned SM is not wholly within the macrostem, then the rule of Intrasyllabic Downstep Retraction (repeated below) applies, and the syllable after the SM results in a rise instead of a fall from High to downstepped High.

(108) Intrasyllabic Downstep Retraction



- (109) a. yá-lì-ímb-á ‘they will sing’ /yá-la-ímb-a +H/  
 b. yá-lì-ímb-íl-án-á ‘they will sing for each other’ /yá-la-ímb-il-an-a +H/  
 (cf. yá-lì-ímb-á ‘they will dig’ /yá-la-ímb-a +H/)
- (110) a. yá-kw-ímb-à ‘they are singing’ /yá-ku-ímb-a/  
 b. yá-kw-ímb-íl-án-à ‘they are singing for each other’ /yá-ku-ímb-il-an-a/
- (111) a. tú-mà-á-sh-á ‘these days we grind’ /tú-ma-áa-si-a/  
 b. tú-mà-á-fúl-à ‘these days we wash’ /tú-ma-áa-ful-a/  
 c. tú-mà-á-zíik-à ‘these days we bury’ /tú-ma-áa-ziik-a/  
 d. tú-mà-á-mú-fúl-à ‘these days we wash him/her’ /tú-ma-áa-mu-ful-a/
- (112) a. tù-tá-l-ímb-á ‘we will not sing’ /tu-tá-la-ímb-a +H/  
 b. tù-tá-l-èél-á ‘we will not fish’ /tu-tá-la-él-a +H/
- (113) a. yá-kú-<sup>1</sup>lás ùú-mú-tì ‘they are hitting the tree’ /yá-ku-lás-a ú-mu-tì/  
 b. tú-kú-<sup>1</sup>súl ìi-n-zóvù ‘we are sculpting the elephant’ /tú-ku-súl-a í-n-zovu/

We note that a fall from H to downstepped H can be created over the boundary between the class prefix and the root of a noun, as seen below:

- (114) a. ú-kw-í<sup>1</sup>ímb-íl-à ‘to sing for’ /ú-ku-ímb-il-a +H/  
 b. ú-kú-<sup>1</sup>úm-à ‘to be hard/strong’ /ú-ku-úm-a +H/  
 c. í-lí-<sup>1</sup>ínò ‘tooth’ /í-li-íno +H/  
 d. ú-lw-á<sup>1</sup>álà ‘fingernail’ /ú-lu-ála +H/

Thus the class prefix and the root in a noun share an analogous relationship to the object marker and root in a verb (i.e. the macrostem). The fact that /ku-/ is a class 15 prefix in the nominal system, but a TAM marker (outside the macrostem) in the Present Progressive yields many minimal tonal pairs such as the following:

- (115) a. ú-kw-í<sup>1</sup>ímb-à ‘to sing’ /ú-ku-ímb-a/  
 b. ú-kw-íímb-à ‘you (sg.) are singing’ /ú-ku-ímb-a/
- (116) a. ú-kw-í<sup>1</sup>ík-à ‘to put’ /ú-ku-ík-a/  
 b. ú-kw-íík-à ‘you (sg.) are putting’ /ú-ku-ík-a/

Let us now consider what happens when a fall from H to downstepped H occurs in word-final position. As mentioned in §9.7, such falls will surface when an enclitic follows.

- (117) a. tùù-ngá-zw-á<sup>1</sup>á pò ‘we can bleed (loc.)’ /tu-ngá-zu-á pó/  
 b. tùù-ngá-sh-á<sup>1</sup>á pò ‘we can grind (loc.)’ /tu-ngá-si-á pó/  
 c. tùù-ngá-lw-á<sup>1</sup>á pò ‘we can fight (loc.)’ /tu-ngá-lu-á pó/

However, if no enclitic follows, then a rule of Word-final Shortening applies which removes the second mora. This results in a word final H-H sequence when the word is non-phrase-final.

- (118) a. tùù-ngá-zw-á nìngó ‘we can bleed well’ /tu-ngá-zu-á nìngó/  
 b. tùù-ngá-sh-á nìngó ‘we can grind well’ /tu-ngá-si-á nìngó/

When the word is phrase-final, then the rule of Pre Floating H Delinking applies, creating a word-final HL sequence (cf. §5.2.1).

- (119) a. tùù-ngá-zw-à ‘we can bleed’ /tu-ngá-zu-á/  
 b. tùù-ngá-sh-à ‘we can grind’ /tu-ngá-si-á/

The formalization of Intrasyllabic Downstep Retraction (108) will allow us to account for the few cases where an intra-syllabic fall from High to downstepped H does in fact occur on a pre-macrostem syllable. Examples are shown below.

- (120) a. à-má-<sup>1</sup>á-fùl-à ‘these days he/she washes’ /á-ma-áa-ful-a/  
 b. à-má-<sup>1</sup>á-zíik-à ‘these days he/she buries’ /á-ma-áa-ziik-a/  
 c. à-ká-<sup>1</sup>á-zíik-à ‘he/she will continue to bury’ /á-ka-áa-ziik-a/  
 d. à-ká-<sup>1</sup>á-lúk-à ‘he/she will continue to vomit’ /á-ka-áa-lúk-a/  
 (121) a. n-kw-í<sup>1</sup>imb-à ‘I am singing’ /ń-ku-imb-a/  
 b. n-kw-í<sup>1</sup>ík-à ‘I am putting’ /ń-ku-ík-a/  
 c. n-ká-<sup>1</sup>á-fùl-à ‘I will continue to wash’ /ń-ka-áa-ful-a/  
 (122) a. à-kw-í<sup>1</sup>imb-à ‘he/she is singing’ /á-ku-imb-a/  
 b. à-kw-í<sup>1</sup>ík-à ‘he/she is putting’ /á-ku-ík-a/

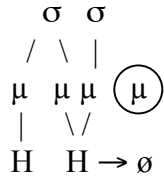
In the above examples I assume that the 3 sg. /á-/ and the 1 sg. marker /ń-/ are H-toned and that this H tone spreads onto the following mora, creating the fall from H to downstepped H. One independently motivated process delinks the H from the 3 sg. SM (cf. §5.1.1.6) and another optionally deletes the mora contributed by the 1 sg. SM (cf. §5.1.1.5). This delinking or deleting process will bleed Intrasyllabic Downstep Retraction (which requires that the Fall be preceded by a H toned mora), producing the only cases of a fall from H to downstepped H in a pre-macrostem syllable.

Finally, as mentioned in §5.2.2, Cilungu does not distinguish between a C<sup>1</sup>V<sup>1</sup>VC<sup>1</sup>V<sup>1</sup> sequence and a C<sup>1</sup>V<sup>1</sup>VC<sup>1</sup>V<sup>1</sup> sequence.

- (123) b. á-áa-mù-fùl-á ‘those who have already washed him/her’ /á-bá-a-mu-ful-a +H/  
 b. á-áa-mù-fùl-á ‘those who have just washed him/her’ /á-bá-á-mu-ful-á/

This is accounted for by a rule of Fall Simplification, repeated below, which neutralizes the two cases to a fall from High to Low.

(124) Fall Simplification



#### 10.4.4 Distribution of rising tones

Let us now examine the distribution of Rising tones. The first generalization to be noted is that a rising tone is always found on a long vowel. This is analyzed as two tautosyllabic morae where the first mora is toneless and the second mora is H-toned. We begin by showing cases where Rises appear non-word-finally.

- |          |                            |  |                      |
|----------|----------------------------|--|----------------------|
| (125) a. | zìik-á                     | ‘bury!’                                | /ziik-a +H/          |
| b.       | si-íní                     | ‘grind (pl.)!’                         | /si-ini +H/          |
| c.       | zw-ìíní                    | ‘bleed (pl.)!’                         | /zu-ini +H/          |
| d.       | w-àà-sh-ààng-á             | ‘he/she was grinding’ (FP)             | /u-a-si-ang-a +H/    |
| e.       | w-àà-sì-íl-é               | ‘he/she ground’ (FP)                   | /u-a-si-il-e +H/     |
| f.       | tw-áá-zìik-á               | ‘we have already buried’               | /tú-a-ziik-a +H/     |
| g.       | tw-áá-lèéng-á              | ‘we have already drawn’                | /tú-a-leng-a +H/     |
| h.       | tw-áá-sì-íl-é              | ‘we ground’ (FP)                       | /tú-a-si-il-e +H/    |
|          |                            |  |                      |
| (126) a. | yá-kú-mw-ìimb-à            | ‘they are singing about him/her’       | /yá-ku-mu-imb-a/     |
| b.       | yá-kú-mw-èél-él-à          | ‘they are fishing for him/her’         | /yá-ku-mu-él-il-a/   |
| c.       | yá-kú-mw-ìikút-íl-à        | ‘they are being satisfied for him/her’ | /yá-ku-mu-ikut-il-a/ |
|          |                            |  |                      |
| (127) a. | w-ì-ímb-à                  | ‘he/she has just dug’                  | /u-á-imb-á/          |
| b.       | w-ì-ímb-á                  | ‘he/she has just sung’                 | /u-á-imb-á/          |
| c.       | w-ì-ímv-í <sup>1</sup> l-é | ‘he/she dug’ (YP)                      | /u-á-imb-il-é/       |
| d.       | w-ì-ímv-í <sup>1</sup> l-é | ‘he/she sang’ (YP)                     | /u-á-imb-il-é/       |
| e.       | w-è-éz-í <sup>1</sup> l-é  | ‘he/she winnowed’ (YP)                 | /u-á-el-il-é/        |
| f.       | w-ì-ímb-ààng-à             | ‘he/she was digging’ (YP)              | /u-á-imb-ang-á/      |
|          |                            |  |                      |
| (128) a. | yá-lì-ímb-á                | ‘they will sing’                       | /yá-la-imb-a +H/     |
| b.       | yá-kw-ímb-à                | ‘they are singing’                     | /yá-ku-imb-a/        |
| c.       | tù-táá-kw-èél-à            | ‘we are not fishing’                   | /tu-táa-ku-él-a/     |
|          |                            |  |                      |
| (129) a. | tú-mà-á-zíik-à             | ‘these days we bury’                   | /tú-ma-áa-ziik-a/    |
| b.       | tú-kà-á-zíik-íl-à          | ‘we will continue to bury for’         | /tú-ka-áa-ziik-il-a/ |
| c.       | tú-là-á-zíik-íl-à          | ‘we will be burying for’               | /tú-la-áa-ziik-il-a/ |

- |       |    |           |                          |            |
|-------|----|-----------|--------------------------|------------|
| (130) | a. | w-àá-sh-à | ‘he/she has just ground’ | /u-á-si-a/ |
|       | b. | w-àá-sh-á | ‘he/she has just left’   | /u-á-sí-a/ |

As one can see, a rising tone can occur in a number of morphological domains: within the stem (125), across the stem within a macrostem (126), across the macrostem (127)-(128), and pre-macrostem (129)-(130). With regard to the forms in (128) it should be remembered that, as pointed out in section 10.4.3 above, the word-initial H will not spread as that would create an illicit fall from H to downstepped H across a macrostem boundary. That a Rise contrasts with a long level High can be seen by comparing the forms in (126) to those in (131).

- |       |    |                                   |  |                       |
|-------|----|-----------------------------------|--|-----------------------|
| (131) | a. | yá-kú- <sup>1</sup> mw-ímb-à      | ‘they are singing about you (pl.)’       | /yá-ku-mú-ímb-a/      |
|       | b. | yá-kú- <sup>1</sup> mw-éél-él-à   | ‘they are fishing for you (pl.)’         | /yá-ku-mú-él-il-a/    |
|       | c. | yá-kú- <sup>1</sup> mw-ííkút-il-à | ‘they are being satisfied for you (pl.)’ | /yá-ku-mú-íikut-il-a/ |

I note here that the further the long Rise is from the end of the word, the more difficult it becomes (for native speakers) to differentiate it (a Rise) from a downstepped level High. In sum, the contrast between a rise and downstepped level H is certainly most robust in penultimate position, and becomes more subtle in positions before that. Second, speech rate seems to affect this contrast as well. The faster the rate of speech the more difficult it becomes to differentiate a long Rise from a downstepped level High.

Let us now consider word-final instances of rising tones. We begin with imperatives of /Cv’/ roots.

- |       |    |             |                 |                 |
|-------|----|-------------|-----------------|-----------------|
| (132) | a. | sh-àá       | ‘grind!’        | /si-a +H/       |
|       | b. | zw-àá       | ‘bleed!’        | /zu-a +H/       |
|       | c. | lw-àá       | ‘fight!’        | /lu-a +H/       |
|       |    |             |                 |                 |
| (133) | a. | sh-àá pò    | ‘grind!’ (loc.) | /si-a +H pó/    |
|       | b. | sh-àá sàáná | ‘grind a lot!’  | /si-a +H sááná/ |
|       |    |             |                 |                 |
| (134) | a. | sh-á        | ‘leave!’        | /sí-a +H/       |
|       | b. | sh-á pò     | ‘leave!’ (loc.) | /sí-a +H pó/    |
|       | c. | sh-á sàáná  | ‘leave a lot!’  | /sí-a +H sááná/ |

As can be seen in (132) and (133) the normally productive process of shortening the word-final syllable (§3.1.4 & §9.7) does not apply to these imperative forms. This seems to be directly connected to the fact that they have a Rising tone, which cannot be borne by a short vowel. As seen in (134), when the vowel in the root is level H, word-final shortening will in fact apply. Other examples illustrating this are given below.<sup>6</sup>

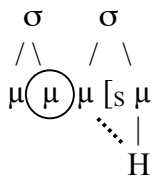
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<sup>6</sup> I note here that the distinction on the word-final syllables in the examples here is especially robust when the speech rate is from slow to moderate. In faster speech the distinction is much less perceptible and can, in fact, lead to neutralization between word-final Cṽṽ and <sup>1</sup>Cṽ.

(135) a.	à-sh-àá	‘and then he/she ground’	/a-si-a +H/
b.	à-sh-á	‘and then he/she left’	/a-sí-a +H/
c.	tú-mú-sh-èé	‘that we grind him/her’	/tú-mu-si-e +H/
d.	tú-mú- <sup>!</sup> sh-é	‘that we leave him/her’	/tú-mu-sí-e +H/
e.	tw-áá-mù-sh-àá	‘we have already ground him/her’	/tú-a-mu-si-a +H/
f.	tw-áá-mù-sh-á	‘we have already left him/her’	/tú-a-mu-sí-a +H/
g.	tú-lá-sh-àá	‘we will grind’	/tú-la-si-a +H/
h.	tú-lá- <sup>!</sup> sh-á	‘we will leave’	/tú-la-sí-a +H/
i.	tùù-ngá-mú-sh-àá	‘we can grind him/her’	/tu-ngá-mu-si-á/
j.	tùù-ngá-mú- <sup>!</sup> sh-á	‘we can leave him/her’	/tu-ngá-mu-sí-á/
k.	tw-áá-mú-sh-àá	‘we have just ground him/her’	/tú-á-mu-si-á/
l.	tw-áá-mú- <sup>!</sup> sh-á	‘we have just left him/her’	/tú-á-mu-sí-á/
m.	tw-áá-mú-sh-àá sáaná	‘we have just ground him a lot’	/tú-á-mu-si-á sáaná/
n.	tw-áá-mú- <sup>!</sup> sh-á sáaná	‘we have just left him a lot’	/tú-á-mu-sí-á sáaná/

There are certain cases where a Rising tone is resolved to a level tone. If the morphology creates a rise across the stem boundary (within a macrostem) which is preceded by a long vowel, the second mora of which is toneless, then the Rise resolves to a level High.

(136) Post Long Rise-to-High



This is illustrated in the forms below, all of which are homophonous.

(137) a.	tw-àá-mw-íimb-á	‘we have already sung about him/her’	/tú-a-mu-ímb-a +H/
b.	tw-àá-mw-íimb-á	‘we have already sung about you’	/tú-a-mú-ímb-a +H/
(138) a.	tw-àá-mw-íimb-íl-á	‘we have already sung for him/her’	/tú-a-mu-ímb-il-a +H/
b.	tw-àá-mw-íimb-íl-á	‘we have already sung for you’	/tú-a-mú-ímb-il-a +H/
(139) a.	w-àá-mw-íimb-ííl-é	‘he/she sang for him/her’ (FP)	/u-a-mu-ímb-il-il-e +H/
b.	w-àá-mw-íimb-ííl-é	‘he/she sang for you’ (FP)	/u-a-mú-ímb-il-il-e +H/

As can be seen above this rule neutralizes the pronunciation between the toneless and H-toned roots in these constructions. That the affected Rise must cross the stem boundary can be seen by comparing the above forms



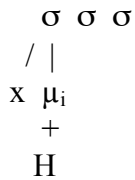
to (125d-h), and that the TBU which precedes the Rise (after spreading) must be the second (toneless) mora of a long vowel can be seen by comparing the above forms to those in (126).<sup>7</sup>

There are two cases where a Rise is resolved to a level Low. Both are morphologically conditioned. The first case involves the verbal Melodic High. As has been proposed, this MH docks onto the final (or sometimes the penultimate) mora of the verb and spreads leftward to the peninitial mora of the stem. However if this creates a Rising tone on a pre-penultimate syllable, then it is resolved to a level Low, as seen in the examples below:

- |          |                    |                                 |                         |
|----------|--------------------|---------------------------------|-------------------------|
| (140) a. | à-là-sùkíl-íl-á    | ‘he/she will accompany’         | /a-la-sukil-il-a +H/    |
| b.       | à-là-ziík-á        | ‘he/she will bury’              | /a-la-ziik-a +H/        |
| c.       | à-là-ziík-íl-á     | ‘he/she will bury for’          | /a-la ziik-il-a +H/     |
| d.       | yá-lá-ziík-íl-án-á | ‘they will bury for each other’ | /yá-la-ziik-il-an-a +H/ |

A second case where a rising tone is resolved to a level Low can be found in forms with a toneless SM (3 sg, Class 4 & Class 9) and the TAM prefix /á-/ . In section 5.2 it was shown that in such forms there is a rule of /á-/ Delinking, repeated below.

(141) /á-/ Delinking



( $\mu_i$  is the TAM prefix /á-/)

When the /á-/ is not part of the first syllable of the word (e.g. in relatives), then this does not necessarily result in the elimination of a Rising tone, but when it part of the first syllable, the result is a change from Rise to level Low, as seen in the examples below.

- |          |                |                                  |                 |
|----------|----------------|----------------------------------|-----------------|
| (142) a. | w-àà-lúk-à     | ‘he/she has just vomited’        | /u-á-lúk-à/     |
| b.       | w-àà-lúk-à     | ‘he/she has just woven’          | /u-á-luk-á/     |
| c.       | w-àà-lús-íl-è  | ‘he/she vomited’ (YP)            | /u-á-lúk-il-é/  |
| d.       | w-àà-mú-ziík-à | ‘he/she has just buried him/her’ | /u-á-mu-ziik-á/ |
| e.       | w-àà-fúz-íl-è  | ‘he/she washed’ (YP)             | /u-á-ful-il-é/  |

<sup>7</sup> While the formalization given for the Post Long Rise-to-High rule correctly predicts the neutralization found in (137)-(139) I note that there do seem to be some signs that the stem boundary in the rule may be fading from obligatoriness. While examples such as *tw-áá-léng-á* ‘we have already drawn’ (/tú-a-leng-a +H/) contrast with *tw-áá-léng-á* ‘we have already begged’ (/tú-a-léng-a +H/) in careful to moderate speech, in faster speech and in the speech of younger speakers this distinction becomes neutralized by the application of Post Long Rise-to-High (sans stem boundary), such that both forms are pronounced [twáàswéélá].

### 10.4.5 Trimoraic Pruning

As discussed in section 3.1.5, the length contrast in Cilungu syllables is one of monomoraic versus bimoraic. When the morphology creates a syllable which contains more than two morae, then all morae beyond two are pruned. As noted earlier, this correctly predicts neutralization in forms like those below.

- |       |    |                             |  |                     |
|-------|----|-----------------------------|--|---------------------|
| (143) | a. | yá-kú- <sup>l</sup> í-ísh-á | ‘they are eating a lot’                | /yá-ku-lí-isi-a/    |
|       | b. | yá-ku- <sup>l</sup> í-ísh-á | ‘they are feeding’ (lit. cause to eat) | /yá-ku-lí-iisi-a/   |
| (144) | a. | tw-áálúk-ìil-é              | ‘we wove for (YP)’                     | /tú-a-luk-il-il-é/  |
|       | b. | tw-áálúk-ìil-é              | ‘we betrayed (YP)’                     | /tú-a-aluk-il-il-é/ |
| (145) | a. | w-é-él-à                    | ‘you winnowed (YP)’                    | /ú-á-el-á/          |
|       | b. | w-éél-à                     | ‘and then you winnowed’                | /ú-el-a +H/         |
| (146) | a. | tw-áà-lúm-w-á               | ‘let us start to be bitten’            | /tú-áa-lúm-u-a/     |
|       | b. | tw-áà-lúm-w-á               | ‘we have already been bitten’          | /tú-a-lúm-u-a +H/   |

Trimoraic Pruning is exemplified in (147), where all three of the input morae are toneless and in (148) where all three are H-toned.

- |       |    |              |                               |                   |
|-------|----|--------------|-------------------------------|-------------------|
| (147) | a. | w-ì-imv-íl-é | ‘he/she/she dug’ (FP)         | /u-a-imv-il-e +H/ |
|       | b. | w-è-èl-á     | ‘he/she has already winnowed’ | /u-a-el-a +H/     |
|       | c. | w-è-èz-íl-é  | ‘he winnowed (FP)’            | /u-a-el-il-e +H/  |
| (148) | a. | tw-éél-á     | ‘we have just fished’         | /tú-á-él-á/       |
|       | b. | tw-íík-á     | ‘we have just put’            | /tú-á-ík-á/       |

Given only the above examples in (147)-(148) it would not be obvious which of the three morae should be pruned, and thus it becomes necessary to examine a wider array of cases. In this section, we examine how the rule of Trimoraic Pruning should be formalized and how it interacts with bounded H spreading. We will examine the full range of cases where the morphology creates syllables containing more than two morae and investigate what happens to H tones in different locations within the syllable.

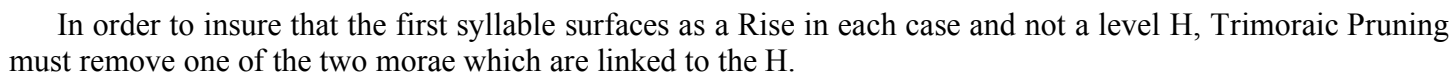
The question at the center of the analysis of trimoraic pruning is whether this shortening rule precedes or follows binary spreading. To begin, let us consider the examples below.

- |       |    |           |                       |                 |
|-------|----|-----------|-----------------------|-----------------|
| (149) | a. | tw-íimb-á | ‘we have just sung’   | /tú-á-ímb-á/    |
|       | b. | tw-íimb-à | ‘we have just dug’    | /tú-á-imb-á/    |
|       | c. | tw-íimb-á | ‘we have already dug’ | /tú-a-imb-a +H/ |
|       | d. | tw-íimb-à | ‘and then we dug’     | /tú-imb-a +H/   |

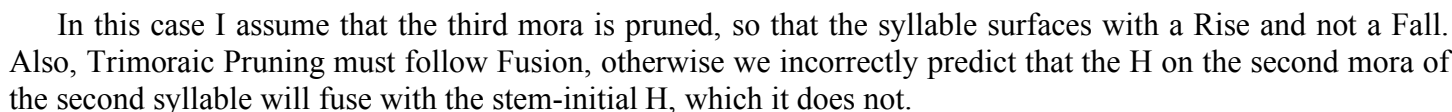
Let us consider the possibility, which I conclude proves problematic, that shortening applies before binary spreading. It should be obvious that if shortening always prunes, e.g., the third mora, this will incorrectly neutralize (149a) and (149b). If it prunes the first mora and the H is left floating, then we would predict that the first syllable of (149c) should surface as a long Low, which it does not. And if the second mora were pruned, this would incorrectly predict a neutralization between (149c) and (149d). Thus, it does not seem possible to

Let us begin by considering forms where the underlying sequence of the trimoraic syllable is  $\emptyset$ -H- $\emptyset$ .

- In each case General Doubling will spread the H located on the middle mora to the final mora of the syllable, creating the structure below.



We know independently that a H will not spread to a tautosyllabic mora to create a long level H followed by a downstep in a pre-macrostem syllable (cf. §5.3.1, §10.3.2). (On our analysis, General Doubling takes place, but is subsequently undone by Pre-macrostem H Falling (58)). Therefore the configuration is the same both before and after General Doubling.



399

For this example I assume that the H on the TAM prefix spreads to the third mora, creating the structure in (151) (since this does not create an OCP violation). If we then assume that Heterosyllabic Doubling applies, this accounts for the lack of spread of the H in the second syllable since we have shown that multiply-linked H's will not undergo Heterosyllabic Doubling if this would create an OCP violation (cf. §10.3.2). Trimoraic Pruning will then remove one of the H-toned morae.

Let us now turn to forms where the underlying sequence of the trimoraic syllable is H-H-Ø.

- |       |    |                 |                            |                       |
|-------|----|-----------------|----------------------------|-----------------------|
| (155) | a. | yá-á-m-fùl-il-á | ‘they have washed for me’  | /yá-á-n-ful-il-á/     |
|       | b. | tw-íimb-îl-é    | ‘we dug for’ (YP)          | /tú-á-imb-il-il-é/    |
| (156) | a. | yá-á-m-fùl-á    | ‘they have just washed me’ | /yá-á-n-ful-á/        |
|       | b. | tw-íimv-il-é    | ‘we dug’ (YP)              | /tú-á-imb-il-é/       |
|       | c. | í-íng-ìzy-é     | ‘they scored’ (YP)         | /yá-á-ingil-ì-il-ì-é/ |
|       | d. | í-ímíl-îl-é     | ‘they stood’ (YP)          | /yá-á-imilil-il-é/    |
| (157) | a. | tw-íimb-à       | ‘we have just dug’         | /tú-á-imb-á/          |
|       | b. | yá-á-n-sh-à     | ‘they have just left me’   | /yá-á-n-sí-á/         |

In all forms the rule of General Doubling will spread the H from the second mora to the third mora of the word, creating the following structure.

- (158)
- $$\begin{array}{c}
 \sigma \\
 / \quad | \quad \backslash \\
 \mu \quad \mu \quad \mu \\
 | \quad | \quad / \\
 H \quad H
 \end{array}$$

Fusion then creates the following:

- (159)
- $$\begin{array}{c}
 \sigma \\
 / \quad | \quad \backslash \\
 \mu \quad \mu \quad \mu \\
 \backslash \quad | \quad / \\
 H
 \end{array}$$

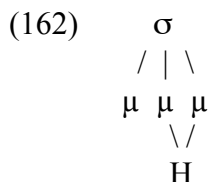
In the forms in (155) Heterosyllabic Doubling then applies, spreading the rightmost H into the following syllable. In the forms in (156), Heterosyllabic Doubling will not apply to the multiply-linked H since that would create an OCP violation. In the forms in (157), Phrase-final Downstep Deletion will apply. Trimoraic Pruning can then remove any mora.

Next let us consider forms where the underlying sequence of the trimoraic syllable is Ø-H-H.

- (160)
- $$\begin{array}{c}
 \sigma \\
 / \quad | \quad \backslash \\
 \mu \quad \mu \quad \mu \\
 | \quad | \\
 H \quad H
 \end{array}$$

- |          |                     |                                    |                     |
|----------|---------------------|------------------------------------|---------------------|
| (161) a. | w-è-él-él-à Chòòlà  | ‘he/she has just fished for Chola’ | /u-á-él-el-á Chola/ |
| b.       | w-ì-ìmv-ìl-è        | ‘he/she sung’ (YP)                 | /u-á-ìmv-il-é/      |
| c.       | w-ì-ìmb-ìl-à Chòòlà | ‘he/she has just dug for Chola’    | /u-á-ìmb-il-á/      |

The structure of the trimoraic syllable after fusion is that given below.

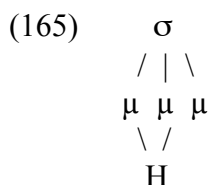


General Doubling will then spread a H onto the following TBU. In order to get a surface Rise, Trimoraic Pruning must remove one of the two morae linked to a High.

Next let us examine cases where the syllable is underlyingly H-ø-ø. In (163a-b) the underlyingly trimoraic syllable is followed by at least three toneless morae. In (163c-f) the trimoraic syllable is followed by a toneless mora and then a H-toned one, while the one in (164) the trimoraic syllable is immediately followed by an H-toned mora.

- |          |                           |   |                             |
|----------|---------------------------|---|-----------------------------|
| (163) a. | yá-á-n-swéèl-él-á         | ‘they have already brewed for me’       | /yá-a-n-suel-il-a +H/       |
| b.       | tù-tá-á-swéèl-èl-à Chòòlà | ‘let us not start brewing for Chola’    | /tu-tá-áa-suel-il-a Choola/ |
| c.       | yá-á-m-fùl-á              | ‘they have already washed me’           | /yá-a-n-ful-a +H/           |
| d.       | yà-tá-á-m-fùl-á           | ‘they had not already washed me’        | /ya-tá-a-n-ful-a +H/        |
| e.       | yàà-ngáá-mù-léét-él-à     | ‘we can keep on bringing for him/her’   | /ya-ngá-aa-mu-léet-il-a/    |
| f.       | tù-tá-á-mù-léét-à         | ‘let us not start bringing for him/her’ | /tu-tá-áa-léet-a/           |
- 
- |          |                 |                             |                    |
|----------|-----------------|-----------------------------|--------------------|
| (164) a. | tw-í-ìmv-ìl-é   | ‘we dug (FP)’               | /tú-a-imb-il-e +H/ |
| b.       | tw-ìmb-á        | ‘we have already dug’       | /tú-a-imb-a +H/    |
| c.       | yá-à-n-dás-á    | ‘they have already hit me’  | /yá-a-n-lás-a +H/  |
| d.       | yá-à-n-sh-á     | ‘they have already left me’ | /yá-a-n-sí-a +H/   |
| e.       | yá-à-lás-à      | ‘let them start to hit’     | /yá-áa-lás-a/      |
| f.       | tù-tá-à-víimb-à | ‘let us not start swelling’ | /tu-tá-áa-vimb-a/  |

In all cases General Doubling will spread the H on the initial mora of the syllable onto the following mora. This will create the configuration given below.



In order to account for the forms in (163) we must posit a rule which can spread a H linked to the first two morae of a trimoraic syllable onto the third mora. However, just like Heterosyllabic Doubling, this spreading of

a multiply-linked H onto a following H will not apply if it would create an OCP violation (164). This rule, which follows General Doubling and precedes Heterosyllabic Doubling is given below.

(166) Trimoraic H Spreading



For the forms in (163), where all three morae are linked to a single H, it does not matter which mora is pruned. In (164), where the first two morae are linked to a H, one of these two must be pruned in order to generate a Fall.

Next, let us consider underlying /ø-ø-H/.

- |       |    |              |                        |                   |
|-------|----|--------------|------------------------|-------------------|
| (167) | a. | w-ì-ìmv-íl-é | ‘he/she sang’ (FP)     | /u-a-ímb-il-e +H/ |
|       | b. | w-è-èz-íl-é  | ‘he/she fished’ (FP)   | /u-a-él-il-e +H/  |
| (168) | a. | w-ì-ìmv-íl-é | ‘he/she dug’ (FP)      | /u-a-imb-il-e +H/ |
|       | b. | w-è-èz-íl-é  | ‘he/she winnowed’ (FP) | /u-a-el-il-e +H/  |

As can be seen the underlyingly /ø-ø-H/ word-initial syllable in the forms in (167) surfaces as level Low. In fact these forms surface with the same tone pattern as their counterparts with toneless V-initial roots as seen in (168). In order to generate the all Low initial syllable, Trimoraic Pruning must prune the rightmost mora which is linked to the H.

Lastly, let us consider underlying /H-ø-H/. One place where this occurs is in the TAMs with the prefix /a-/ (where a MH is assigned to V2-FV) and H-toned V-initial roots. Below I contrast a few such forms with their counterparts containing toneless V-initial roots.

- |       |    |                |                                |                     |
|-------|----|----------------|--------------------------------|---------------------|
| (169) | a. | tw-èèl-á       | ‘we have already winnowed’     | /tú-a-el-a +H/      |
|       | b. | tw-èèl-á       | ‘we have already fished’       | /tú-a-él-a +H/      |
| (170) | a. | tw-èèl-él-á    | ‘we have already winnowed’for’ | /tú-a-el-il-a +H/   |
|       | b. | tw-èèl-él-á    | ‘we have already fished’for’   | /tú-a-él-il-a +H/   |
| (171) | a. | tw-ììmv-íl-é   | ‘we dug’ (Far Past)            | /tú-a-imb-il-e +H/  |
|       | b. | tw-ììmv-íl-é   | ‘we sung’ (Far Past)           | /tú-a-ímb-il-e +H/  |
| (172) | a. | yà-t-í-ìmb-á   | ‘we have not already dug’      | /ya-tá-a-imb-a +H/  |
|       | b. | yà-t-í-ìmb-á   | ‘we have not already sung’     | /ya-tá-a-ímb-a +H/  |
| (173) | a. | tw-ììmb-ááng-á | ‘we were not digging’ (FP)     | /tú-a-imb-ang-a +H/ |
|       | b. | tw-ììmb-ááng-á | ‘we were not singing’ (FP)     | /tú-a-ímb-ang-a +H/ |



- |       |    |                     |                     |                     |
|-------|----|---------------------|---------------------|---------------------|
| (176) | a. | á.-á-limì yà-sùmá   | ‘good farmers’      | /á-ba-limi ya-sumá/ |
|       | b. | ú.-ú-tòòngè ù-sùmá  | ‘good cotton’       | /ú-bu-tonge u-sumá/ |
| (177) | a. | yàà-ngá-álúk-il-á   | ‘they can betray’   | /ya-ngá-aluk-il-á/  |
|       | b. | yàà-ng-éélèèngàny-á | ‘they can consider’ | /ya-ngá-elengany-á/ |

Heterosyllabic VV sequences which derive from /Ćv-bv/ such as those in (176) are different in two respects from those in (177) which derive from /Ćv-v/. Phonologically, the H linked the first syllable in the former case will undergo General Doubling, after which the /b/ deletes. In (176), the H (supplied by the preprefix) after it spreads onto the following (heterosyllabic) mora does not spread any further since Heterosyllabic Doubling only targets a H linked to a single syllable, not two. This contrasts with forms such as those in (177), where a H on the first mora of a bimoraic syllable (in the second syllable of the word) will spread into the following syllable (as long as this Heterosyllabic Spreading does not incur an OCP violation. There is also a phonetic difference between the two surface CVV sequences: those which are bisyllabic (176) are phonetically longer than those which are monosyllabic (177).

The fact that this distinction is phonologically contrastive is illustrated nicely by the forms below.

- |       |    |            |                                      |                 |
|-------|----|------------|--------------------------------------|-----------------|
| (178) | a. | ví-p-á     | ‘and then they (C8) gave’            | /ví-pé-a +H/    |
|       | b. | ví-íp-á    | ‘and then they (C8) were/became bad’ | /ví-íp-a +H/    |
|       | c. | ví.-í-p-á  | ‘and then they (C8) gave them (C4)’  | /ví-gí-pé-a +H/ |
| (179) | a. | ví-sh-è    | ‘that they (C8) grind’               | /ví-si-e +H/    |
|       | b. | ví-ísh-è   | ‘that they (C8) put down’            | /ví-ik-í-e +H/  |
|       | c. | ví.-í-sh-è | ‘that they (C8) grind them (C4)’     | /ví-gí-si-e +H/ |

In (178) and (179) all three forms are distinct. The forms in (a) and (b) are both phonologically bisyllabic, with the (a) forms having a short V and the (b) forms have a long V in the word-initial syllable. What is of interest here is that the form in (b) is distinct from the form in (c) in each case. I suggest that this difference is one of number of phonological syllables. The forms in (b) are bisyllabic while those in (c) are trisyllabic. Phonetically, the main phonetic distinction between the (b) and the (c) forms lies in the length of the pronunciation of the [i] (just as it is between the (a) and the (b) forms).

While the language distinguishes between CVV and CV.V, it does not in fact distinguish between Ćv.́ and Ćv.́v̄ before a following Low toned TBU. This can be seen by comparing certain relative forms. As seen below the only difference between the URs of the 3 pl. relatives in the Far Past and those in the Perfect is that the former contains the TAM prefix /a-/ whereas the latter does not.

- |       |    |           |                    |
|-------|----|-----------|--------------------|
| (180) | a. | Far Past: | /á-ba-a-macrostem/ |
|       | b. | Perfect:  | /á-ba-macrostem/   |

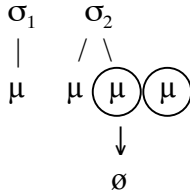
When the macrostem begins with a toneless TBU, the 3 pl. forms are homophonous, as seen below.

- |       |    |               |                               |                       |
|-------|----|---------------|-------------------------------|-----------------------|
| (181) | a. | á-á-zìis-íl-é | ‘those who have buried’       | /á-bá-ziik-il-e +H/   |
|       | b. | á-á-zìis-íl-é | ‘those who buried’ (Far Past) | /á-bá-a-ziik-il-e +H/ |



The tonology of (181a) is exactly as expected. After Relative H Delinking, the H on the word-initial syllable spreads into the following syllable by General Doubling. For (181b), the application of General Doubling (after MH Docking) yields *á-bá-a-ziis-il-é* (after which /b/-Deletion will apply). To account for the neutralization of the forms in (181) we must posit a rule which shortens a long onsetless syllable when it is immediately preceded by a (heterosyllabic) identical vowel. The configuration which triggers the deletion of the mora is given below.

(182) Onsetless Shortening



( $\sigma_2$  is onsetless and contains the same vowel found in  $\sigma_1$ )

When the macrostem begins with a H-toned TBU, then the rule will not apply, as illustrated below.

- (183) a. *á.-á-<sup>1</sup>swééz-il-é*                      ‘those who have fished’                      /á-bá-súel-il-e +H/  
b. *á.-áà-swééz-il-é*                      ‘those who fished’ (Far Past)                      /á-bá-a-súel-il-e +H/

The following forms show that the language does maintain a length contrast in the first syllable of a two syllable sequence where the second syllable is onsetless and the vowels are identical.

- (184) a. *yá-kú-<sup>1</sup>tíy-à*                      ‘they are celebrating a wedding’                      /yá-ku-tíy-a/  
b. *yá-kú-<sup>1</sup>tíiy-à*                      ‘they are gathering (firewood)’                      /yá-ku-tíiy-a/  
c. *yá-kú-<sup>1</sup>tí.-íl-à*                      ‘they are celebrating wedding for’                      /yá-ku-tíy-il-a/  
d. *ú-kú-<sup>1</sup>tíí.-íl-à*                      ‘they are gathering (firewood) for’                      /yá-ku-tíiy-il-a/

The roots in (184a-b) differ in that the first is monomoraic and the second is bimoraic. Both V’s are followed by /y/ which, it should be recalled, deletes before /i/ (§3.1.2). This /y/-deletion rule, like /b/ and /g/ deletion results in the heterosyllabicity of the V’s on either side. What is important here is that the forms in (184c-d) are distinct, showing that the length of the first V is not neutralized.

The Far Past forms below are interesting as they show the contrast in  $V_1$  and neutralization in  $V_2$ .

- (185) a. *tw-áà-tí.-íl-é*                      ‘we celebrated a wedding’                      /tú-a-tíy-il-e +H/  
b. *tw-áà-tíí.-íl-é*                      ‘we gathered (firewood)’                      /tú-a-tíiy-il-e +H/  
c. *tw-áà-tí.-íl-é*                      ‘we celebrated a wedding (for)’                      /tú-a-tíy-il-il-e +H/  
d. *tw-áà-tíí.il-é*                      ‘we gathered (firewood) for’                      /tú-a-tíiy-il-il-e +H/

While (185a) is distinct from (185b), and (185c) is distinct from (185d) (illustrating the contrast in  $V_1$ ), the forms in (185a) and (185c) are homophonous, as are the forms in (185b) and (185d) (illustrating the neutralization in  $V_2$ ).

## 10.5 Downstep Shift and High Delinking

### 10.5.1 Downstep shift in CNNVCV sequences

One very interesting part of Cilungu tonology is the avoidance of the sequence of a long level H followed by a downstepped H, i.e. C<sup>́</sup>v<sup>́</sup>C<sup>́</sup>. I will now show that if this sequence is created by the productive rules of the tonology, it must then be changed. As we will see, exactly how it is changed depends on its morpho-phonological context.

Let us begin by considering the following input forms:

- (186) a. ya-nga-n-las-a                      b. ya-nga-n-las-il-a                      U.R.  
           |    |    |                                    |    |    |  
           H   H H                                    H   H   H

If we now apply the rules of Fusion and General Doubling we derive the following.

- (187)      ya-ngaa-n-las-a                      ya-ngaa-n-las-il-a                      Fusion & General Doubling  
               | /       \ /                                    | /       | /    |  
               H       H                                    H       H    H

In both cases the H on /nga-/ spreads to the tautosyllabic mora supplied by the 1 sg. OM /n-/ creating the offending C<sup>́</sup>v<sup>́</sup>C<sup>́</sup> configuration. The way the language repairs this is by shifting the downstep one mora to the right. This is illustrated in the forms in (188). A second example of downstep shift is provided in (189).

- (188) a. yàà-ngáá-n-dá<sup>́</sup>s-á                      ‘they can hit me’                      /ya-ngá-n-lás-á/  
       b. yàà-ngáá-n-dá<sup>́</sup>s-í<sup>́</sup>l-á                      ‘they can hit for me’                      /ya-ngá-n-lás-il-á/  
       (189) a. yàà-ngáá-n-dú<sup>́</sup>m-á                      ‘they can bite me’                      /ya-ngá-n-lúm-á/  
               b. yàà-ngáá-n-dú<sup>́</sup>m-í<sup>́</sup>l-á                      ‘they can bite for me’                      /ya-ngá-n-lúm-il-á/

Downstep Shift is formalized as in (190) and its application is shown in the continuation of the derivations in (191).

- (190) Downstep Shift

CVVCVC<sub>0</sub>V  
   \ | / + /  
   H   H

- (191)      ya-ngaa-n-las-a                      ya-ngaa-n-las-il-a                      Downstep Shift  
               | /       /    |                                    | /       /    |    |  
               H       H                                    H       H H

The effect of downstep shift on forms with a long vowel in a stem-initial syllable is shown in (192), and illustrated in (193).

- (192) a. yàà-ngáá-n-dé<sup>1</sup>é<sup>1</sup>t-á ‘they can bring me’ /ya-ngá-n-léet-á/  
 b. yàà-ngáá-n-dé<sup>1</sup>ét-é<sup>1</sup>l-á ‘they can bring for me’ /ya-ngá-n-léet-il-á/

- (193) a. ya-nga-n-leet-a  
           |    |    |  
           H    H    H  
 b. ya-nga-n-leet-il-a  
           |    |    |  
           H    H    H

U.R.

ya-ngaa-n-deet-a  
       |       |   |  
       H       H   H

ya-ngaa-n-deet-el-a  
       |       |   |  
       H       H   H

Nasal Demor & Mid Vowel Harmony

ya-ngaa-n-deet-a  
       | /       | / |  
       H       H   H

ya-ngaa-n-deet-el-a  
       | /       | / |  
       H       H   H

General Doubling

ya-ngaa-n-deet-a  
       | /       | / |  
       H       H   H

ya-ngaa-n-deet-el-a  
       | /       | / |  
       H       H   H

Downstep Shift

If the Potential form contains a H-toned OM, then that H will fuse with the H on /nga-/ and downstep shift is still triggered as seen below.

- (194) a. yàà-ngá-yáá-n-dé<sup>1</sup>m-é<sup>1</sup>l-á ‘they can plant them for me’ /ya-ngá-yá-n-lém-il-á/  
 b. yàà-ngá-yáá-n-dé<sup>1</sup>ét-é<sup>1</sup>l-á ‘they can bring them for me’ /ya-ngá-yá-n-léet-il-á/

If, however, a toneless OM intervenes between H-toned /nga-/ and the 1 sg. marker /n-/, then the H on /nga-/ will spread to only the following mora and no downstep shift will be triggered (as no downstep was ever created), as seen below.

- (195) a. yàà-ngá-múù-n-dás-í<sup>1</sup>l-á ‘they can hit him for me’ /ya-ngá-mu-n-lás-il-á/  
 b. yàà-ngá-múù-n-sópòlwèèl-á ‘they can untie him for me’ /ya-ngá-mu-n-sópolol-il-á/

Forms of the type given in (188)-(189) in non-phrase-final position provide an interesting contrast with the Persistent Potential. Let us recall that the Persistent Potential has no melodic H and is signaled by /ngá-aa-/ instead of /ngá-/. This vowel length difference is neutralized, however, before /n-/ as no syllable can contain more than two morae (§10.4.5). The contrastive forms of interest are provided below:

- (196) a. yàà-ngáá-n-dé<sup>1</sup>m-é<sup>1</sup>l-á sààná ‘they can plant for me a lot’ /ya-ngá-n-lém-il-á/  
 b. yàà-ngáá-n-dém-èl-à sààná ‘they can keep on grabbing for me a lot’ /ya-ngá-aa-n-lem-il-a/

While the two above forms are segmentally identical, Downstep Shift only occurs in (196a). The H on the TAM prefix in (196b) simply undergoes bounded spreading.

Let us now consider forms with longer stems where Downstep Shift is expected to apply.

- (197) a. yàà-ngáá-n-sópòlòl-á ‘they can untie me’ /ya-ngá-n-sópolol-á/  
 b. yàà-ngáá-m-bélèèng-á ‘they can read me’sa’ /ya-ngá-n-bélang-á/

- |    |                        |                         |                        |
|----|------------------------|-------------------------|------------------------|
| c. | yàà-ngáá-m-pútw-ìil-á  | ‘they can slice for me’ | /ya-ngá-n-pútul-il-á/  |
| d. | yàà-ngáá-m-páàpààtik-á | ‘they can flatten me’   | /ya-ngá-n-páapaatik-á/ |

Let us examine (197a) more closely. Below we show its input and the effects of General Doubling and Downstep Shift.

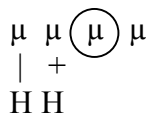
- |       |  |                  |
|-------|--|------------------|
| (198) | ya-nga-n-sopolol-a   | U.R.             |
|       | $\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$     |                  |
|       | ya-ngaa-n-sopolol-a  | General Doubling |
|       | $\begin{array}{ccc}   / &   / &   \\ \text{H} & \text{H} & \text{H} \end{array}$ |                  |
|       | ya-ngaa-n-sopolol-a  | Downstep Shift   |
|       | $\begin{array}{ccc}   / & / &   \\ \text{H} & & \text{H} \end{array}$            |                  |

The output of Spreading and Downstep Shift, then, is *yà-ngáá-n-sóp'ólòl-á*. There is reason to believe, however, that the second syllable of the stem surfaces as low instead of a downstepped H. Justification for this is seen in the following pair which surface homophonously.

- |       |    |                        |   |                        |
|-------|----|------------------------|---|------------------------|
| (199) | a. | yàà-ngáá-m-fúkùl-il-á  | ‘they can deepen a well for me’             | /ya-ngá-n-fúkùl-il-á/  |
|       | b. | yàà-ngáá-m-fúk-ùl-il-á | ‘they can turn something inside out for me’ | /ya-ngá-n-fuk-ul-il-á/ |

The only difference between the input of these two forms is that the (199a) has a root-initial H, whereas (199b) does not. The only tonal process which affects (199b) is binary spreading, which will spread the H from /ngá-/ onto the following syllable. Yet both of my consultants agree that these forms are completely homophonous. While there might be various ways to account for this, the most straightforward analysis is to assume that Downstep Shift applies creating *yà-ngáá-n-sóp'ólòl-á*, after which a Pre-L Downstep Deletion rule applies which simplifies the C<sup>́</sup>V<sup>́</sup>C<sup>́</sup>V<sup>́</sup>C<sup>̀</sup> sequence to C<sup>́</sup>V<sup>́</sup>C<sup>̀</sup>V<sup>́</sup>C<sup>̀</sup>.

#### (200) Pre-L Downstep Deletion



We note that Downstep Deletion will not apply when the toneless mora following the downstepped H is word-final, as the downstep is not deleted in infinitival forms such as the ones given below:<sup>8</sup>

<sup>8</sup> There appears not to be a phonological contrast in Cilungu between <sup>1</sup>H<sup>1</sup>HL and <sup>1</sup>HLL. Since these sequences are phonetically similar, it is difficult to know whether the rule of Downstep Deletion should in fact be more general (eliminating the rightmost mora from the rule), generating surface forms in (201) which end in <sup>1</sup>HLL.

- (201) a. ú-kú-<sup>1</sup>lé<sup>1</sup>m-él-à                      ‘to plant for’  
 b. ú-kú-<sup>1</sup>yá-<sup>1</sup>lém-à                      ‘to plant them’

I note here (and this will be relevant in the discussion that follows) that it is true that the examples in (197) and (199) could also be accounted for by a rule which simply deletes the root H in certain cases. The problem is defining the structures prosodically where the rule would apply. While it is true that such a rule would always apply when the stem contains four or more syllables (and never when it contains two), it applies in some forms which contain three stem syllables (e.g. *yàà-ngáá-m-bélèng-á*) and not others (e.g. *yàà-ngá-yáá-n-dé<sup>1</sup>ét-é<sup>1</sup>l-á*). And it should be obvious that an appeal to mora count is not viable either as both of these forms contain four morae. Here are additional examples of downstep shift from other TAMs which have a H-toned FV.

(202) Downstep Shift in Recent Perfect (§5.2.6)

- |    |   |                                 |                      |
|----|---|---------------------------------|----------------------|
| a. | yá-á-n-dá <sup>1</sup> s-á                    | ‘they have just hit’            | /yá-á-n-lás-á/       |
| b. | yá-á-n-dú <sup>1</sup> m-í <sup>1</sup> l-á   | ‘they have just bitten for me’  | /yá-á-n-lúm-il-á/    |
| c. | yá-á-n-swé <sup>1</sup> él-é <sup>1</sup> l-à | ‘they have just fished for me’  | /yá-á-n-súel-il-á/   |
| d. | yá-á-n-sópòlòl-á                              | ‘they have just untied me’      | /yá-á-n-sópolol-á/   |
| e. | yá-á-m-páàpààtik-á                            | ‘they have just flattend me’    | /yá-á-n-páapaatik-á/ |
| f. | w-àà-n-swé <sup>1</sup> él-é <sup>1</sup> l-à | ‘he/she has just fished for me’ | /u-á-n-súel-il-á/    |

(203) Downstep Shift in Recent Perfect 2 (§5.2.7)

- |    |  |                                 |                       |
|----|--|---------------------------------|-----------------------|
| a. | yá-á-cíi-n-sí-il-á                               | ‘they have just ground me’      | /yá-á-cí-n-si-il-á/   |
| b. | yá-á-cíi-n-sí- <sup>1</sup> l-á                  | ‘they have just left me’        | /yá-á-cí-n-sí-il-á/   |
| c. | yá-á-cíi-n-dá <sup>1</sup> s-á                   | ‘they have just hit me’         | /yá-á-cí-n-lás-á/     |
| d. | yá-á-cíi-n-dá <sup>1</sup> s-í <sup>1</sup> l-á  | ‘they have just hit for me’     | /yá-á-cí-n-lás-il-á/  |
| e. | yá-á-cíi-n-dé <sup>1</sup> é <sup>1</sup> t-á    | ‘they have just brought me’     | /yá-á-cí-n-léet-á/    |
| f. | yá-á-cíi-n-dé <sup>1</sup> ét-é <sup>1</sup> l-á | ‘they have just brought for me’ | /yá-á-cí-n-léet-il-á/ |
| g. | yá-á-cíi-n-sópòlòl-á                             | ‘they have just untied me’      | /yá-á-cí-n-sópolol-á/ |

As can be seen above, the TAMs in (202) and (203) exhibit the same pattern of Downstep Shift and in longer stems, Downstep Deletion. The 3 sg. form in (202f) shows that Downstep Shift has applied before /á-/ Delinking.

It turns out, however, that Downstep Shift does not apply across the board in every TAM. To illustrate this, let us consider the Yesterday Past. In stems of the shape CVVCV, Downstep Shift applies as illustrated below.

- (204) a. yá-á-n-sí-il-é                      ‘they ground me’                      /yá-á-n-si-il-é/  
 b. yá-á-n-sí-<sup>1</sup>il-é                      ‘they left me’                      /yá-á-n-sí-il-é/

And in the following forms which contain longer stems it appears that Downstep Shift has applied, followed by Downstep Deletion, exactly as was the case in (197) above.

- (205) a. yá-á-n-dém-i-il-é                      ‘they planted for me’                      /yá-á-n-lém-il-il-é/  
 b. yá-á-n-dém-i-il-é                      ‘they grabbed for me’                      /yá-á-n-lem-il-il-é/

- (206) a. yá-á-n-déènz-ìl-é ‘they drew me’ /yá-á-n-léng-il-é/  
 b. yá-á-n-déènz-ìl-é ‘they begged me’ /yá-á-n-leng-il-é/
- (207) a. yá-á-n-swéèl-ìl-é ‘they fished for me’ /yá-á-n-súel-il-il-é/  
 b. yá-á-n-swéèl-ìl-é ‘they brewed for me’ /yá-á-n-suel-il-il-é/
- (208) a. mw-áá-yáá-n-dém-ìl-é ‘you planted them for me’ /mú-á-yá-n-lém-il-il-lé/  
 b. mw-áá-yáá-n-dém-ìl-é ‘you grabbed them for me’ /mú-á-yá-n-lem-il-il-é/

The problematic forms in the Yesterday Past are those where the stem is the shape CVCVCV, as shown below.

- (209) a. yá-á-n-dás-ìl-é ‘they hit me’ /yá-á-n-lás-il-é/  
 b. yá-á-n-dúm-ìl-é ‘they bit me’ /yá-á-n-lúm-il-é/  
 c. yá-á-n-kóm-ìl-é ‘they cut me’ /yá-á-n-kóm-il-é/
- (210) a. yá-á-n-dém-ìl-é ‘they planted me’ /yá-á-n-lém-il-é/  
 b. yá-á-n-dém-ìl-é ‘they grabbed me’ /yá-á-n-lem-il-é/

As can be seen, there is no evidence for downstep shift in these forms. The forms in (210) show that in these cases there is a tonal neutralization of the verb root, exactly as is the case with the longer forms in (199). But this is not predicted by our rules, which would yield the derivation given below.

- (211) ya-a-n-lem-il-e U.R.  
 | | | |  
 H H H H
- (212) ya-a-n-lem-il-e Fusion & General Doubling  
 \ / | / |  
 H H H
- (213) ya-a-n-lem-il-e Downstep Shift  
 \ / / | |  
 H H H

The grammatical form, however, is not \*yáá-n-dé<sup>l</sup>m-í<sup>l</sup>lé, but yá-á-n-dém-ìl-é, whose structure is shown in (214).

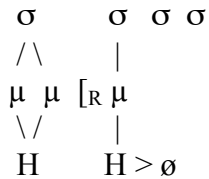
- (214) ya-a-n-lem-il-e P.R.  
 \ / / |  
 H H

It is not immediately obvious to how account for the exceptionality of forms such as (210a) and (209). That the tonal structure of the last three syllables of the form (i.e. C<sup>1</sup> V<sup>1</sup> C<sup>1</sup> V<sup>1</sup> C<sup>1</sup> V<sup>1</sup> w]) produced in the derivation in (214) is tonotactically well-formed, as shown in the examples below.

- (215) a. yá-á-n-dú<sup>1</sup>m-í<sup>1</sup>l-á ‘they have just bitten for me’ /yá-á-n-lúm-il-á/  
 b. ú-kú-<sup>1</sup>lé<sup>1</sup>m-á ‘to plant’ /ú-ku-lém-a +H/

It seems then that we need a rule which deletes the root H in certain cases. The rule will have to be morphologically conditioned as it will only apply in certain TAMs. If ordered after General Doubling, but before Heterosyllabic Doubling, it could be motivated by the OCP and formalized below.

(216) Post Long Root H Deletion



The rule of Post Long Root H Deletion will delete a H from a short root-initial syllable if that syllable is preceded by a long level H, and if it is followed by at least two syllables. Since this rule applies before Downstep Shift, it will actually apply in the forms in (210a) and (209) (and therefore downstep shift and downstep deletion will not apply to them.) Importantly, the rule has to be morphologically conditioned, since it must not apply in the Potential and the other TAMs discussed in (202) and (203) above. It will apply in the Yesterday Past (§5.2.2) as well as the Recent Past (§5.2.4), which is structurally the same as the Yesterday Past, with the addition of the TAM prefix /cí-/. This is shown below.

- (217) a. yá-á-cíí-n-sí-il-é ‘they recently ground me’ /yá-á-cí-n-si-il-é/  
 b. yá-á-cíí-n-sí-<sup>1</sup>il-é ‘they recently left me’ /yá-á-cí-n-sí-il-é/  
 (218) a. yá-á-cíí-n-dém-il-é ‘they recently planted me’ /yá-á-cí-n-lém-il-é/  
 b. yá-á-cíí-n-dém-il-é ‘they recently grabbed me’ /yá-á-cí-n-lem-il-é/  
 (219) a. yá-á-cíí-n-dém-i-il-é ‘they recently planted for me’ /yá-á-cí-n-lém-il-il-é/  
 b. yá-á-cíí-n-dém-i-il-é ‘they recently grabbed for me’ /yá-á-cí-n-lém-il-il-é/

Of the TAMs with a H-toned Final Vowel, let us turn lastly to the Yesterday Past Progressive, which ends in /-ang-a/. Since the ending adds two syllables, like the Yesterday Past /-il-e/, we predict that in roots which add one or more syllables, there will be a neutralization in H-toned and toneless roots. That this is true is illustrated below.

- (220) a. yá-á-n-dás-ààng-á ‘they were hitting me’ /yá-á-n-lás-ang-á/  
 b. yá-á-n-dúm-ààng-á ‘they were biting me’ /yá-á-n-lúm-ang-á/  
 (221) a. yá-á-n-dás-il-ààng-á ‘they were hitting for me’ /yá-á-n-lás-il-ang-á/  
 b. yá-á-n-dúm-il-ààng-á ‘they were biting for me’ /yá-á-n-lúm-il-ang-á/

The tonal neutralization can be seen clearly in the forms below:

- (222) a. yá-á-n-dém-ààng-á ‘they were grabbing me’ /yá-á-n-lém-ang-á/  
 b. yá-á-n-dém-ààng-á ‘they were planting me’ /yá-á-n-lem-ang-á/
- (223) a. yá-á-n-déèng-ààng-á ‘they were drawing me’ /yá-á-n-leng-ang-á/  
 b. yá-á-n-déèng-ààng-á ‘they were begging me’ /yá-á-n-léng-ang-á/

As was the case in the Yesterday Past, the only time the stem contains only two syllables is when the root is of the shape CV. Such examples are given below.

- (224) a. yá-á-n-sh-áàng-á ‘they were grinding me’ /yá-á-n-si-ang-á/  
 b. yá-á-n-sh-á<sup>1</sup>àng-à ‘they were leaving me’ /yá-á-n-sí-ang-á/

Just as was the case in the Yesterday Past, this is the only time that Downstep Shift applies in this TAM, something now accounted for by the Post Long Root H Deletion rule in (216), formalized not to apply in bisyllabic stems.

Let us now turn to the creation of C<sup>1</sup>v<sup>1</sup>C<sup>1</sup> in the V2-FV TAMs (§5.3) with 1 sg. object markers. All (non-null) V2 TAM prefixes are toneless. Therefore in order to meet the requirements of Downstep Shift, a H-toned object marker needs to be present before /n-/. In this situation, Downstep Shift will apply as seen in the Far Past.

- (225) a. mw-àà-yáá-n-dé<sup>1</sup>m-ííl-é ‘you (pl.) planted them for me a lot’ /mú-a-yá-n-lém-il-il-e +H/  
 b. mw-àà-yáá-n-dé<sup>1</sup>ét-ííl-é ‘you (pl.) brought them for me’ /mú-a-yá-n-léet-il-il-e +H/  
 c. mw-àà-yáá-n-só<sup>1</sup>pólwéél-ííl-é ‘you (pl.) untied them for me’ /mú-a-yá-n-sópolol-il-il-e +H/  
 d. mw-àà-yáá-m-pá<sup>1</sup>ápáátík-ííl-é ‘you (pl.) flattened them for me’ /mú-a-yá-m-páapaatik-il-il-e +H/

A derivation of (225a) is provided below.

- (226) mu-a-ya-n-lem-il-il-e      Input  
       |        |        |  
       H        H        H        H
- mu-a-yaa-n-lem-i-il-e      Imbricatin, MH Docking, Leftward Spreading & Fusion  
       |        |        \    \ /  
       H        H        H
- mu-a-yaa-n-lem-i-il-e      General Doubling  
       |        /        \    \ /  
       H        H        H
- mu-a-yaa-n-lem-i-il-e      Downstep Shift  
       |        \ \    /    \ /  
       H        H        H

That Downstep Shift will not apply if an H-toned OM does not precede /n-/ (as no downstep is ever created) is shown below:



- (227)
- |    |                        |                               |                             |
|----|------------------------|-------------------------------|-----------------------------|
| a. | yá-à-n-dúk-ííl-é       | ‘they vomited on me’          | /yá-a-n-lúk-il-il-e +H/     |
| b. | yá-à-n-déés-íl-é       | ‘they brought me’             | /yá-a-n-léet-il-il-e +H/    |
| c. | yá-á-mùù-n-déét-í-íl-é | ‘they brought him/her for me’ | /yá-a-mu-n-léet-il-il-e +H/ |

The application of Downstep Shift in other V2 TAMs is shown below:

(228) Remote Future (§5.3.4)

- |    |   |                                    |                              |
|----|---|------------------------------------|------------------------------|
| a. | mú-lá- <sup>1</sup> yáá-n-dá <sup>1</sup> s-íl-á    | ‘you (pl.) will hit them for us’   | /mú-la-yá-n-lás-il-a +H/     |
| b. | mú-lá- <sup>1</sup> yáá-m-pé <sup>1</sup> él-á      | ‘you (pl.) will give them to me’   | /mú-la-yá-n-pé-il-a +H/      |
| c. | mú-lá- <sup>1</sup> yáá-n-dé <sup>1</sup> ét-él-á   | ‘you (pl.) will bring them to me’  | /mú-la-yá-n-léet-il-a +H/    |
| d. | mú-lá- <sup>1</sup> yáá-n-só <sup>1</sup> pólwéél-á | ‘you (pl.) will untie them for me’ | /mú-la-yá-n-sópolol-il-a +H/ |

(229) Far Past Progressive (§5.3.3)

- |    |   |                                       |                              |
|----|---|---------------------------------------|------------------------------|
| a. | mw-áá-yáá-n-dé <sup>1</sup> m-él-ááng-á   | ‘you (pl.) were planting them for me’ | /mú-a-yá-n-lém-il-ang-a +H/  |
| b. | mw-áá-yáá-n-dé <sup>1</sup> ét-él-áá-ng-á | ‘you (pl.) were bringing them to me’  | /mú-a-yá-n-léet-il-ang-a +H/ |
| c. | mw-áá-yáá-n-só <sup>1</sup> pólwéél-á     | ‘you (pl.) were untying them for me’  | /mú-a-yá-n-sópolol-il-a +H/  |

(230) Remote Perfect (§5.3.5)

- |    |                                       |  |                             |
|----|---------------------------------------|--|-----------------------------|
| a. | mw-áá-yáá-n-dá <sup>1</sup> s-íl-á    | ‘you (pl.) have already hit them for me’         | /mú-a-yá-n-lás-il-a +H/     |
| b. | mw-áá-yáá-n-dé <sup>1</sup> ét-él-á   | ‘you (pl.) have already brought them for me’     | /mú-a-yá-n-léet-il-a +H/    |
| c. | mw-áá-yáá-n-só <sup>1</sup> pólwéél-á | ‘you (pl.) have already untied them for me’      | /mú-a-yá-n-sópolol-il-a +H/ |
| d. | mù-tá-à-yáá-n-dé <sup>1</sup> m-él-á  | ‘you (pl.) have not already planted them for me’ | /mu-tá-a-yá-n-lém-il-a +H/  |

There are three V2 TAMs which have a null TAM prefix. In these cases we expect Downstep Shift to apply both when a H-toned OM is present as well as when no OM is present. This is exactly the case, as illustrated below.

(231) Perfect (§5.3.7)

- |    |                                   |                                |                             |
|----|-----------------------------------|--------------------------------|-----------------------------|
| a. | múú-n-dú <sup>1</sup> m-íl-é      | ‘you (pl.) have bitten me’     | /mú-n-lúm-il-e +H/          |
| b. | múú-n-jí <sup>1</sup> mb-ííl-é    | ‘you (pl.) have sung for me’   | /mú-n-imb-il-il-e +H/       |
| c. | yáá-n-dé <sup>1</sup> ét-ííl-é    | ‘they have brought for me’     | /yá-n-léet-il-il-e +H/      |
| d. | yáá-m-pá <sup>1</sup> ápáát-íík-é | ‘they have flattened for me’   | /yá-n-páapaatik-il-il-e +H/ |
| e. | mú-yáá-n-dé <sup>1</sup> m-ííl-é  | ‘you have planted them for me’ | /mú-yá-n-lém-il-il-e +H/    |

(232) Narrative Past (§5.3.8)

- |    |                                 |                                    |                       |
|----|---------------------------------|------------------------------------|-----------------------|
| a. | múú-n-dé <sup>1</sup> m-á       | ‘and then you (pl.) planted me’    | /mú-n-lém-a +H/       |
| b. | yáá-n-dé <sup>1</sup> ét-á      | ‘they have already brought me’     | /yá-n-léet-a +H/      |
| c. | yáá-n-só <sup>1</sup> pólól-á   | ‘they have already untied me’      | /yá-n-sópolol-a +H/   |
| e. | mú-yáá-n-dé <sup>1</sup> m-él-á | ‘and then you planted them for me’ | /mú-yá-n-lém-il-a +H/ |

(233) Subjunctive (§5.3.9)

- |    |                                    |                                    |                             |
|----|------------------------------------|------------------------------------|-----------------------------|
| a. | yáá-n-dá <sup>1</sup> s-é          | ‘that they hit me’                 | /yá-n-lás-e +H/             |
| b. | yáá-n-dé <sup>1</sup> m-él-é       | ‘that they plant for me’           | /yá-n-lém-il-e +H/          |
| c. | yáá-n-sú <sup>1</sup> úl-é         | ‘that they ignore me’              | /yá-n-súul-e +H/            |
| d. | yáá-n-só <sup>1</sup> pól-ól-é pò  | ‘that they untie me’               | /yá-n-sópolol-e +H/         |
| e. | yáá-m-pá <sup>1</sup> ápáát-íík-é  | ‘that they flatten for me’         | /yá-n-páapaatik-il-il-e +H/ |
| f. | mú-yáá-n-só <sup>1</sup> pólwéél-é | ‘that you (pl.) untie them for me’ | /mú-yá-n-sópolol-e +H/      |

Finally, let us turn to TAMs with no MH. In the majority of such TAMs, the C<sup>1</sup>v<sup>1</sup>C<sup>1</sup> configuration is avoided, though not through Downstep Shift. Instead, the H on the pre /n-/ mora fails to spread to the mora contributed by this nasal. This is exemplified below.

- |          |   |  |                            |
|----------|---|--|----------------------------|
| (234) a. | mùù-ngáà-yáà-n-déét-él-à                          | ‘you (pl.) can keep on bringing them for me’ | /mu-ngá-aa-yá-n-léet-il-a/ |
| b.       | yá-à-yáà-n-dás-íl-à                               | ‘let them start to hit them for me’          | /yá-aa-yá-n-lás-il-a/      |
| c.       | yá-máà-yáà-n-dás-íl-à                             | ‘they will now hit them for me’              | /yá-maa-yá-n-lás-il-a/     |
| d.       | yá-káà-yáà-n-dás-íl-à                             | ‘they shoot them for me’ (Hab)               | /yá-kaa-yá-n-lás-il-a/     |
| e.       | yá- <sup>1</sup> máà- <sup>1</sup> yáà-n-dás-íl-à | ‘these days they shoot them for me’          | /yá-ma-aa-yá-n-lás-il-a/   |

There are two TAMs with no MH, however, which behave differently than those illustrated above in (234). The first is the Persistentive (§5.1.10). In this TAM Downstep Shift applies straightforwardly as seen below.

- |          |  |                                       |                               |
|----------|--|---------------------------------------|-------------------------------|
| (235) a. | yá-cí-lí- <sup>1</sup> yáá-n-dá <sup>1</sup> s-íl-à    | ‘they are still hitting them for me’  | /yá-cí-líi-yá-n-lás-il-a/     |
| b.       | yá-cí-lí- <sup>1</sup> yáá-n-dé <sup>1</sup> ét-él-à   | ‘they are still bringing them for me’ | /yá-cí-líi-yá-n-léet-il-a/    |
| c.       | yá-cí-lí- <sup>1</sup> yáá-n-só <sup>1</sup> pólwéél-à | ‘they are still untying them for me’  | /yá-cí-líi-yá-n-sópolol-il-a/ |

In each case the H on /yá-/ has first spread to the mora supplied by the 1 sg. OM, creating the C<sup>1</sup>v<sup>1</sup>C<sup>1</sup> configuration, after which Downstep Shift applies.

The other TAM which exhibits downstep shift is the Present Progressive (§5.1.1), which exhibits the same pattern as the Persistentive as seen below.

- |          |  |                                |                          |
|----------|--|--------------------------------|--------------------------|
| (236) a. | ú-kú- <sup>1</sup> yáá-m-pé <sup>1</sup> él-à      | ‘you are giving them to me’    | /ú-ku-yá-n-pé-il-a/      |
| b.       | ú-kú- <sup>1</sup> yáá-n-dé <sup>1</sup> m-él-à    | ‘you are planting for me’      | /ú-ku-yá-n-lém-il-a/     |
| c.       | ú-kú- <sup>1</sup> yáá-n-dé <sup>1</sup> ét-él-à   | ‘you are bringing them for me’ | /ú-ku-yá-n-léet-il-a/    |
| d.       | ú-kú- <sup>1</sup> yáá-n-só <sup>1</sup> pólwéél-à | ‘you are untying them for me’  | /ú-ku-yá-n-sópolol-il-a/ |

In each case the H on /yá-/ undergoes binary spreading to the following tautosyllabic mora and the root-initial H undergoes unbounded spreading to the penult, after which Downstep Shift applies. It turns out that the verbal infinitive (§6.1) counterparts to the Present Progressive forms above are identical.

- |          |  |                        |                             |
|----------|--|------------------------|-----------------------------|
| (237) a. | ú-kú- <sup>1</sup> yáá-m-pé <sup>1</sup> él-à      | ‘to give them to me’   | /ú-ku-yá-n-pé-il-a +H/      |
| b.       | ú-kú- <sup>1</sup> yáá-n-dé <sup>1</sup> m-él-à    | ‘to plant for me’      | /ú-ku-yá-n-lém-il-a +H/     |
| c.       | ú-kú- <sup>1</sup> yáá-n-dé <sup>1</sup> ét-él-à   | ‘to bring them for me’ | /ú-ku-yá-n-léet-il-a +H/    |
| d.       | ú-kú- <sup>1</sup> yáá-n-só <sup>1</sup> pólwéél-à | ‘to untie them for me’ | /ú-ku-yá-n-sópolol-il-a +H/ |

As has been made clear, the only difference in the underlying structure between the 2 sg. Present Progressive and the infinitival forms is the presence of a MH in the latter. That our analysis predicts this homophony straightforwardly is illustrated below.

(238)	Infinitive	2 sg. Progressive	
	u-ku-ya-n-sopolw-eel-a       H H H H	u-ku-ya-n-sopolw-eel-a       H H H	Input + 2 <sup>nd</sup> -ary Imbrication
	u-ku-yaa-n-sopolw-eel-a         H H HH	n/a	MH Docking
	u-ku-ya a-n-sopolw-eel-a   /   /     // H H HH	u-ku-ya a-n-sopolw-eel-a   /   /   / // H H H	General Doubling & Unbounded Spreading
	u-ku-ya a-n-sopolw-eel-a   /   / /   // H H HH	u-ku-ya a-n-sopolw-eel-a   /   / /   // H H H	Downstep Shift

As can be seen downstep shift will apply in both cases, removing the link from the H to the root-initial TBU. In the infinitival form, this will cause the H to be completely unlinked, and I assume it simply remains floating. In the case of the 2 sg. form, the H that the root-initial TBU was linked to is multiply linked and the other links remain in tact. As can be seen, the surface form is the same in both cases.

### 10.5.2 Downstep shift in verbs with V-initial roots

The examples above which exemplify the phenomenon of Downstep Shift all involve the 1 sg. OM /n-/. Let us now turn to other cases of Downstep Shift. The next environment we will examine are toneless V-initial roots preceded by H-toned morphemes in V2 TAMs. Consider, e.g., the following input of ‘we have betrayed’ in the Perfect (§5.3.7), containing the base /akul-il/ ‘betray’.

(239)	tu-aluk-il-il-e	Input
	 H H	

The application of MH Docking and Spreading will create the illicit ĆV́¹ĆV́ sequence as seen below:

(240) tw-aaluk-i-il-e Imbrication, Gliding & MH Docking  
 | \ V /  
 H H

tw-aaluk-i-il-e General Doubling  
 V \ V /  
 H H

At this point, Downstep Shift will apply, yielding the grammatical form , as seen below:

(241) tw-aaluk-i-il-e Downstep Shift  
 V / V /  
 H H

Examples of other Perfect forms exhibiting Downstep Shift are given below.

- (242) a. tw-íímv-í<sup>1</sup>l-é ‘we have dug’ /tú-imb-il-e +H/  
 b. tw-ééélé<sup>1</sup>éngány-íz-y-é ‘we have considered’ /tú-elengany-il-e +H/

In each case above, the placement of the MH on the first mora of second root syllable creates the illicit C<sup>1</sup>ǃC<sup>1</sup> configuration. Downstep Shift then applies which moves the downstep one mora to the right, such that the resulting tone pattern is C<sup>1</sup>ǃC<sup>1</sup>C<sup>1</sup>C<sup>1</sup><sub>0</sub>ǃ. As was the case in the forms in section 10.5.1 above, Downstep Shift applies regardless of whether the H toned morpheme before the root is a Subject Marker or an Object Marker. A few cases of Downstep Shift triggered by an Object Marker in the Perfect are given below.

- (243) a. tú-y-ééélé<sup>1</sup>éngány-íz-y-é ‘we have considered them’ /tú-yá-elengany-il-e +H/  
 b. tú-mw-íímb-í<sup>1</sup>l-é ‘we have dug for you (pl.)’ /tú-mú-imb-il-il-e +H/  
 c. tú-y-éél-í<sup>1</sup>íl-é ‘we have winnowed for them’ /tú-yá-el-il-il-e +H/

Examples of forms exhibiting Downstep Shift from other V2 TAMs are given below.

(244) Narrative Past (§5.3.8)

- a. tw-íímb-í<sup>1</sup>l-á ‘and then we dug for’ /tú-imb-il-a +H/  
 b. tw-ééélé<sup>1</sup>k-él-é ‘and then we cooked for’ /tú-elek-il-a +H/  
 c. tw-ééélé<sup>1</sup>éngány-á ‘and then we considered’ /tú-elengany-a +H/  
 d. tú-mw-íímb-í<sup>1</sup>l-á ‘and then we dug for you (pl.)’ /tú-mú-imb-il-a +H/  
 e. tú-y-ééélé<sup>1</sup>éngány-á ‘and then we considered them’ /tú-yá-elengany-a +H/  
 f. tú-y-ééélé<sup>1</sup>k-él-á ‘and then we cooked for them’ /tú-yá-elek-il-a +H/

(245) Rem Perf (§5.3.4)

- a. tw-áà-mw-ééélé<sup>1</sup>éngány-á ‘we have already considered you (pl.)’ /tú-a-mú-elengany-a +H/  
 b. tw-áà-í-ímb-í<sup>1</sup>l-á ‘we have already dug for them’ /tú-a-yá-imb-il-a +H/  
 c. tw-áà-y-éél-é<sup>1</sup>l-á ‘we have already winnowed for them’ /tú-a-yá-el-il-a +H/

(246) Far Past (§5.3.1)

- |    |   |                          |                            |
|----|---|--------------------------|----------------------------|
| a. | tw-áà-mw-íímv-í <sup>1</sup> l-é        | ‘we dug you (pl.) out’   | /tú-a-mú-imb-il-e +H/      |
| b. | tw-áà-mw-íímb-í <sup>1</sup> l-é        | ‘we dug for you (pl.)’   | /tú-a-mú-imb-il-il-e +H/   |
| c. | tw-áà-y-éél <sup>1</sup> éngány-ííz-y-é | ‘we considered them’     | /tú-a-yá-elengany-il-e +H/ |
| d. | tù-tàà-í-ímv-í <sup>1</sup> l-é         | ‘we didn’t dig them out’ | /tu-tá-a-yá-imb-il-e +H/   |

(247) Far Past Prog (§5.3.3)

- |    |                                       |                                 |                           |
|----|---------------------------------------|---------------------------------|---------------------------|
| a. | tw-áà-mw-íímb-íl- <sup>1</sup> ááng-á | ‘we were digging for you (pl.)’ | /tú-a-mú-imb-il-ang-a +H/ |
| b. | tw-áà-y-éél-él- <sup>1</sup> ááng-á   | ‘we were winnowing for them’    | /tú-a-yá-el-il-ang-a +H/  |

(248) Remote Future (§5.3.4)

- |    |  |                              |                          |
|----|--|------------------------------|--------------------------|
| a. | tú-lá- <sup>1</sup> mw-éél <sup>1</sup> éngány-á | ‘we will consider you (pl.)’ | /tu-la-mú-elengang-a +H/ |
| b. | tú-lá- <sup>1</sup> y-éél-é <sup>1</sup> l-á     | ‘we will winnow for them’    | /tu-la-yá-el-il-a +H/    |
| c. | à-là-y-úúm-í <sup>1</sup> l-á                    | ‘he/she will beat for them’  | /tu-la-yá-um-il-a +H/    |
| d. | tú-lá- <sup>1</sup> y-éél <sup>1</sup> k-él-á    | ‘we will cook for them’      | /tu-la-yá-elek-il-a +H/  |

(249) Subjunctive (§5.3.9)

- |    |                                |                             |                       |
|----|--------------------------------|-----------------------------|-----------------------|
| a. | tú-y-íímb-í <sup>1</sup> l-é   | ‘that we dig for you (pl.)’ | /tú-yá-imb-il-e +H/   |
| b. | tú-y-éél <sup>1</sup> k-él-é   | ‘that we cook for them’     | /tú-yá-elek-il-e +H/  |
| c. | tú-y-éél <sup>1</sup> éngány-é | ‘that we consider them’     | /tú-yá-elengany-e +H/ |
| d. | tù-t-íímb-í <sup>1</sup> l-á   | ‘that we not dig for’       | /tu-tá-imb-il-a +H/   |

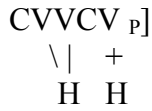
(250) Imperative (§5.3.10)

- |    |                              |                  |                    |
|----|------------------------------|------------------|--------------------|
| a. | tw-íímb-í <sup>1</sup> l-é   | ‘dig for us!’    | /tú-imb-il-e +H/   |
| b. | tw-éél <sup>1</sup> éngány-é | ‘consider us!’   | /tú-elengany-e +H/ |
| c. | y-úúm-í <sup>1</sup> l-é     | ‘beat for them!’ | /yá-um-il-e +H/    |

### 10.5.3 Resolution of word-final C<sup>1</sup>ǃC<sup>1</sup>

In all the examples presented in sections 10.5.1 and 10.5.2 above, the \*C<sup>1</sup>ǃC<sup>1</sup> configuration to be resolved was followed by at least one additional mora within the word. Let us now examine what happens when this illicit configuration is word-final. When this occurs the downstepped H cannot shift one mora to the right as no mora exists in that position. In such cases, Cilungu resolves the problem by delinking the Melodic H. This was formalized as Phrase-final Downstep Deletion in §5.2.1 and is repeated below.

(251) Phrase-final Downstep Deletion



Examples illustrating the application of this rule are given below.

(252) Examples of Final H Deletion in FV TAMs

a.	tw-áá-léet-à	‘we have just brought’	/tú-á-léet-á/
b.	tw-áá-yá-léet-à	‘we have just brought them’	/tú-á-yá-léet-á/
c.	yàà-ngá-súul-à	‘they can ignore’	/ya-ngá-súul-á/
d.	yàà-ngá-yá-súul-à	‘they can ignore them’	/ya-ngá-yá-súul-á/
e.	tùù-ng-éél-à	‘we can winnow’	/tu-ngá-el-á/
f.	tùù-ngá-ví-imb-à	‘we can dig them (C8) out’	/tu-ngá-ví-imb-á/

(253) Examples of Final H Deletion in V2 TAMs

a.	tú-úm-à	‘and then we beat’	/tú-um-a +H/
b.	tw-íimb-à	‘and then we dug’	/tú-imb-a +H/
c.	tw-éél-à	‘and then we winnowed’	/tú-el-a +H/
d.	tú-mú-úm-à	‘and then we beat you’	/tú-mú-um-a +H/
e.	n-íimb-è	‘let me dig’	/ń-imb-e +H/

As can be seen, the H on the FV does not surface regardless of whether it originated as a MH in a V2 TAM (252) or a FV TAM (253). Additionally, we see that the H which spreads onto the tautosyllabic mora can be a H on a root, an OM, a TAM prefix or a SM.

That this process also affects nouns can be seen below:

(254) a.	kà-lwááz-y-à	‘doctor’	/ka-lúal- <u>i</u> -á/
b.	kà-lóósh-à	‘mourner’	/ka-lóosi-á/

Below are derivations of (253a) and (252b).

(255)	a.	tu-um-a   H H	b.	ya-nga-suul-a       H H H	Input
		tu-um-a     H H			MH Docking
			yaa-nga-suul-a \ /   H H		Fusion
		tu-um-a   /   H H	ya-nga-suul-a \\ /   H H		General Doubling
		tu-um-a   / H H	ya-nga-suul-a     / H H H		Phrase-final Downstep Deletion

This analysis predicts that there could be a surface neutralization between two forms, one of which has a H on the FV and the other of which does not. That this is true can be seen below.

(256)	a.	tw-áà-mw-íimb-à	‘let us start to dig you out’	/tú-áa-mú-imb-a/
	b.	tw-áà-mw-íimb-à	‘we have already dug you out’	/tú-a-mú-imb-a +H/

At this juncture we must raise the issue as to whether we really need two rules which affect a H in the syllable after a C<sup>́</sup>V<sup>́</sup> (i.e. Downstep Shift (190) as well as Phrase-final Downstep Deletion (251)), or whether one could do. Let us suppose we adopt the rule in (257).

(257)	CVVCV
	\   / +
	H H

It should be obvious that this will straightforwardly account for all the phrase-final cases such as those derived in (255). But it will not successfully replace the rule of Downstep Shift for the non-word-final cases. This can be seen by comparing the forms below.

(258)	yàà-ngáá-n-dé <sup>1</sup> m-á	‘they can plant me’	/ya-ngá-n-lém-á/
	yàà-ngáá-n-dèm-á	‘they can grab me’	/ya-ngá-n-lem-á/

The application of General Doubling on the inputs of these is shown below.

(259) a.	ya-nga-n-lem-a	b.	ya-nga-n-lem-a	Input
	$\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$		$\begin{array}{cc}   &   \\ \text{H} & \text{H} \end{array}$	
	ya-nga a-n-lem-a		ya-nga a-n-lem-a	Demorification, CL & Fusion
	$\begin{array}{cc}   & \backslash / \\ \text{H} & \text{H} \end{array}$		$\begin{array}{cc}   &   \\ \text{H} & \text{H} \end{array}$	
	ya-nga a-n-lem-a		ya-nga a-n-lem-a	General Doubling
	$\begin{array}{cc}   / & \backslash / \\ \text{H} & \text{H} \end{array}$		$\begin{array}{cc}   / &   \\ \text{H} & \text{H} \end{array}$	

As can be seen, if a rule such as the one in (257) above now applies to (259a), then it will incorrectly neutralize the distinction between these two.

We recall here that the rule of Heterosyllabic Doubling will not apply to spread a doubly-linked H to create an OCP violation, which predicts exactly the right results in (259b). I therefore conclude that while the two rules in (190) and (251) are similar in nature, they cannot in fact be reduced to a single linearly-ordered process.

Let us now turn to instances where forms such as those in (252) and (253) are non-phrase-final.

(260) a.	tú-úm-á Chòòlà	‘and then we beat Chola’	/tú-um-a +H Choola/
b.	tú-úm-á nìngó	‘and then we beat well’	/tú-um-a +H ñingó/
c.	tú-mú-úm-á nìngó	‘and then we beat you (pl.) well’	/tú-mú-um-a +H ñingó/
d.	yá-á-lééng-á kà-súl-à	‘they have just begged the blacksmith’	/yá-á-léng-á ka-súl-a/
(261) a.	tú-úm-á <sup>1</sup> sàaná	‘and then we beat a lot’	/tú-um-a +H sáaná/
b.	tw-áá-swéél-á <sup>1</sup> pó	‘we have just fished’	/tú-á-súel-á pó/
c.	yá-á-lééng-á <sup>1</sup> sàaná	‘they have just begged a lot’	/yá-á-léng-á sáaná/
d.	tùù-ng-éél-á <sup>1</sup> sàaná	‘we can winnow a lot’	/tu-ngá-el-á sáaná/
e.	tùù-ngá-ví-imb-á <sup>1</sup> sàaná	‘we can dig them (C8) out a lot’	/tu-ngá-ví-imb-á sáaná/
f.	léét-á <sup>1</sup> sàaná	‘bring a lot!’	/léet-á sáaná/

In (260) we see forms where the initial TBU of the following word is toneless while in (261) we see forms where the initial TBU of the following word is H-toned. In every case the preceding verb ends in C<sup>1</sup> C<sup>2</sup> C<sup>3</sup>. This is directly predicted by our analysis, as illustrated below.



(262)	tu-um-a saana              H    H   H H	tu-um-a Choola            H       H	Input
	tu-um-a saana                H       H H H	tu-um-a Choola            H       H	MH Docking
	tu-um-a saana   /           H       H H H	tu-um-a Choola   /       H       H	General Doubling
	tu-um-a saana   /   /       H       H H H	tu-um-a Choola   /   /     H       H	Downstep Shift

As can be seen, the application of Downstep Shift predicts the correct phrasal form in both cases. This analysis correctly predicts that while the forms in (263a-b) are identical in isolation, they are distinct when a word beginning with a H tone follows (264a-b).

(263)	a. tw-áà-mw-íimb-à	‘let us start to dig you up’	/tú-áa-mú-imb-a/
	b. tw-áà-mw-íimb-à	‘we have already dug you up’	/tú-a-mú-imb-á/
(264)	a. tw-áà-mw-íimb-à sáaná	‘let us start to dig you up a lot’	/tú-áa-mú-imb-a sáaná/
	b. tw-áà-mw-íimb-á sáaná	‘we have already dug you up’	/tú-a-mú-imb-á sáaná/

#### 10.5.4 Apparent surface exceptions to Ćv́¹Ćv́

It is important to note that the Ćv́¹Ćv́ sequences resolved by the processes just described above are those where the Ćv́ is a single syllable with a long vowel. A Ćv́.v́¹Ćv́ sequence is a licit one, as seen in the examples below.

(265)	a. á-á-¹lú¹mééndò	‘boys’	/á-ba-lúmendo +H/
	b. á-á-¹ká¹zyáaná	‘girls’	/á-ba-kázyana +H/
(266)	a. ú-ú-¹sí¹kú	‘night’	/ú-bu-síku +H/
	b. ú-ú-¹pí¹líul-ò	‘meaning’	/ú-bu-píliul-o +H/
	c. ú-ú-¹ká¹lí	‘bad temper’	/ú-bu-káli +H/
(267)	a. á-á-¹swééz-il-é	‘those who have fished’	/á-ba-súel-il-e +H/
	b. á-á-¹léés-il-é	‘those who have brought’	/á-ba-léet-il-e +H/

In each case above the /b/ between the two vowels prevents the latter elements from forming a single syllable. What surfaces in each case, then, are two H-toned short adjacent onsetless syllables followed by a downstep.

### 10.5.5 Word-final H Deletion (short penult)

As just outlined, there is a general Phrase-final Downstep Deletion process when both morae of a preceding long vowel are linked to a distinct H. It turns out that there is another rule which delinks a word-final H in Cilungu. This one is different from the one described in section 10.5.3 however in that 1) the preceding syllable linked to a distinct H is monomoraic, 2) it applies to a word-final H whether it is phrase-final or not, and 3) it is not general, but morphologically conditioned. Its application in the Imperative is seen below.

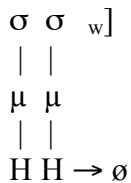
#### (268) Imperative

a.	lās-à	‘hit!’	/lās-á/
b.	lúm-à	‘bite!’	/lúm-á/
c.	ímb-à	‘sing!’	/ímb-á/
d.	písh-à	‘drive!’	/pít-ì-á/
e.	lúm-w-à	‘get bitten!’	/lúm-u-á/

(269) a.	ímb-á <sup>1</sup> sáaná	‘sing a lot!’	/ímb-á sáaná/
b.	lās-á nìngó	‘hit well’	/lās-á ningó/

As outlined in section 5.3.10, the imperative of roots with H-toned stems is formed by their taking a H-toned FV (whereas the imperatives of forms with toneless roots take the V2-FV pattern). E.g. /sópolis-á/ > *sópolis-á* ‘untie!’. Just in the event that the root H and the FV H are in adjacent syllables, the H on the FV is not realized. To account for the patterns in (268) I suggest that the H on the FV is deleted.

#### (270) Word-final H Deletion



The one other construction where this same word-final H deletion process applies is in the nominalizations presented in section 7.3. For these, a H is added to the FV (for both toneless and H-toned roots). However, just in case that H causes an OCP violation with a previous H, the H on the FV deletes, exhibiting the same phrase-final and non-phrase-final patterns as imperatives above. This is illustrated below.

(271) a.	kà-súl-à	‘blacksmith’	/ka-súl-á/
b.	kà-lás-à	‘one who hits’	/ka-lás-á/
(272) a.	kà-lás-á mù-sùm-á	‘good blacksmith’	/ka-súl-á mu-sum-á/
b.	kà-súl-á mù-sùm-á	‘good hitter’	/ka-lás-á mu-sum-á/

## 10.6 Tonology of CVVC, CV-VC

### 10.6.1 V-initial H Deletion

Let us consider the data below which involve vowel-initial verb roots.

- |       |    |                    |                                  |                       |
|-------|----|--------------------|----------------------------------|-----------------------|
| (273) | a. | tw-áá-y-éél-èl-á   | ‘we have just winnowed for them’ | /tú-á-yá-el-el-á/     |
|       | b. | tùù-ng-éél-èl-á    | ‘we can winnow for’              | /tu-ngá-el-el-á/      |
|       | c. | tw-áá-í-ímv-il-é   | ‘we dug them out’ (YP)           | /tú-á-yá-imb-il-é/    |
|       | d. | tù-tá-á-í-ímv-il-é | ‘we didn’t dig them out’ (YP)    | /tu-tá-á-yá-imb-il-é/ |
|       | e. | tù-t-íímv-il-é     | ‘we have not dug’                | /tu-tá-imb-il-é/      |
|       | f. | tù-tá-í-ímv-il-é   | ‘we have not dug them out’       | /tu-tá-yá-imb-il-é/   |
|       | g. | tùù-ngá-y-éél-èl-á | ‘we can winnow for them’         | /tu-ngá-yá-el-el-á/   |

These forms behave as predicted. In each case the pre-root mora bears a High tone. This will spread to the following tautosyllabic mora via General Doubling and then no further since Heterosyllabic Doubling is blocked by the OCP.

Below, we see that when a trimoraic syllable is formed, where the first two morae are H and the third one is toneless, no downstep occurs (cf. §10.4.5).

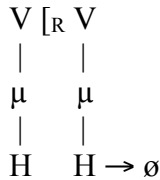
- |       |    |                |                             |                    |
|-------|----|----------------|-----------------------------|--------------------|
| (274) | a. | tw-éél-èl-á    | ‘we have just winnowed for’ | /tú-á-el-el-á/     |
|       | b. | tw-ééz-il-é    | ‘we winnowed’ (YP)          | /tú-á-el-il-é/     |
|       | c. | tù-t-íímv-il-é | ‘we didn’t dig’ (YP)        | /tu-tá-á-imb-il-é/ |

Now let us turn to forms of the exact same structure as those in (273) and (274), but which contain H-toned roots. Interestingly, they surface as homophonous with their counterparts containing toneless roots, as seen below.

- |       |    |                    |                                     |                       |
|-------|----|--------------------|-------------------------------------|-----------------------|
| (275) | a. | tw-áá-y-éél-èl-á   | ‘we have just fished for them’      | /tú-á-yá-él-el-á/     |
|       | b. | tùù-ng-éél-èl-á    | ‘we can fish for’                   | /tu-ngá-él-el-á/      |
|       | c. | tw-áá-í-ímv-il-é   | ‘we sung about them’ (YP)           | /tú-á-yá-imb-il-é/    |
|       | d. | tù-tá-á-í-ímv-il-é | ‘we didn’t sing about them’ (YP)    | /tu-tá-á-yá-imb-il-é/ |
|       | e. | tù-t-íímv-il-é     | ‘we have not sung’ (Prf)            | /tu-tá-imb-il-é/      |
|       | f. | tù-tá-í-ímv-il-é   | ‘we have not sung about them’ (Prf) | /tu-tá-yá-imb-il-é/   |
|       | g. | tùù-ngá-y-éél-èl-á | ‘we can fish for them’              | /tu-ngá-yá-él-el-á/   |
- 
- |       |    |                |                           |                    |
|-------|----|----------------|---------------------------|--------------------|
| (276) | a. | tw-éél-èl-á    | ‘we have just fished for’ | /tú-á-él-el-á/     |
|       | b. | tw-ééz-il-é    | ‘we fished (YP)’          | /tú-á-él-il-é/     |
|       | c. | tù-t-íímv-il-é | ‘we didn’t sing’ (YP)     | /tu-tá-á-imb-il-é/ |

This is a somewhat surprising result. One might have reasonably predicted that the H on the root-initial vowel would fuse with any immediately preceding H’s and then undergo General Doubling onto the next, heterosyllabic mora yielding a downstep between that syllable and the following one. Yet such does not occur. To account for these forms, I propose a rule of “V-initial H Deletion” whereby a root H on a V-initial root deletes if it is immediately preceded by another H. This is a version of Meeussen’s Rule, a phenomenon common within Bantu the most common manifestation of which is that the second of two adjacent H’s delete.

(277) V-initial H Deletion



We note that in Cilungu, however, this only applies to a H linked to a root-initial vowel, which is preceded by another H. (In every case above the H which triggers the rule is either a TAM prefix, an object prefix or the negative prefix /tá-/.) It will not apply, e.g. to an H-toned TAM prefix preceded by a H tone. Such a process, e.g. would incorrectly neutralize the distinction in many pairs which we have examined, such as the following:

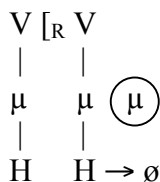
- (278) a. tw-áá-fú<sup>l</sup>-á                      ‘we have just washed’                      /tú-á-ful-á/  
 b. tw-áá-fùl-á                      ‘we have already washed’                      /tú-a-ful-a +H/

It must be noted, however, that V-initial H Deletion fails to apply when the H on the root-initial V is immediately followed by a H tone. In these cases it will fuse with the following H (whether it be the MH which links to V2 or the FV).

- (279) a. tùù-ngí-ímb-á                      ‘we can sing’                      /tu-ngá-ímb-á/  
 b. tùù-ngá-í-ímb-á                      ‘we can sing about them’                      /tu-ngá-yá-ímb-á/  
 c. tw-íímb-íl-á                      ‘and then we sung for’                      /tú-ímb-il-a +H/

To account for the cases in (279) it is necessary to modify V-initial H Deletion, such that a toneless mora follows the 2<sup>nd</sup> H. This is shown below.

(280) V-initial H Deletion



The rules above are illustrated in the derivations below.

(281)	/tú-ímb-il-a +H/	/tu-ngá-ímb-il-á/	/tu-ngá-ímb-il-á/	/tu-ngá-ímb-á/	Input
	tú-ímb-il-á				MH Dock, Left Spr
	tw-í ímb-il-á	tuu-ng-íímb-il-á	tuu-ng-í ímb-il-á	tuu-ng-í ímb-á	V-Deletion & CL
			tuu-ng-íímb-il-á		V-initial H Del
	tw-íímb-il-á			tu-ng-íímb-á	Fusion
		tuu-ng-íímb-il-á	tuu-ng-íímb-il-á		Gen. Doubling

### 10.6.2 Tautomorphemic CVV Spread

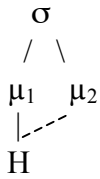
Let us consider the examples below, all of which contain a H-toned CVVC root. We focus on the behavior of the root-initial H.

(282)	a. tw-áá-léés-il-é	‘we brought (YP)’	/tú-á-léet-il-é/
	b. tw-áá-mù-súúz-il-é	‘we ignored him/her’ (YP)	/tú-á-súul-il-é/
	c. tw-áá-yá-léénz-il-é	‘we begged them’ (YP)	/tú-á-léng-il-é/
	d. tw-áá-cí-léés-il-é	‘we recently brought’	/tú-á-cí-léet-il-é/
	e. tw-áá-cí-cúúz-il-é	‘we recently suffered’	/tú-á-cí-cúul-il-é/
	f. tù-tá-á-cí-mú- <sup>1</sup> léés-il-é	‘we did not recently bring him/her’	/tu-tá-á-cí-mu-léet-il-é/
	g. tù-tá-léés-il-é	‘we haven’t brought’	/tu-tá-léet-il-é/
(283)	a. tùù-ngá-léet-é <sup>1</sup> l-á	‘we can bring for’	/tu-ngá-léet-il-á/
	b. tùù-ngá-yá-léeng-é <sup>1</sup> l-á	‘we can beg for them’	/tu-ngá-yá-léng-il-á/
	c. tùù-ngá-mú- <sup>1</sup> kúúl-í <sup>1</sup> l-á	‘we can build for him/her’	/tu-ngá-mú-kúul-il-á/
	d. tw-áá-mú- <sup>1</sup> cúúl-í <sup>1</sup> l-á	‘we have just suffered for him/her’	/tú-á-mu- <sup>1</sup> cúul-il-á/
	e. tw-áá-léet-é <sup>1</sup> l-á Chóólà	‘we have just brought for Chola’	/tú-á-léet-il-á Choola/
	f. yá-á-cíi-n-swéel-é <sup>1</sup> l-á	‘they have just fished for me’	/yá-á-cí-n-súel-il-á
	g. léet-é <sup>1</sup> l-á Chóólà	‘bring for Chola!’	/léet-il-á Choola/
	h. bééndá <sup>1</sup> m-á	‘incline!’	/béndam-á/

The tonology of the forms in (282) is directly predicted by our rules. The H on the initial mora of the CVVC root will spread to the following mora via General Doubling, but will not spread to the mora on the following syllable since that would create an OCP violation.

However, if we now turn to the forms in (283), we find that the H on the initial mora of the CVVC root has in fact spread to the mora of the following syllable, even though this creates an OCP violation. To account for the patterns exhibited by the forms in (283) we posited a rule of Tautomorphemic CVV spread (§5.2.1), formalized below.

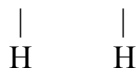
(284) Tautomorphemic CVV Spread



( $\mu_1$  and  $\mu_2$  are tautomorphemic)

If this rule is ordered before General Doubling, it will account for forms such as (283h) as shown below.

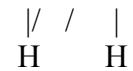
(285) beendama Input + Nasal Demorification and C.L.



beendama Tautomorphemic CVV Spread

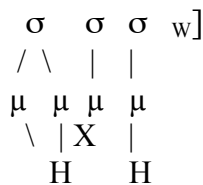


beendama General Doubling



As seen, Tautomorphemic Spread will spread the H to the following tautomorphemic mora. The rule of General Doubling will then apply, spreading the H to the following TBU, despite the ensuing OCP violation which is created. Of course, Tautomorphemic CVV Spread must not be allowed to apply in forms such as those in (282). It seems the unifying difference between the forms in (282) and (283) is simply the choice of FV. I assume that Tautomorphemic CVV spread always applies, but when the FV is –e, the link is retracted by the following rule, introduced in §5.2.2.

(286) Penult H Tone Retraction



That Tautomorphemic CVV Spread (284) is restricted to apply within a single morpheme and not across a morpheme boundary can be seen in the minimal tonal pairs below:

- |          |                     |                             |                      |
|----------|---------------------|-----------------------------|----------------------|
| (287) a. | tùù-ngá-víimb-í'l-á | ‘we can swell for’          | /tu-ngá-víimb-il-á/  |
| b.       | tùù-ngá-ví-ímb-il-á | ‘we can dig for them (C8)’  | /tu-ngá-ví-imb-il-á/ |
| c.       | tùù-ngá-ví-ímb-il-á | ‘we can sing for them (C8)’ | /tu-ngá-ví-imb-il-á/ |

- (288) a. tw-áá-víimb-í<sup>1</sup>l-á ‘we have just swelled for’ /tú-á-víimb-il-á/  
 b. tw-áá-ví-imb-il-á ‘we have just dug for them (C8)’ /tú-á-ví-imb-il-á/  
 c. tw-áá-ví-imb-il-á ‘we have just sung for them (C8)’ /tú-á-ví-imb-il-á/

As can be seen Tautomorphic CVV Spread applies in (287a) and (288a), where the mora bearing the H to be spread is followed by a mora which is both tautosyllabic and tautomorphic, but not in (287b-c) and (288b-c) where the following tautosyllabic mora is not tautomorphic. (V-initial H Deletion (277) will apply in (287c) and (288c).)

To conclude this section, let me specifically address the possibility that instead of positing Tautomorphic CVV Spread, it is simply the case that H-toned roots with root-initial long vowels simply have an underlying H linked to both morae. There are several reasons to prefer the singly-linked analysis. First, this makes the generalization regarding tonal contrasts in verb roots a simpler one. Since the TBU in Cilungu is clearly the mora (§10.1.1), the generalization becomes very simple—the root-initial TBU is the only TBU in the root contrastive for tone—being either H-toned or toneless. Second, this assumption (that H is linked to both morae of a root-initial long V) does not mean there is one less phonological rule. While this assumption might obviate the need for the Tautomorphic CVV Spread rule, it would necessitate a rule which delinked the underlying H from the second of the two tautosyllabic morae in the event that the FV was /-e/ (282). And finally, when we turn to verbal infinitives (as well as nouns in general), we see that the rule of nominal MH docking, which was clearly shown in section 6.1 to target the left-most free TBU in the stem, puts the MH on the second mora of a H-toned root which begins with a long vowel, as illustrated below.

- (289) a. ú-kú-<sup>1</sup>swé<sup>1</sup>él-él-à ‘to fish for’ /ú-ku-súel-il-a +H/  
 b. ú-kú-<sup>1</sup>pá<sup>1</sup>ápáátík-à ‘to flatten’ /ú-ku-páapaatik-a +H/

If the underlying representation of the above roots had a H linked to both morae of the root-initial syllable, we would expect the MH to dock onto the first mora of the second syllable of the stem, which would produce in incorrect tone pattern.

### 10.6.3 Tonal evidence that /ai/ sequences are heterosyllabic (and not diphthongs)

It has been asserted several times above (e.g. section 3.3) that there are no diphthongs in Cilungu—that the vowels in orthographic <ai>, e.g., are heterosyllabic and not tautosyllabic. Tonal evidence can be adduced to support this claim. Let us consider the examples below:

- (290) a. tùù-ngá-láik-il-àn-á ‘they can narrate for each other’ /tu-ngá-láik-il-an-á/  
 b. tùù-ngá-táízy-ààn-á ‘they can thank each other’ /tu-ngá-táizi-an-á/

In each case above the root is H-toned. Were both /a/ and the following /i/ part of the same (long) syllable, we would expect the root-initial H to spread into the following syllable (cf. *tùù-ngá-léét-él-àn-á* ‘we can bring for each other’ < /tu-ngá-léet-el-an-á/), yet it does not. Instead the root initial H spreads to only the next mora, as it does when there is a short vowel in the subsequent syllable (cf. *tùù-ngá-sópólòl-á* ‘we can untie’ < /tu-ngá-sópolol-á/)

## 10.7 Tonology of SMs

### 10.7.1 General tonology of SMs according to TAM

TAMs seem to fall in several general categories with respect to the tonology of Subject Markers. In three TAMs, all SMs surface as H-toned, which directly follows if they are all set up as underlyingly H. This is the case in the Subjunctive, Hortative, and Past Inceptive as seen below.

- |       |    |                        |                                   |                      |
|-------|----|------------------------|-----------------------------------|----------------------|
| (291) | a. | á-pó <sup>1</sup> n-é  | ‘that he fall’                    | /á-pón-é/            |
|       | b. | tú-pó <sup>1</sup> n-é | ‘that we fall’                    | /tú-pón-é/           |
|       | c. | yá-pó <sup>1</sup> n-é | ‘that they fall’                  | /yá-pón-é/           |
|       | d. | zí-pó <sup>1</sup> n-é | ‘that they (C10) fall’            | /zí-pón-é/           |
| (292) | a. | tw-áá-fùl-à            | ‘let us start washing’            | /tú-áa-ful-a/        |
|       | b. | tw-áá-zìik-à           | ‘let us start burying’            | /tú-áa-ziik-a/       |
|       | c. | á-à-sùkìl-il-à         | ‘let him/her start accompanying’  | /á-áa-mu-sukil-il-a/ |
|       | d. | tw-áá-léét-à           | ‘let us start bringing’           | /tú-áa-léet-a/       |
| (293) | a. | tw-áá-fùl-à            | ‘and then we started washing’     | /tú-aa-ful-a/        |
|       | b. | á-á-zíik-à             | ‘and then he/she started to bury’ | /á-aa-ziik-a/        |
|       | c. | vy-áá-lém-w-á          | ‘and then they (C8) were planted’ | /ví-aa-lém-u-a/      |

Next, in two TAMs, all SMs surface as Low. This is the case in the Potential and the Persistent Potential. If all SMs are set up underlyingly as H, then this H must be delinked from all SMs in these two TAMs.

- |       |    |                  |                              |                    |
|-------|----|------------------|------------------------------|--------------------|
| (294) | a. | àà-ngá-pón-á     | ‘he/she can fall’            | /a-ngá-pón-á/      |
|       | b. | tùù-ngá-pón-á    | ‘we can fall’                | /tu-ngá-pón-á/     |
|       | c. | yàà-ngá-pón-á    | ‘they can fall’              | /ya-ngá-pón-á/     |
|       | d. | zìì-ngá-pón-á    | ‘they (C10) can fall’        | /zi-ngá-pón-á/     |
| (295) | a. | tùù-ngá-á-fùl-à  | ‘we can keep on washing’     | /tu-ngá-aa-ful-a/  |
|       | b. | yàà-ngá-á-zíik-à | ‘we can keep on burying’     | /ya-ngá-aa-ziik-a/ |
|       | c. | àà-ngá-á-zíik-à  | ‘he/she can keep on burying’ | /a-ngá-aa-ziik-a/  |

In one TAM, the Subjunctive, all class 1 SMs (i.e. the 1 sg, 2 sg. and 3 sg.), the class 4 SM and the class 9 SM surface as Low. (And there is no evidence that they contribute a H to the form.) All other SMs are H-toned underlyingly and phonetically.



(296) a.	im-fùl-á	‘and then I washed’	/n-ful-a +H/
b.	ù-fùl-á	‘and then you (sg.) washed’	/u-ful-a +H/
c.	à-fùl-á	‘and then he/she washed’	/a-ful-a +H/
d.	tú-fú <sup>1</sup> l-á	‘and then we washed’	/tú-ful-a +H/
e.	mú-fú <sup>1</sup> l-á	‘and then you (pl.) washed’	/mú-ful-a +H/
f.	yá-fú <sup>1</sup> l-á	‘and then they washed’	/yá-ful-a +H/
a.	ú-pón-á	‘and then it (C3) fell’	/ú-pón-a +H/
b.	ì-pón-á	‘and then they (C4) fell’	/ì-pón-a +H/
c.	lí-pón-á	‘and then it (C5) fell’	/lí-pón-a +H/
d.	yá-pón-á	‘and then they (C6) fell’	/ú-pón-a +H/
e.	cí-pón-á	‘and then it (C7) fell’	/cí-pón-a +H/
f.	ví-pón-á	‘and then they (C8) fell’	/ví-pón-a +H/
g.	ì-pón-á	‘and then it (C9) fell’	/ì-pón-a +H/
h.	zí-pón-á	‘and then they (C10) fell’	/zí-pón-a +H/
i.	lú-pón-á	‘and then it (C11) fell’	/lú-pón-a +H/
j.	ká-pón-á	‘and then it (C12) fell’	/ká-pón-a +H/
k.	tú-pón-á	‘and then they (C13) fell’	/tú-pón-a +H/
l.	ú-pón-á	‘and then it (C14) fell’	/ú-pón-a +H/
m.	kú-pón-á	‘and then it (C15) fell’	/kú-pón-a +H/

In the remainder of the TAMs, the situation is as follows: all SMs surface as H-toned except three: the 3 sg. class 1 prefix /a-/, the class 4 prefix /i-/ and the class 9 prefix /i-/. (We return to a discussion of these three SMs below in §10.7.2.). To exemplify this I present verbs with all SMs from 1-15 in three TAMs: the Progressive (where there is no MH), the Yesterday Past (where the MH is realized on the FV only) and the Remote Future (where the MH is realized from V2-FV).

(297) Present Progressive forms with SMs from Classes 1-2:

a.	n-kú- <sup>1</sup> pón-à	‘I am falling’	/ń-ku-pón-a/
b.	ú-kú- <sup>1</sup> pón-à	‘you are falling’	/ú-ku-pón-a/
c.	à-kú- <sup>1</sup> pón-à	‘he/she is falling’	/á-ku-pón-a/
d.	tú-kú- <sup>1</sup> pón-à	‘we are falling’	/tú-ku-pón-a/
e.	mú-kú- <sup>1</sup> pón-à	‘you (pl.) are falling’	/mú-ku-pón-a/
f.	yá-kú- <sup>1</sup> pón-à	‘they are falling’	/yá-ku-pón-a/

(298) Present Progressive forms with SMs from Classes 3-15:

a.	ú-kú- <sup>1</sup> pón-à	‘it (C3) is falling’	/ú-ku-pón-a/
b.	ì-kú- <sup>1</sup> pón-à	‘they (C4) are falling’	/ì-ku-pón-a/
c.	lí-kú- <sup>1</sup> pón-à	‘it (C5) is falling’	/lí-ku-pón-a/
d.	yá-lá- <sup>1</sup> pón-à	‘they (C6) are falling’	/yá-ku-pón-a/
e.	cí-kú- <sup>1</sup> pón-à	‘it (C7) is falling’	/cí-ku-pón-a/
f.	ví-kú- <sup>1</sup> pón-à	‘they (C8) are falling’	/ví-ku-pón-a/
g.	ì-kú- <sup>1</sup> pón-à	‘it (C9) are falling’	/ì-ku-pón-a/
h.	zí-kú- <sup>1</sup> pón-à	‘they (C10) are falling’	/zí-ku-pón-a/
i.	lú-kú- <sup>1</sup> pón-à	‘it (C11) is falling’	/lú-ku-pón-a/

j.	ká-kú- <sup>1</sup> pón-à	‘it (C12) is falling’	/ká-ku-pón-a/
k.	tú-kú- <sup>1</sup> pón-à	‘they (C13) is falling’	/tú-ku-pón-a/
l.	ú-kú- <sup>1</sup> pón-à	‘it (C14) is falling’	/ú-ku-pón-a/
m.	kú-kú- <sup>1</sup> pón-à	‘it (C15) is falling’	/kú-ku-pón-a/

(299) Yesterday past forms with SMs from Classes 1-2:

a.	n-áá-zíis-il-w-é	‘I was buried’	/ń-á-ziik-il-u-é/
b.	w-áá-zíis-il-w-é	‘you (sg.) were buried’	/ú-á-ziik-il-u-é/
c.	w-àà-zíis-il-w-è	‘he was buried’	/a-á-ziik-il-u-é/
d.	tw-áá-zíis-il-w-é	‘we were buried’	/tú-á-ziik-il-u-é/
e.	mw-áá-zíis-il-w-é	‘you (pl.) were buried’	/mú-á-ziik-il-u-é/
f.	yá-á-zíis-il-w-é	‘they were buried’	/yá-á-ziik-il-u-é/

(300) Yesterday past forms with SMs from Classes 3-15:

a.	w-áá-zíis-il-w-é	‘it (C3) was buried’	/ú-á-ziik-il-u-é/
b.	y-àà-zíis-il-w-è	‘they (C4) were buried’	/i-á-ziik-il-u-é/
c.	ly-áá-zíis-il-w-é	‘it (C5) was buried’	/lí-á-ziik-il-u-é/
d.	yá-á-zíis-il-w-é	‘they (C6) were buried’	/yá-á-ziik-il-u-é/
e.	c-áá-zíis-il-w-é	‘it (C7) was buried’	/cí-á-ziik-il-u-é/
f.	vy-áá-zíis-il-w-é	‘they (C8) were buried’	/ví-á-ziik-il-u-é/
g.	y-àà-zíis-il-w-è	‘it (C9) was buried’	/i-á-ziik-il-u-é/
h.	zy-áá-zíis-il-w-é	‘they (C10) were buried’	/zí-á-ziik-il-u-é/
i.	lw-áá-zíis-il-w-é	‘it (C11) was buried’	/lú-á-ziik-il-u-é/
j.	ká-á-zíis-il-w-é	‘it (C12) was buried’	/ká-á-ziik-il-u-é/
k.	tw-áá-zíis-il-w-é	‘they (13) were buried’	/tú-á-ziik-il-u-é/
l.	w-áá-zíis-il-w-é	‘it (C14) was buried’	/ú-á-ziik-il-u-é/
m.	kw-áá-zíis-il-w-é	‘it (C15) was buried’	/kú-á-ziik-il-u-é/

(301) Future forms with SMs from Classes 1-2:

a.	n-dá-ziik-w-á	‘I will be buried’	/ń-la-ziik-u-a +H/
b.	ú-lá-ziik-w-á	‘it (C3) will be buried’	/ú-la-ziik-u-a +H/
c.	à-là-ziik-w-á	‘he/she will be buried’	/a-la-ziik-u-a +H/
d.	tú-lá-ziik-w-á	‘we will be buried’	/tú-la-ziik-u-a +H/
e.	mú-lá-ziik-w-á	‘you (pl.) will be buried’	/mú-la-ziik-u-a +H/
f.	yá-lá-ziik-w-á	‘they will be buried’	/bá-la-ziik-u-a +H/

(302) Future forms with SMs from Classes 3-15:

a.	ú-lá-ziik-w-á	‘it (C3) will be buried’	/ú-la-ziik-u-a +H/
b.	ì-là-ziik-w-á	‘they (C4) will be buried’	/i-la-ziik-u-a +H/
c.	lí-lá-ziik-w-á	‘it (C5) will be buried’	/lí-la-ziik-u-a +H/
d.	yá-lá-ziik-w-á	‘they (C6) will be buried’	/yá-la-ziik-u-a +H/
e.	cí-lá-ziik-w-á	‘it (C7) will be buried’	/cí-la-ziik-u-a +H/
f.	ví-lá-ziik-w-á	‘they (C8) will be buried’	/ví-la-ziik-u-a +H/

g.	ì-là-zìik-w-á	‘it (C9) will be buried’	/i-la-ziik-u-a +H/
h.	zí-lá-zìik-w-á	‘they (C10) will be buried’	/zí-la-ziik-u-a +H/
i.	lú-lá-zìik-w-á	‘it (C11) will be buried’	/lú-la-ziik-u-a +H/
j.	ká-lá-zìik-w-á	‘it (C12) will be buried’	/ká-la-ziik-u-a +H/
k.	tú-lá-zìik-w-á	‘they (C13) will be buried’	/tú-la-ziik-u-a +H/
l.	ú-lá-zìik-w-á	‘it (C14) will be buried’	/ú-la-ziik-u-a +H/
m.	kú-lá-zìik-w-á	‘it (C15) will be buried’	/kú-la-ziik-u-a +H/

To sum up the tonal behavior of the SMs (other than the 3 sg, class 4 and class 9 which will be dealt with separately in the next section), one of two analyses seems possible. The first is to simply say that underlyingly each SM has two lexical allomorphs, a H-toned one and a toneless one and that one or the other is selected by each TAM. The other possibility would be to say that these SMs are uniformly H underlyingly. Two additional rules (applying very early in the phonology) would then be necessary. One would be a rule which delinked or deleted the H from any Class 1 SM in the Narrative Past (296). The two other TAMs where the H on the SM would need to be delinked or deleted are the Potential (294) and Persistent Potential (295). As seen above, this means the H would need to delete (e.g. by a morphologically conditioned rule) before just the Potential TAM prefix /ngá-/. Unfortunately it does not seem possible to say that a SM H deletes before any following H-toned prefix given forms such as those below from the Habitual, the Persistent and the Yesterday Past respectively.

(303)	a.	tú-káa-zìik-à	‘we bury’ (Hab)	/tú-káa-ziik-a/
	b.	tú-káa-lém-à	‘we plant’ (Hab)	/tú-káa-lém-a/
(304)	a.	tú-cí-lí-lùk-à	‘they are still weaving’	/tú-cí-lí-luk-a/
	b.	tú-cí-lí-léét-à	‘we are still bringing’	/tú-cí-lí-léet-a/
(305)	a.	tw-áa-fúz-il-é	‘we washed’	/tú-á-ful-il-é/
	b.	tw-áa-lúm-il-é	‘we bit for’	/tú-á-lúm-il-il-é/

### 10.7.2 Tonal properties of the Class 1 3 sg. , the Class 4 and Class 9 SMs

Let us now address in greater detail the tonal properties of the Class 1 3 sg, the Class 4 and Class 9 SM. (The reader is referred to section 3.7 for an account as to when the 3 sg. is segmentally realized as /a-/ and when it is realized as /u-/.)

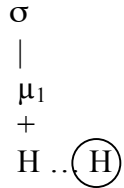
Let us begin with the TAMs in which the MH is realized on V2-FV (cf. §5.3). We noted above that in the Subjunctive all SMs are realized as High (291). With this single exception, the 3 sg, Class 4 and Class 9 SMs surface as Low in all other V2-FV TAMs and do not contribute a H to the form.

(306)	a.	ì-là-fùl-w-á	‘it (C9) will be washed’	/i-la-ful-u-a +H/
	b.	w-àà-fùl-á	‘he/she has already washed’	/u-a-ful-a +H/
	c.	w-àà-fúz-il-é	‘he/she washed (FP)’	/u-a-ful-il-e +H/
	d.	y-àà-cí-fú <sup>1</sup> z-il-w-é	‘they (C4) had just been washed’	/i-a-cí-ful-il-u-e +H/
	e.	à-fúz-il-é	‘he/she has washed’	/a-ful-il-e +H/
	f.	à-fùl-á	‘and then he/she washed’	/a-ful-a +H/

Thus, if one wished to set up all SMs underlyingly as H-toned, a rule would be needed to delete to delink the H from the 3 sg, Class 4 and Class 9 SMs whenever a MH was present in the word. This could be

formalized as follows, and crucially must apply before all the spreading rules. (Again, the rule would be annotated such that it is not triggered in the Subjunctive.)

(307) MH Induced 3 sg. SM H Delinking



( $\mu_1$  represents one of these three SMs: Class 1 3 sg. /a-/, Class 4 /i-/, Class 9 /i-/)

Of course, this rule would not only delink the H from these SMs in TAMs where the MH spreads leftward to V2 (§5.3), but it will also apply in TAMs where the MH docks onto the FV but does not spread (§5.2). Examples of 3 sg. forms in such TAMs are given below.

- |          |                  |                           |                   |
|----------|------------------|---------------------------|-------------------|
| (308) a. | àà-ngá-fúl-à     | ‘he/she can wash’         | /a-ngá-ful-á/     |
| b.       | w-àà-fúz-il-è    | ‘he/she washed (YP)’      | /u-á-ful-il-é/    |
| c.       | w-àà-fúl-ààng-à  | ‘he/she was washing (YP)’ | /u-á-ful-ang-á/   |
| d.       | w-àà-fúl-à       | ‘he/she has just washed’  | /u-á-ful-á/       |
| e.       | w-àà-cí-fúz-il-è | ‘he/she recently washed’  | /u-á-cí-ful-il-e/ |

As can be seen, in these TAMs the TAM prefix is H-toned, i.e. either /á-/ or /ngá-/. In each case, I assume the rule in (307) applies, correctly accounting for the fact that the SM surfaces as Low.

Next, we turn to the TAMs which do not have a MH. What we find in these TAMs is that in general the 3 sg., Class 4 and Class 9 SMs do sponsor a H tone which then spreads onto a following toneless mora (and can subsequently undergo unbounded spreading if it is the rightmost H in the word), after which it delinks from the SM which sponsored it. This is nicely illustrated in the Present Progressive.

- |          |                                 |                                  |                     |
|----------|---------------------------------|----------------------------------|---------------------|
| (309) a. | à-kú-súkíl-il-à                 | ‘he/she is accompanying’         | /á-ku-ful-a/        |
| b.       | ì-kú-zíík-w-á                   | ‘it (C9) is being buried’        | /i-ku-ziik-u-a/     |
| c.       | ì-kú-zíík-w-á                   | ‘they (C4) are being buried’     | /i-ku-ziik-u-a/     |
| d.       | à-kú-mú- <sup>1</sup> léét-él-à | ‘he/she is bringing for him/her’ | /á-ku-mu-léet-il-a/ |

This same pattern of spreading and then delinking is seen in other cases where the TAM prefix begins with a toneless mora.

- |          |                           |                                |                 |
|----------|---------------------------|--------------------------------|-----------------|
| (310) a. | à-má <sup>1</sup> á-fúl-à | ‘these days he washes’         | /á-ma-áa-ful-a/ |
| b.       | à-ká <sup>1</sup> á-fúl-à | ‘he/she will continue to wash’ | /á-ka-áa-ful-a/ |
| c.       | à-lá <sup>1</sup> á-fúl-à | ‘he/she will be washing’       | /á-la-áa-ful-a/ |

The cases above were accounted for in section 5.1 by the following rule which delinks the H from the 3 sg., Class 4 and Class 9 SM. It was shown to be ordered after General Doubling, but before Heterosyllabic Doubling.

(311) Onsetless SM Delinking

$\mu_1$   
+  
H

( $\mu_1$  represents one of these three SMs: Class 1 3 sg. /a-/, Class 4 /i-/, Class 9 /i-/)

We turn next to TAMs without a MH which begin with a H-toned mora. These come in two types, those which are monomoraic and those which are bimoraic. In the case of a monomoraic H-toned TAM prefix, the rule in (311) predicts that the H on these three SMs will simply delete. That this is true can be seen below.

- |          |                  |                                 |                    |
|----------|------------------|---------------------------------|--------------------|
| (312) a. | àà-ngá-á-fùl-à   | ‘he/she can keep on washing’    | /a-ngá-aa-ful-a/   |
| b.       | à-cí-líi-fùl-à   | ‘he/she is still washing’       | /a-cí-líi-ful-a/   |
| c.       | ì-cí-líi-fùl-w-à | ‘it (C9) is still being washed’ | /i-cí-líi-ful-u-a/ |

With regard to TAMs with a H-initial bimoraic TAM prefix, we should recall that in such TAMs, the H on the SM (of any class) will trigger the rule of Bimoraic H Delinking, which delinks the H on the TAM prefix. This then correctly predicts that the H on the SM undergoes binary and not unbounded spreading.

- |          |              |                       |                |
|----------|--------------|-----------------------|----------------|
| (313) a. | tú-máa-fùl-à | ‘we will wash’        | /tú-máa-ful-a/ |
| b.       | tú-káa-fùl-à | ‘we wash’ (Hab)       | /tú-káa-ful-a/ |
| c.       | à-máa-fùl-à  | ‘he/she will wash’    | /á-máa-ful-a/  |
| d.       | à-káa-fùl-à  | ‘he/she washes’ (Hab) | /á-káa-ful-a/  |

As seen above, the 3 sg. SM triggers Bimoraic H Delinking in the same way that any other SM does, indicating that it sponsors a H underlyingly. After Bimoraic H Delinking applies, the 3 sg. SM will undergo General Doubling, after which Onsetless SM Delinking (311) applies.

Thus we see that when there is no MH, the rule of Onsetless SM Delinking always applies after General Doubling. There are, however, two exceptions—the Hortative and the Past Inceptive.

In the Past Inceptive forms below, we see that the H on any SM, including the 3 sg., will undergo unbounded spreading, but does not subsequently delink.

- |          |             |                                   |               |
|----------|-------------|-----------------------------------|---------------|
| (314) a. | tw-áá-fùl-à | ‘and then we started washing’     | /tú-aa-ful-a/ |
| b.       | á-á-zíik-à  | ‘and then he/she started to bury’ | /á-aa-ziik-a/ |

In the Hortative forms below, it is also apparent that the H on the SM never delinks.

- |          |             |                             |               |
|----------|-------------|-----------------------------|---------------|
| (315) a. | tw-áa-fùl-à | ‘let us start washing’      | /tú-áa-ful-a/ |
| b.       | á-à-fùl-à   | ‘let him/her start washing’ | /á-áa-ful-a/  |

The initial syllable of the Hortative always has a Falling tone. In (315a) we can see that Bimoraic H Delinking has applied, delinking the H from the TAM prefix. This is true of (315b) as well, to account for the

binary, as opposed to unbounded spreading. But it is clear in (315b) that the H does not subsequently delink from the SM, as it did in the forms in (313c-d).<sup>9</sup>

To summarize, it seems possible to set up all SMs as underlyingly H-toned. With the exception of the Subjunctive, Hortative and Past Inceptive TAMs where all SMs surface as High ((291)-(293)), the H on the 3 sg., the Class 4 and Class 9 SMs will delink either via the rule in (307) or (311).

I note here that while I have characterized the rules in both (307) or (311) as being triggered by three specific SMs, it does seem possible to replace this morphological conditioning with a purely phonological one. One salient phonological property of the 3 sg. /a-/ , the Class 4 /i-/ and the Class 9 /i-/ is that they are all onsetless. However, there are three other SMs which are phonetically onsetless, but surface with a H tone: the 2 sg. /ú-/ , Class 3 /ú-/ , and Class 14 /ú-/ ((297)-(302)). Still, they could in fact all be set up with a /b/ or /g/ onset which would always delete. If we then set up only the 3 sg. /a-/ , Class 4 /i-/ and Class 9 /i-/ as onsetless, then the generalization could be that a word-initial onsetless SM could not bear a surface H (with three exceptions—the Subjunctive (291), Hortative (292), and Past Inceptive (293)). This preference to delink a H from an onsetless syllable is not general in the language, as an onsetless syllable which is part of a root never lowers. E.g. *ík-à* ‘put!’, *ám-à* ‘call!’.

Having looked at the effect of various TAM prefixes (including null ones) on the realization of tone on the SM, I conclude by noting that all SMs (not just the 3 sg., C4 and C9) surface as Low when preceding a negative prefix (either /tá-, táa-, or síi-).

(316) a.	tù-táà-kù-fùl-à	‘we are not washing’	/tù-táa-ku-ful-a/
b.	tù-síi-sùkil-il-à	‘we don’t accompany’	/tù-síi-sukil-il-a/
c.	tù-tá-à-víimb-à	‘let us not start swelling’	/tu-tá-aa-vimb-a/
d.	tù-tá-á-zíis-il-é	‘we didn’t bury’ (FP)	/tù-tá-a-ziik-il-e +H/
e.	tù-tá-á-zíis-il-é	‘we didn’t bury’ (YP)	/tù-tá-a-ziik-il-é/
f.	tù-tá-á-fùl-ààng-á	‘we were not washing’	/tu-tá-á-ful-ang-á/
g.	tù-tá-á-zíik-il-á	‘we haven’t buried for’	/tu-tá-a-ziik-il-a +H/
h.	tù-tá-là-á-zíik-à	‘we will not be burying’	/tù-tá-la-aa-ziik-a/
i.	tù-tá-à-cí-fù <sup>1</sup> -l-á	‘we no longer wash’	/tù-tá-a-cí-ful-a +H/
j.	yà-táá-ngá-á-sùkil-il-à	‘they cannot keep accompanying’	/yá-tá-ngá-aa-sukil-il-a/
k.	tù-táá-ngá-zíik-á	‘we cannot bury’	/tù-tá-á-ngá-ziik-á/
l.	tù-tá-cí-lí <sup>1</sup> m-il-é	‘we haven’t just farmed’	/tù-tá-cí-lim-il-é/
m.	à-tá-páápáat-íik-é	‘he/she hasn’t flattened’	/a-tá-páapaatik-il-é/
n.	à-síi-sùkil-il-à	‘he/she doesn’t accompany’	/a-síi-sukil-il-a/

As presented in §5.1.1.8, this is accomplished by Pre-Negative H Delinking, repeated below.

<sup>9</sup> As an aid to the reader, in the underlying representations, I have chosen to present the 3 sg, Class 4 and Class 9 SMs as H-toned only when they demonstrably contribute a High to the form. In cases where it is possible to set them up as H only to have a very early morphologically conditioned rule (such as (307)) remove that H, they are presented in the UR as toneless, as an aid to the reader.

(317) Pre-Negative H Delinking

$\mu$   
+  
H H<sub>n</sub>

(H<sub>n</sub> is a H sponsored by a negative prefix)

**10.7.3 H insertion/docking when onsetless SM immediately precedes V-initial root**

As mentioned above (§10.7.2), the 3 sg, class 4, and class 9 SMs do not contribute a H tone in the Perfect and Narrative Past.<sup>10</sup> This is illustrated in (318).

- (318) a. à-fùz-íl-è 'he/she has washed' /a-ful-il-e +H/  
b. à-sùkíl-ííl-è 'he/she has accompanied' /a-sukil-il-e +H/
- (319) a. à-fùl-á 'and then he/she washed' /a-ful-a +H/  
b. à-sùkíl-íl-á 'and then he/she accompanied' /a-sukil-il-a +H/

Now let us consider 3sg/C4/C9 forms in these two TAMs with V-initial roots. (It should be recalled from section 5.3.7 that in 3sg/C4/C9 Perfect forms, the Melodic H is realized from V2 to the penult.)

(320) Perfect

- a. à-íís-í<sup>1</sup>l-é 'he/she has come down' /a-ik-il-e +H/  
b. à-óómv-í<sup>1</sup>l-é 'he/she has clapped' /a-omb-il-e +H/  
c. ì-úúm-í<sup>1</sup>l-é 'they (C4) have beaten' /i-um-il-e +H/  
d. à-íík-í<sup>1</sup>íl-è 'he/she has come down onto' /a-ik-il-il-e +H/  
e. à-éélék-í-íl-è 'he/she has cooked for' /a-elek-il-il-e +H/  
f. à-éélék<sup>1</sup>s-íl-è 'he/she has cooked' /a-elek-il-e +H/  
g. à-éélék<sup>1</sup>éngány-ííz-y-è 'he/she has considered' /a-elengany-il-i-e +H/  
h. ì-éélék<sup>1</sup>éngány-íz-y-è 'it (C9) has considered' /i-elengany-il-i-e +H/

(321) Narrative Past

- a. à-éélék<sup>1</sup>-él-á 'and then he/she cooked for' /a-elek-il-a +H/  
b. à-éélék<sup>1</sup>éngány-á 'and then he/she considered' /a-elengany-a +H/  
c. ì-úúm-í<sup>1</sup>l-á 'and then it (C9) beat for' /i-um-il-a +H/

As can be seen, if a toneless root begins with a vowel and is preceded by the 3 sg. SM, then that root-initial vowel is altered both prosodically and tonally. Prosodically, a mora is added, making the vowel bi-moraic, and tonally, a High is added and docks onto the initial mora. Both of these can be accounted for by assuming a H-

<sup>10</sup> In the analysis proposed the H on these SMs would be removed by an early phonological rule (307) triggered by the MH.

toned mora is inserted at the beginning of the root. The H then spreads to the following tautosyllabic mora which then triggers Downstep Shift.

The derivation of (321a) is given below.

(322)	a-elek-el-a	Input
	H	
	a-elek-el-a	MH Docking onto FV & Leftward Spreading to V2
	\   /	
	H	
	a-eelek-el-a	Pre-root H-toned mora insertion
	\   /	
	H H	
	a-eelek-el-a	General Doubling
	∨ \   /	
	H H	
	a-eelek-el-a	Downstep Shift
	∨ / \ /	
	H H	

Several things should now be noted. First, it should be recalled that vowel hiatus is generally disallowed in these TAMs. As can be seen below, when the SM is of the shape /Ca-/ then that /a/ simply deletes, and when the SM is of the shape /Cu-/ or /Ci-/ the high vowel will glide.

(323)	a. y-úúm-i <sup>1</sup> l-é	‘they have beaten’	/yá-um-il-e +H/
	b. k-éélék <sup>1</sup> -él-á	‘and then it (C1-12) cooked for’	/ká-elek-il-a +H/
(324)	a. vy-úúm-i <sup>1</sup> l-é	‘they (C8) have beaten’	/ví-um-il-e +H/
	b. tw-éélék <sup>1</sup> -él-á	‘and then we cooked for’	/tú-elek-il-a +H/

Next, it needs to be made clear that this adding of an H-toned mora only occurs when the 3 sg. SM is immediately followed by a V-initial root. If they are separated by another morpheme (e.g. an OM), then no H-toned mora insertion occurs, as seen in (325), and if the (surface) V-initial morpheme that follows the SM is not the root, but some other morpheme, such as an OM, then no H-toned mora insertion occurs as seen in (326).

(325)	a. à-mw-iik-ííl-è	‘he/she has come down onto her/her’	/a-mu-ik-il-il-e +H/
	b. à-mw-iimb-ííl-è	‘he/she has dug out him/her’	/a-mu-imb-il-il-e +H/
(326)	a. à-í-fú <sup>1</sup> z-íl-è	‘he/she has washed it (C9)’	/a-gí-ful-il-e +H/
	b. à-ú-fú <sup>1</sup> z-íl-è	‘he/she has washed it (C14)’	/a-gú-ful-il-e +H/

Additionally, if the root has a preceding C underlyingly which has deleted, then no H-toned mora is added.



(327) à-òz-íl-è 'he/she has rotted /a-gol-il-e +H/

The forms in (320a-c) merit one additional observation. As presented in §5.3.7, in 3 sg. Perfective forms, the MH is realized on the second and subsequent TBUs of the stem up to the penult (as clearly seen in (318b)). How is it, then, that the FV is H-toned in (320a-c)? Let us consider the derivation of (320a) below.

(328) a-ik-il-e Input

H

a-ik-il-e MH Docking & leftward spread to V2

\ /

H

a-ik-il-e TAM-specific FV Delinking

|

H

a-i ik-il-e Pre-root H-toned mora insertion

| |

H H

a-i ik-il-e General Doubling

| / |

H H

This is the point at which Downstep Shift, repeated below, will apply.

(329) Downstep Shift

CVVCVC<sub>0</sub>V

\ | / + /

H H

The correct output for (320a) is found below.

(330) a-i ik-il-e P.R.

| / / |

H H

But the rule of Downstep Shift as formalized above will not be triggered in this form since the second H is not multiply linked. This is the first case we have seen where a long H is followed by a singly-linked H which is not word-final.

What seems to be needed here is a (re-)formalization of the Downstep Shift rule which does the following: spread the first (doubly-linked) H onto the following mora which is delinked from its H. This second H retains

any other associations that it has but is minimally realized on the mora that follows it. It was not clear whether changing the rightmost association line in the rule from solid to dotted might convey this requirement. I must leave this an open issue.

Besides the Narrative Past and Perfect, there is one other TAM with a zero TAM prefix where we can test to see what happens when the 3 sg. SM immediately precedes a toneless V-initial root—the Subjunctive. As noted in §5.3.9 and §10.7.2 the Subjunctive differs from the Perfect and the Narrative Past in that the 3 sg. SM is underlyingly H-toned and surfaces as such (i.e. even before C-initial roots). Also, when there are no OMs, the MH docks onto only the FV. Subjunctive forms containing an onsetless OM and a V-initial roots are shown below.

### (331) Subjunctive

a.	á-éél-è	‘that he/she winnow’	/á-el-é/
b.	á-éélék-èl-é	‘that he/she cook for’	/á-elek-il-é/
c.	á-éél-é 'sàaná	‘that he/she winnow a lot’	/á-el-é sáaná/
d.	á-éél-èl-é Chóólà	‘that he/she winnow for Chola’	/á-el-il-é Choola/
e.	á-ééléngàny-é	‘that he/she consider’	/á-elengany-é/
f.	í-úúm-è	‘that it (C9) beat’	/í-um-é/

To account for these forms, a H-toned mora must be added to the beginning of the stem, exactly what we saw in the Perfective and the Narrative Past. Below I provide a derivation of (331b).

(332)	a-elek-el-e	Input
	$\begin{array}{cc}   &   \\ \text{H} & \text{H} \end{array}$	
	a-eelek-el-e	Pre-root H-toned mora insertion
	$\begin{array}{ccc}   &   &   \\ \text{H} & \text{H} & \text{H} \end{array}$	
	a-eelek-el-e	Fusion
	$\begin{array}{cc} \backslash / &   \\ \text{H} & \text{H} \end{array}$	
	a-eelek-el-e	General Doubling & Heterosyllabic Doubling
	$\begin{array}{ccc} \backslash & \vee & / \\ \text{H} & & \text{H} \end{array}$	

To summarize thus far, in order to account for the behavior of the Subjunctive forms, as well as the Perfective and Narrative Past forms we must posit a rule which inserts a H-toned mora before the root in every case.

Let us now consider patterns of verbs which have an onsetless SM, a null TAM prefix and V-initial root which is H-toned. As noted several times above, in the Subjunctive (§5.3.9) the tones of roots are neutralized (deleted) when a H-toned SM immediately precedes the root. As can be seen below, the forms below with H-toned roots surface identically to their counterparts above in (331).

- (333) a. á-éél-è ‘that he/she fish’ /á-él-é/  
 b. á-éél-é 'sàaná ‘that he/she fish a lot’ /á-él-é sáaná/  
 c. á-éél-él-é Chóólà ‘that he/she fish for Chola’ /á-él-il-é Choola/

To account for this I assume that both the Subjunctive H Deletion rule as well as the Pre-root H-toned mora insertion apply to these forms.

Let us now turn to V-initial forms in the Narrative Past with H-toned roots.

- (334) a. à-íimb-á ‘and then he/she sang’ /a-ímb-a +H/  
 b. à-éél-él-á Chóólà ‘and then he/she fished for Chola’ /a-él-il-a +H Choola/  
 d. à-íimíl-íl-á sàaná ‘and then he/she stood a lot’ /a-ímil-il-a +H sáaná/  
 e. à-íimík-á ‘and then he/she stopped’ /a-ímik-a +H/  
 f. à-óómólól-á Múlééngà ‘and then he/she pulled down M’ /a-ómolol-a +H Mulenga/

As can be seen, in each case a H-toned TBU is again added to the beginning of the stem. I assume that this H, the root initial H and the MH all fuse accounting for the fact that the all TBUs in the root are High.

Let us finally turn to the 3 sg. Perfect forms with H-toned vowel-initial roots.

- (335) a. à-íís-íl-è ‘he/she has put’ /a-ík-il-e +H/  
 b. à-íimv-íl-è ‘he/she has sung’ /a-ímb-il-e +H/  
 c. à-íimíl-ííl-è ‘he/she is standing’ (lit. has stood) /a-ímil-il-il-e +H/  
 d. à-íík-ííl-é Chòólà ‘he/she has put for Chola’ /a-ík-il-il-e +H Choola/  
 e. à-íimb-ííl-é Mùlèèngà ‘he/she has sung for Mulenga’ /a-ímb-il-il-e +H Mulenga/  
 f. à-íimb-ííl-é 'pó Chóólà ‘he/she has sung for Chola’ /a-ímb-il-il-e pó Choola/

When the 3 sg. SM is immediately followed by a vowel-initial root then the root vowel is lengthened just as we have seen in the other forms above. And as we saw with the Narrative Past forms, the H on this added mora will then fuse with the following root H. (Again, the Melodic H in a 3 sg. Perfective form spreads to the penult instead of the FV (§5.3.7).)

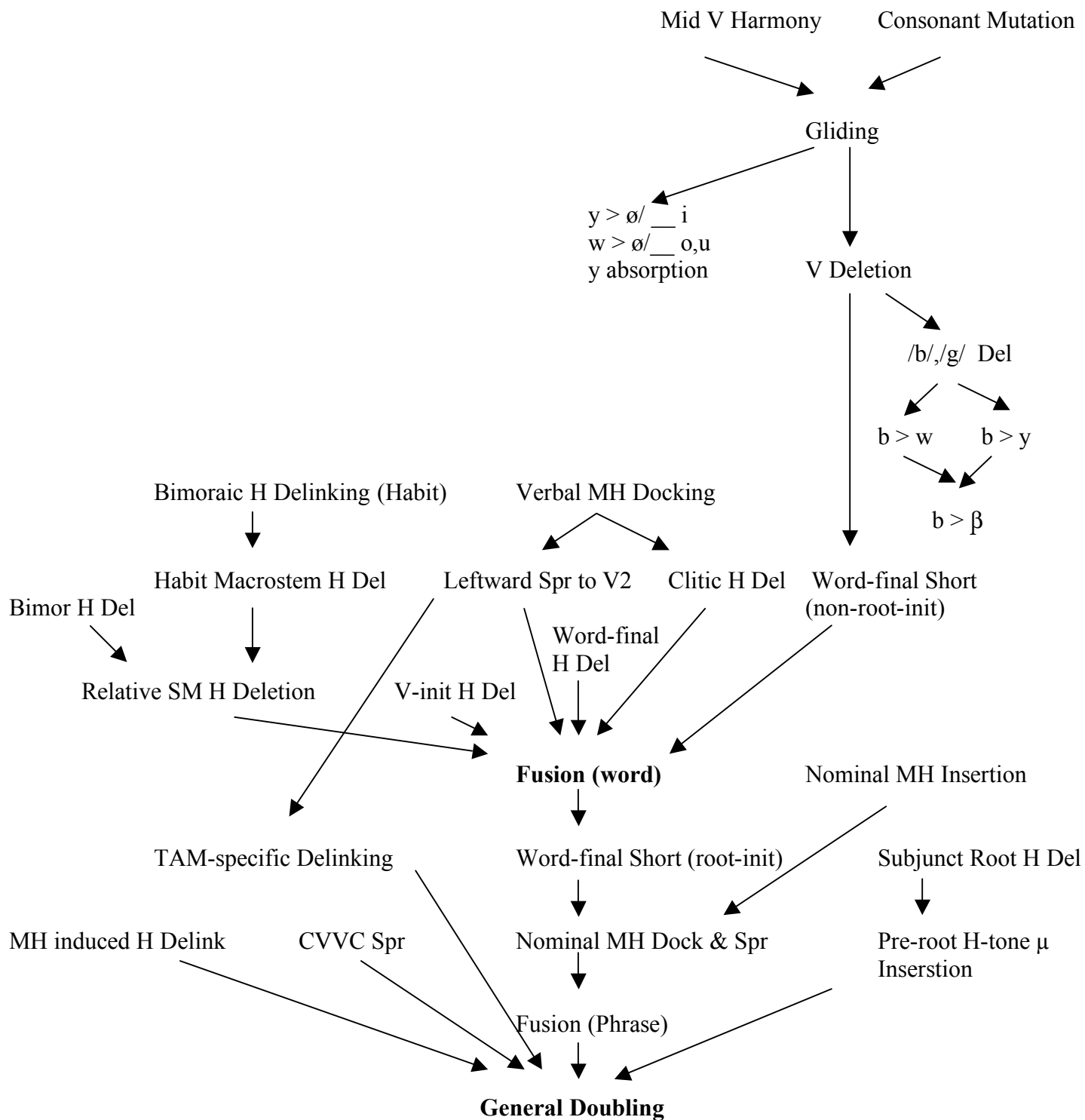
That the lengthening of the root-initial vowel is truly phonological can be seen by the fact that when the verb is /i/-initial, it becomes homophonous with its counterpart with the class 4 OM /i-/ OM.

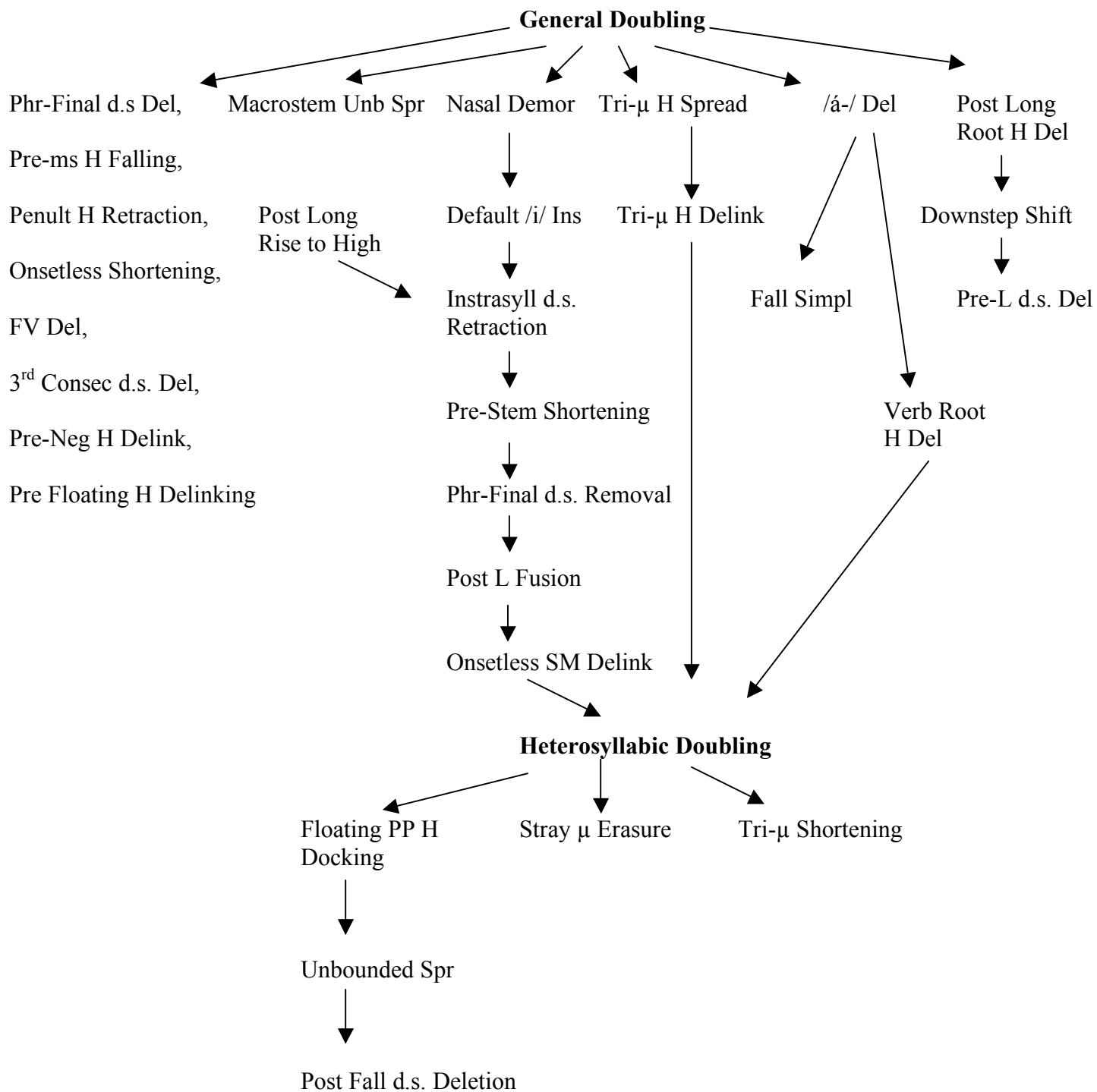
- (336) a. à-íimv-í<sup>l</sup>l-é ‘he/she has dug’ /a-ímb-ile/  
 b. à-í-íimv-í<sup>l</sup>l-é ‘he/she has dug them (C4) out’ /a-í-ímb-ile/

- (337) a. à-íís-íl-è ‘he/she has put’ /a-ík-ile/  
 b. à-í-íís-íl-è ‘he/she has put them (C4)’ /a-í-ík-ile/

- (338) a. à-íimb-á ‘and then he/she sang’ /a-ímb-a +H/  
 b. à-í-íimb-á ‘and then he/she sang about them’ /a-yá-ímb-a +H/

Below I present a flow chart of the ordering of the rules presented in this work.





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