Problem Set 7: Solutions

51.1. Conditions of occurrence: [r] after front vowels
[l] elsewhere

If you want to write a rule, assume that the phoneme is /l/; then:

/l/ —> [r] after front vowels

If you want to use features, then:

$$\begin{bmatrix} +\text{ sonorant} \\ -\text{ nasal} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{ lateral} \\ +\text{ continuant} \end{bmatrix} \ / \ [-\text{ back}] \ ____$$

53. Rule of occurrence: [č ǰ] before high vowels
[t d] elsewhere

If you want to write a rule, assume that the phonemes are /t d/; then:

/t d/ ----> [č ǰ], resp., before high vowels

If you want to use feature, then:

$$\begin{bmatrix} +\text{ coronal} \\ -\text{ back} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{ anterior} \\ +\text{ strident} \end{bmatrix} \ / \ _____ \begin{bmatrix} +\text{ syllabic} \\ +\text{ high} \end{bmatrix}$$

We need to block application of this rule to [d̥] and [s̥], which are retroflex. I'm going to take retroflex to be a type of pharyngealization. So, like pharyngealized consonants, retroflex consonants are [+ back, +low, –high]. Specifying the domain of the rule as [–back] blocks application to retroflex.

55.1. If one assumes the phonemes are /ß l ɤ/, then the rule would be:

/ß l ɤ/ —> [b d g], resp., after a non-vowel

To use features:

$$[-\text{ syllabic}] \rightarrow \begin{bmatrix} -\text{ sonorant} \\ -\text{ continuant} \\ -\text{ lateral} \end{bmatrix} \ / \ [-\text{ syllabic}] \ _____$$

The only pairs of non-vowels (non-syllabics) are nasals (non-syllabics) followed by the two voiced fricatives and the laterals (all non-syllabics). Note: a slightly more "sensible" solution and maybe better phonemic system follows if we take /l/ to actually be underlying /ð/, which becomes [l] after the rule above applies. The rule above can then be simplified to: [–syllabic] →[–continuant] / _____ [–syllabic] _____

Alternatively, one could take /b d g/ as basic and predict [ß l ɤ]. Can you write the rules?