The Emergent, the Local, and the Epiphenomenal

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Abstract:
This paper considers six philosophical and meta-theoretical worries about moving from a more traditional cognitive perspective on mind to one that gives central importance to more ecological and self-organizing approaches to studying behavior. Three “conservative” worries that oppose moving in this direction in the first place are outlined and criticized as being grounded in unjustified meta-theoretical assumptions about locality and causation. And three “progressive” worries that will have to be dealt with as research explores this path are suggested, not as roadblocks, but areas for further investigation as this research progresses.

I. The Plan

Philosophers are often driven by meta-theoretical worries about new approaches to old problems; and as more ecological and complexity-theory-driven approaches to behavior grow in influence, it’s no surprise that philosophers of psychology (like me) tend to do some hand-wringing about the “big picture” worries that such a shift may bring. In what follows, I’ll comment on two kinds of such worries: First, three of what I’ll call “conservative” worries that I think we should just get over; and second, three of what I’ll call “progressive” worries, which are in my view some challenges that we need to face as we work out the detail of a more ecological approach to mind.

The shortness of time and space here will keep me from going much beyond platitudes and guesses. So I’ll stick to the big picture, avoid the detailed arguments, and hope that some of the worries I merely raise here can be followed up upon by others.
II. Three “Conservative” worries

What I call “conservative” worries are ones which place some kind of meta-theoretical or even metaphysical roadblock as an obstacle to seriously pursuing answers about mind down a more ecological path. Three such worries that seem prominent and pervasive in current discussion that are worth mentioning here are these: (1) Specifically causal worries about “higher-level” (or non-physically or non-locally definable) properties which suggest that in the end, such properties must be seen as epiphenomena – artifacts of description rather than real parts of the causal structure of the domain to be explained. (2) Other vestiges of “old-school” reductionism, both of the physicalist (“everything must reduce to physics”) and Darwinistic (“all complexity must be explainable in terms of natural selection”) sorts. And (3) internalist worries about phenomenology and consciousness, which suggest that the alleged “inner” nature of consciousness must be in conflict with more embedded and ecological notions of experience.

1. Causal worries: Philosophers of mind of both a physicalistic and reductionistic bent, as well as those of more dualistic inclinations, have recently shared a kind of worry about the causal potency of properties – like at least some mental ones, but perhaps including biological, social, and computational ones -- which seem to lack definitions in basic physical terms. According to fairly mainstream “token” or “non-reductive” materialism of the sort common over the last few decades, the non-physical definability of such higher-level properties was to be embraced as a part of the autonomy of the special sciences, including psychology. But resistance to this view has enjoyed a resurgence recently, grounded in arguments that try to paint such physically supervenient but not physically definable properties as unavoidably non-causal, and thus not a legitimate part of scientific explanation.
(see, e.g., Kim 2005). By accusing higher-level and contextual causal accounts of being either “excluded” by the presumably forthcoming physical stories about the underlying process, or “screened off” from causal potency by the exclusively local features of the brain, we deny the potency and legitimacy of such accounts.

Both of these inclinations are in my estimation grounded in assumptions about causation and explanation that are far from obvious, and in fact assumptions widely rejected in the real practice of scientific explanation across a wide range of disciplines. “Exclusion” arguments are problematic in their reliance on a kind of implicit principle of explanatory exclusion that requires that any phenomenon which is implemented physically through and through cannot be legitimately explained causally by any other description of the system, which would seem to conflict with how causal explanation works in the most mundane of cases. Macro causation in virtue of biological properties – such as gross phenotypical ones – is not ruled out by any reasonable insistence on the physical realizability of those properties.

2. More reductionism: Even aside from the (misguided) causally-based worries noted above, residual reductionistic tendencies exercise a sometimes-powerful negative influence on ecological theorizing. A theme of methodological individualism – of more generally, methodological localism – is widely appealed to in attempts to avoid contextual and environmental theorizing about behavior. The alleged explanatory principle here is that good scientific explanation must be stateable using physically specifiable local functional units – that is, that real, non-mystical explanations always must reduce the phenomenon to interactions of locally (and preferably physically) specifiable localizable functional units.

But without the support of the kind of methodological principle about causation noted in worry #1 (above), it’s unclear what real support can be given for this bias. If higher-level
properties in general could be assumed to be causally impotent, this might support the reductive impulse here. But without this support, it’s not only unclear what legitimate philosophy of science conclusion might support this view, but it seems clear once again that our understanding of real complex systems doesn’t bow to this sort of alleged constraint legitimacy of explanation; certainly not in, say, biology, where the context-dependence of both genetic features expressed by DNA strands and of fitness of traits and organisms are central parts of our best models.

The other residual of reductionism worth mentioning is the Darwinian sort. The idea that the complexity of the biological world must be explained in terms of heritable variance in fitness, and that no other causal processes are ultimately involved has been a haven for the reductively minded. But if, as I’ve suggested above, we have no reason to rule out higher-level causal processes in general, it’s unclear what metaphysical or meta-theoretical reason other than the bare hold for the simplicity of a reductive story gives any support to the idea that he only causal processes fundamentally involved in producing the complexity of our world must take the form of randomly-produced heritable selective advantage. "Darwinian" is surely one widespread way in which higher-level processes causally produce the complexity of the world, but there’s no more reason to see it as the only one than to assume that all causal processes must be specifiable in one privileged language of micro-physics.

3. Internalism and phenomenology: There are few philosophical assumptions more widespread and “obvious” than a kind of residual quasi-Cartesian view about the locality of experience. In its modern form, it’s the idea that the experiential (or phenomenological) features of mind must be fixed by facts about internal and local brain state alone; or if you prefer, that all experiential properties of mind would be the same if only the local brain state
is the same. This modern revision of the Cartesian intuition that experiences could be exactly the same even if everything about the world were completely different may have traded in Descartes’ fundamental separation of substances for a brain-centric localization of mind; but it still holds onto the central notion of a kind of autonomous “Cartesian Theatre”, logically independent from the causal features of the world around it.

It’s my sense that the most central motivation for this is really our friend #1 above – the idea that only utterly local and proximal causation counts as real causation, and that more distal causes are always screened off by proximal ones. If so, then the idea would be that since the brain states seem like the most proximal causes of phenomenology, they should be in the most general way all that matters or is relevant to the content of phenomenological states.

Of our three worries, this one is the most philosophical and least methodological, and not quite as subject to undermining by noting its commitment to principles of causation and explanation which turn out to be generally unjustified. But it’s still a view that can’t merely be assumed, and which we can straightforwardly see real alternatives to. A more existential and embedded phenomenological view which sheds the insistence on qualia-centered views of the content of experience popular in the “Yankee” (i.e., tight, stingy, and American) phenomenology of recent discussions of materialism in the philosophy of mind will lead us to a less localized and internalized view of experience. A thoroughly intentional view of phenomenology which sees experiential character as most clearly fixed in virtue of the ecological properties of the embedded brain/organism system in environmental content will cohere better not only with the broader view of causation discussed above, but with the phenomenology itself: From Heidegger’s “readiness-to-hand” to Merleau-Ponty’s “non-thetic
synthesis in communion with the world”, we get a phenomenology which places something much closer to a quasi-Gibsonian notion of affordances at the heart of experiential character, and dismisses the non-contextual and purely localized notion of pure qualia as an artifact of analysis.

I don’t intend to claim here that all of these debates are over, even though part of me wishes that they were. There’s lots of cleanup work to be done. But my project here isn’t to do that, but instead to contrast these “conservative” worries about heel-dragging with respect to more embedded and interactive accounts of cognition with ones that aim less to halt movement in that direction than to puzzle about how to direct that movement if we do choose to get on board. It’s to these worries I’ll now turn.

III. Three “Progressive" worries

What about if we get past the conservative worries, then? What further philosophical and meta-theoretical puzzles and concerns lie in wait? Although new ones can clearly emerge along the way, I think there are three such “progressive” worries that we should face up front: First, the idea of “chaotic” emergence as providing a further challenge to higher-level causation and explanation; second, the possibility of insisting on too much generality in the explanations provided by the new perspective; and third, the potential undermining of the notion of a coherent self or agent that our more embedded theories of mind may generate.

None of these worries in my view constitutes a kind of objection to embedded cognition that should keep us from its exploration. But I do think that each will in one way another challenge us as we pursue research down this general collection of paths.
1. Chaotic emergence as undermining higher-level cause: The possibilities of higher-level causes and causal explanations are, as noted above, critical for making sense of a wide range of scientific explanations (and not just in the current context). But regularities, at whatever level you like, are obviously not sufficient for causation and causal explanation at that level. And especially in systems exhibiting chaotic non-linear dynamics (a key focus of complexity theory), rich higher-level regularities may establish themselves purely as by-products of non-linear dynamics in their physical implementations – regularities which do not display the kind of manipulability and implementation-independence that causal explanation at the higher level would seem to require.

Part of the seductive power of more reductive and localized views of causal regularities is their possible power in solving the real problem of separating causal regularities from artifactual ones; once we (rightly, in my view) broaden our perspective on causation, those problems will haunt us, and without the promise of easy metaphysically-driven answers. Without an easy answer to how to separate the causal from the artifactual (and especially in light of the kind complex and higher-level regularities we are encouraged to see emerging from non-linear dynamics in complex systems), we face a messy problem with the potential to infect our views in the philosophy of science from induction to function.

But lacking a simple metaphysical solution doesn’t make a problem unsolvable; more likely, it indicates that it’s time to get our hands dirty in the details if we want to see which regularities are artifactual. As we’ve seen in the discussions of the units of selection controversy in the philosophy of biology, the rejection of simplifying reductions of the causal to one level of selection (organismic for classical Darwinians, genic for the even more reductively inclined) opens up the possibility of working through the details with a more
pluralistic outlook and figuring out which of the scenarios that show regularities at the level of groups should count as causal (and so real group selection) and which artifactual (see, e.g., Sober 1984). Likewise in the current case: It’s time to get dirty in the details without the prejudicial metaphysical preconditions on where the causes lie; only then do we have the really possibility of making progress here.

2. Overreaching for ”The General Theory”: As we look for more ecological and self-organizing account of embedded cognition, we have to ask just how general these theories might be. In doing this, I believe we need to avoid a central problem of our more reductionistic predecessors: That of looking for “The” completely general theory of cognition or even complexity in general.

Focusing on ecological organism-environment interactions bring us a set of conceptual tools for explanation that have been historically underexplored and underused, and in my view provide a huge and important expansion of our explanatory and meta-theoretical toolbox. But this gain should not tempt us to lose sight of one of the most critical morals of anti-reductionism.\(^1\) We should not be expecting to find the one over-arching and all-encompassing theory of the sort that physicalistic reductionism and Darwinian selection tried (and failed) to be. The problem with those theories was not that they never apply correctly (obviously, they have their dramatic successes); but that we allowed them to aspire to being the one, true, complete theory that must supplant or reduce all others.

Exactly how general or scale-independent our ecological accounts of action will turn out to be is a detailed empirical matter; some may be very general, some quite particular to the details of the particular organism-environment system that they describe. Even when we might like greater generality, it would be a – to use Nancy Cartwright’s (1999) term –
fundamentalist mistake of just the sort reductionism fell into: That of assuming that our search must be for scale-invariant or completely general laws that apply across an enormous range of kinds of organism-environment systems, or as John Holland (1975) put it, “searching for the general principles that underlie complex adaptive systems in general”. I suspect the truth here will lie closer to the kind of vision that Ian Hacking suggests: Scientific success is often a matter of more tools and more detail about particular phenomena, and that the progress of science is less about obtaining the elegant and overarching theory of everything, and more and more about more and more.

3. The radically distributed and world-permeated self: If we were to embrace the kind of intentional, existential, anti-Yankee/anti-Cartesian, embedded consciousness-in-the-world approach that I’ve said a bit about above, we’ve already taken huge step away from a kind of unified and substance-like view of the self as in some ways logically independent of the world. The self is on this view “thrust back into the world”, and not constituted in the local and isolatable theatre of consciousness.

But moving to an embedded self also correctly raises some further issues about the disintegration of the traditional self – not just from the standpoint of psychological explanation, but from that of the consideration of the moral or normative self. As others have noticed, the less internalized and localized the self becomes, the less a localized executive center for control and deliberation will be natural to our concept of mind. Seeing ourselves as stable centers of reflective equilibrium or morally evaluable agent constant virtues or traits relies in part on a kind of unity of mind that a more distributed notion of mind calls into question. And the psychological data may in fact be lining up to reinforce this (slightly unsettling view of us as agents. As John Doris (2002) points out, the idea of our moral selves
constituted by morally stable characters or traits may be coming apart, to be replaced by a view of the self as a more unstable artifact of our analysis whose patterns of behavior are highly contingent on details of the embedding environment in which we find ourselves.

IV. Last words

There’s surely some artificiality to the “conservative/progressive” distinction here: There’s lots of clean-up left on the “conservative” worries (especially #3), and lots of people remain unconvinced. This sort of tidying up will keep philosophers busy for years to come, even if I’m right about the direction of resolution.

But I do think that the progressive worries place challenges that even those who agree with me on the conservative ones will have to grapple with and find their way through in pushing forward a thoroughly ecological and self-organizing view of cognition. It’s my hope that none will prove insurmountable, and I look forward to solution by some of you here – maybe even today.

References:


