

The Extended Mind and Religious Thought

with Leslie Marsh, "Mindscapes and Landscapes: Exploring the Extended Mind"; Mark Rowlands, "The Extended Mind"; Lynne Rudder Baker, "Persons and the Extended-Mind Thesis"; Teed Rockwell, "Minds, Intrinsic Properties, and Madhyamaka Buddhism"; Joel W. Krueger, "Empathy and the Extended Mind"; Leonard Angel, "Quintuple Extension: Mind, Body, Humanism, Religion, Secularism"; and Matthew Day, "Constructing Religion without The Social: Durkheim, Latour, and Extended Cognition"

THE EXTENDED MIND

by Mark Rowlands

Abstract. The extended mind is the thesis that some mental—typically cognitive—processes are partly composed of operations performed by cognizing organisms on the world around them. The operations in question are ones of manipulation, transformation, or exploitation of environmental structures. And the structures in question are ones that carry information pertinent to the success or efficacy of the cognitive process in question. This essay examines the thesis of the extended mind and evaluates the arguments for and against it.

Keywords: environment; extended mind; functionalism; mark of the cognitive

The view known as *the extended mind*, following Andy Clark and David Chalmers (1998), also goes under a number of aliases. Clark and Chalmers themselves also refer to their view as *active externalism*. *Vehicle externalism* is employed by Susan Hurley (1998) and Mark Rowlands (2006). *Locational externalism* is the epithet preferred by Robert Wilson (2004). The early appellation of Rowlands (1999), *environmentalism*, never really caught on, perhaps because the term was already in use.

None of these labels is entirely satisfactory. It is arguable, for example, that the only things wrong with *the extended mind* are the words *extended* and *mind*. The view concerns mental processes, primarily, and perhaps

Mark Rowlands is Professor of Philosophy in the Department of Philosophy, University of Miami, 1252 Memorial Drive, Ashe 721, Coral Gables, FL 33124-4670; e-mail mrowlands@mail.as.miami.edu.

[*Zygon*, vol. 44, no. 3 (September 2009)]

© 2009 by the Joint Publication Board of *Zygon*. ISSN 0591-2385

www.zygonjournal.org

states, but not the mind—at least not if we understand this as the *subject* of mental states and processes. The standard arguments for the extended mind apply to mental processes, and possibly to mental states, but not, without a lot of further argument, to the subjects of those processes and states. And the term *extended* conjures up images of mental states and processes somehow expanding outward from their cranial prison and occupying a definite, if somewhat elongated, spatial position, like a stretched rubber band. But perhaps one of the principal implications of the view that goes by the name of the extended mind is that rather than being extended in this sense, mental processes have no determinate spatial position. Nevertheless, for the purposes of this essay I use the label *the extended mind*, which seems to have caught on more than any of the others (and, anyway, a rose by any other name . . .).

Underlying the profusion of names is a reasonably well-defined view that can be represented by way of the following claims:

- The world is an external store of information relevant to processes such as perceiving, remembering, reasoning, and (perhaps) experiencing.¹
- At least some mental processes are hybrid, straddling both internal and external operations.
- The external operations take the form of action: manipulation, exploitation, and transformation of environmental structures that carry information relevant to the accomplishing of a given task.
- At least some of the internal processes are concerned with supplying subjects with the ability to appropriately use relevant structures in their environment.

This view is not particularly new. James Gibson (1966; 1979) essentially defends it, and a position that is at least on nodding terms with the one described is found in A. Luria and L. Vygotsky ([1917] 1992). It has clear affinities with those of Martin Heidegger ([1927] 1962), Jean-Paul Sartre ([1943] 1957), M. Merleau-Ponty ([1943] 2002), and Ludwig Wittgenstein (1953).

As I understand it, the thesis of the extended mind is (1) an *ontic* thesis of (2) *partial* and (3) *contingent* (4) *composition* of (5) *some* mental processes.²

1. The thesis is *ontic* in the sense that it is about what (some) mental processes are, as opposed to an *epistemic* thesis about the best way of understanding mental processes. This ontic claim, of course, has an epistemic consequence: It is not possible to understand the nature of mental processes without understanding the extent to which that organism is capable of manipulating, exploiting, and transforming relevant structures in its environment (Rowlands 1999). However, this consequence is not part of the thesis of the extended mind itself. Indeed, the epistemic claim is compatible with the denial of the thesis of this thesis.³

2. The claim is that (some) token mental processes are, *in part*, made up of the manipulation, exploitation, or transformation of environmental structures. There is always an irreducible internal—neural and sometimes also wider bodily—contribution to the constitution of any mental process. No version of the extended mind claims that a mental process can consist entirely of manipulative, exploitative, or transformative operations performed on the environment.⁴

3. It is possible to understand the thesis of the extended mind as asserting a necessary truth about the composition of mental processes: that, *necessarily*, some mental processes are partly constituted by processes of environmental manipulation and so forth.⁵ It is possible to understand it in this way but, I think, inadvisable. As we shall see, the underlying rationale for the thesis of the extended mind is provided by a liberal form of functionalism.⁶ And the entire thrust of liberal functionalism is to leave open the possibility of different ways of realizing the same (type of) mental process. By understanding the thesis of the extended mind as asserting a necessary truth, therefore, the proponent of this thesis is at risk of undermining his or her own primary motivation.

4. The thesis of the extended mind (henceforth, just “the extended mind”) is a claim about the *composition* or constitution of (some) mental processes. Composition is a relation quite different from dependence. Thus, the extended mind is a stronger and more distinctive claim than one of environmental embedding, and it must be clearly distinguished from the thesis of the embedded mind. According to the latter, some mental processes function, and indeed have been designed to function, only in tandem with certain environmental structures so that in the absence of the latter the former cannot do what they are supposed to do or work in the way they are supposed to work. Thus, some mental processes are dependent, perhaps essentially dependent, for their operation on the wider environment. For example, if we focus on cognitive processes, and think of these as information-processing operations, the idea would be that in accomplishing cognitive tasks an organism can use structures in its environment in such a way that the amount of internal processing it must perform is reduced. Some of the complexity of the task is thereby offloaded onto the environment. This is an interesting thesis in its own right, but it is not the thesis of the extended mind. The claim that mental processes are embedded is a claim of dependence—that at least some mental processes are essentially dependent on environmental structures in that they need such structures in order to perform their characteristic proper functions. The thesis of the extended mind is a thesis of constitution, not dependence. At least some mental processes are literally constituted, in part, by the manipulation, exploitation, and transformation of appropriate environmental structures; that is, some mental processes contain these operations as constituents. Although the idea that mental processes are embedded is an

interesting one, in the recent literature this idea figures largely as a way of attacking the idea that mental processes are extended. The arguments that are presented as showing that mental processes are extended, it is argued, in fact show no more than that they are environmentally embedded. Thus, the claim that mental processes are embedded is presented as a way of both acknowledging and defusing the force of the various arguments for the extended mind (Rupert 2004, for example). We return to this issue later.

5. Finally, as if it needed saying (and if my jaunts around the conference circuit in recent years are anything to go by, it does need saying), the thesis of the extended mind does not claim that *all* mental processes are partly constituted by processes of environmental manipulation; it claims only that *some* of them are. When I remember where I left the car keys by mentally picturing myself dropping them into the kitchen drawer, there is no need to suppose that there must be some environmental manipulation going on there. Indeed, the extended mind is perfectly compatible with the existence of a brain in a vat, merely adding the qualification that, at most, the brain might not be able to engage in *some* cognitive processes—although even this inability may be eliminated by suitably sympathetic adjustments on the part of the scientists stimulating the brain.

It is not clear if the version of the extended mind outlined above (the version I defend in Rowlands 1999; 2003b; 2006) is equivalent to the version defended by Clark and Chalmers (1998). Clark and Chalmers are often interpreted as claiming that the sentence “The Museum of Modern Art is on 53rd Street,” located in the Alzheimer’s patient Otto’s notebook, is identical with Otto’s belief that the Museum of Modern Art is on 53rd Street. However, this interpretation is probably too simplistic. More accurately, the idea is that when the sentence in the notebook is being deployed by Otto in the right sort of way, then and only then can it count as among Otto’s beliefs. The guiding principle here is, as Clark puts it, “If, as we confront some task, a part of the world functions as a process which, were it done in the head, we would have no hesitation in regarding as part of the cognitive process, then that part of the world is (so we claim) part of the cognitive process” (Clark and Chalmers 1998, 8).

This claim, however, can also be interpreted in two different ways.

1. The sentence in Otto’s notebook, when appropriately deployed by Otto, and so situated in a context composed of the right sorts of surrounding psychological states and processes (Otto’s perception of the sentence, his desire to see the exhibition), is one of Otto’s beliefs. This interpretation identifies a token cognitive state—a belief—with an external structure: a sentence.

2. The process of manipulating and/or exploiting the sentence is a properly cognitive part of an overall cognitive process. The overall process in question would be that of remembering or believing. The manipulation

involved would be that of opening the book to the relevant page and orienting the page so that the sentence is open to detection by Otto. The manipulation transforms the information contained in the sentence from the merely present to the available—available to Otto and/or to his subsequent processing operations. In playing this role, the manipulation of the sentence forms a properly cognitive part of the overall process of remembering or believing.

The second interpretation claims that manipulation of an external structure is a properly cognitive part of a larger cognitive process. It stops short of identifying the structure thus manipulated with a cognitive state. The version of the extended mind I defend is the one implicated in the second interpretation. I want no part of the claim that external structures can be identical with cognitive states. I claim only that doing things with external structures can, when the right conditions are met, qualify as cognitive processes.

FUNCTIONALISM AND THE EXTENDED MIND

The typical arguments for the extended mind presuppose functionalism. This is now widely accepted, which is a good thing because I do not wish to examine here all cases of and arguments for the extended mind. Consider Clark and Chalmers' development of the position. In their discussion of the case of Otto and his reliance on a notebook, they argue: "In relevant respects the cases are entirely analogous: the notebook plays for Otto the same role that memory plays for [Otto's non-neurologically impaired friend] Inga. The information in the notebook functions just like the information constituting an ordinary non-occurrent belief; it just happens that this information lies beyond the skin" (Clark and Chalmers 1998, 11). Mental states, they assume, are individuated by their functional role: What is decisive in determining whether or not the entry in Otto's notebook qualifies as a belief is the way it interacts with his perceptions, behaviors, and other mental states. Given this assumption, they argue (or are usually interpreted as arguing) that the entries in Otto's notebook have a functional role in Otto's psychology that is sufficiently similar to the functional role of belief in Inga's psychology that the notebook entries should be counted as among Otto's beliefs. Although there are differences between the entries in Otto's notebook and more standard cases of belief, these differences are shallow ones—insufficiently significant to disqualify the entries from counting as beliefs.

There is a way of understanding functionalism according to which the extended mind emerges as a straightforward, almost trivial, consequence.⁷ In its more liberal forms, functionalism is based on a principled indifference to the details of the physical structures that realize mental processes. What is crucial to a mental state or process is its functional role, not its physical realization; the only thing that is directly relevant to whether or

not something qualifies as a mental state or process of a certain sort is whether it has the required functional role. It doesn't matter *what* mechanisms realize or accomplish this role, as long as they do so. To this, typical arguments for the extended mind merely add: Neither does it matter *where* these mechanisms are located; the location of the mechanisms that realize functional roles is no more relevant than their physical details. For the liberal functionalist, if it walks like a duck and talks like a duck, it is a duck. *How* it manages to walk and talk like a duck is not directly relevant. To this, the extended mind simply adds: Nor does it matter *where* it walks and talks like a duck.

The implicated functionalism is of a peculiarly liberal sort, however. There are many different explanatory levels at which functional description of a process might be useful. Therefore, for some versions of functionalism it does in fact matter how something might walk and talk like a duck. This more chauvinist conception of functionalism is presupposed by Robert Rupert (2004) in an influential critique of the extended mind. Rupert argues that there are significant differences between the fine-grained profile of internal memory operations and external memory stores of the sort invoked by the thesis of the extended mind. For example, internal (neural) memory operations seem subject to what is known as the *generation effect*. It is possible for subjects to gain a mnemonic advantage by generating their own meaningful connections between paired items to be learned. Rupert argues that this generation effect will fail to occur in at least some extended memory systems. For example, it will fail to occur in a notebook-based system in which the paired associates are accompanied by connection sentences produced by those subjects during learning but entered into the notebook by the experimenter. Rupert concedes that the effect might occur in other extended memory systems—for example, a notebook-based system where the connection sentences between paired associates are not only produced but also entered into the notebook by the subject. However, he argues, in such cases the effect is an accidental rather than defining feature of the system. Such differences, he claims, undermine any attempt to regard internal and extended memory systems as forming part of a single explanatory kind. He does acknowledge the possibility of a more liberal functional identification of mental process types but argues that such a way of individuating process types would be useless for the purposes of psychology.

What is important for our purposes is not the success or otherwise of this argument but the presuppositions on which it is based, and these include a more chauvinistic form of functionalism than the thesis of the extended mind can accept. Rupert's argument is predicated on the claim that that coarse-grained functional profile is not by itself decisive in determining the extensions of psychological kinds. Fine-grained functional details, of which the generation effect would be one example, are also crucial.

According to the thesis of the extended mind, computational role alone determines psychological kind. For Rupert, computational role is not sufficient; details of the algorithm employed are also necessary.

To this extent, then, Rupert's objections are question-begging. This charge has been leveled by Mike Wheeler (in press). However, the charge seems to cut both ways. If Rupert's arguments against the extended mind are question-begging because they presuppose a chauvinistic form of functionalism, it is difficult to see why arguments for the extended mind are not question-begging given their predication on a liberal form of functionalism. Adjudicating between the extended mind and its critics therefore seems to require adjudicating between liberal and chauvinistic forms of functionalism. But this dispute has been going on almost since the inception of functionalism. And although it is possible to point to considerations that would favor liberal over chauvinist forms of functionalism in certain cases (and, I suspect, in other cases vice versa), there has been no satisfactory resolution of this dispute in general. In the absence of such resolution, the clear danger for the extended mind is one of stalemate.

FURTHER OBJECTIONS

In addition to the general problem of question-begging, the thesis of the extended mind (EM) has engendered several more specific objections:

1. The Differences Argument. This objection points to the significant differences between internal cognitive processes and the external processes that EM alleges are also cognitive. It casts doubts on the claim that both processes should be regarded as belonging to a single psychological kind. This argument has been vigorously championed by Rupert (2004).

2. The Coupling-Constitution Fallacy Objection. This objection claims that EM confuses cognition with its extraneous causal accompaniments. More precisely, it confuses those structures and processes constitutive of cognition with those in which cognition is (merely) causally embedded. This type of argument has been developed by Fred Adams and Kenneth Aizawa (2001; in press) and, in a somewhat different way, by Rupert (2004).

3. The Cognitive Bloat Objection. The admission of extended cognitive processes places one on a slippery slope, according to this objection. Once we permit such processes, where do we stop? Our conception of the cognitive will become too permissive, and we will be forced to admit into the category of the cognitive all sort sorts of structures and processes that clearly are not cognitive.

4. The Mark of the Cognitive Objection. This argument, developed by Adams and Aizawa (2001; in press), claims that EM should be rejected on the grounds that it is incompatible with any plausible mark of the cognitive—that is, any criterion that specifies the conditions under which a process qualifies as cognitive.

It is arguable—at least I hope it is arguable because I take myself to have argued it (Rowlands 2008)—that the Mark of the Cognitive objection is the basic one. The other three either reduce it or can be solved by the provision of an adequate and properly motivated criterion of the cognitive. To see why, let us examine each objection in turn.

The Differences Argument. The thesis of the extended mind often is thought to be grounded in the concept of parity—roughly speaking, the similarity between the external processes involved in cognition and internal processes that are widely accepted as cognitive. The extended mind’s reliance on this notion of parity is thought to be embodied in and demonstrated by Clark and Chalmers’s deployment of what they call the *parity principle*. Recall the formulation of Clark quoted earlier: “This was the claim that if, as we confront some task, a part of the world functions as a process which, were it to go on in the head, we would have no hesitation in accepting as part of the cognitive process, then that part of the world is (for that time) part of the cognitive process” (Clark and Chalmers 1998, 8).

Critics of EM, without exception, have understood the parity principle as introducing a similarity-based criterion of when an external process or structure is to be understood as cognitive, that is, as a genuinely cognitive part of a cognitive process. Very roughly, on this understanding of the parity principle, if an external process is sufficiently similar to an internal cognitive process, it too is a cognitive process.

It is this interpretation of the role of the parity principle—as introducing a similarity-based criterion for when cognition can legitimately be regarded as extended—that underwrites the Differences argument. Thus, Rupert, in connection with an argument for extended memory that I developed (Rowlands 1999), outlined his strategy as follows:

I argue that the external portions of extended “memory” states (processes) differ so greatly from internal memories (the process of remembering) that they should be treated as distinct kinds; this quells any temptation to argue for HEC from brute analogy (viz. extended cognitive states are like wholly internal ones; therefore, they are of the same explanatory cognitive kind; therefore there are extended cognitive states). (Rupert 2004, 407)

The operative assumption is that the function of the parity principle is to introduce a similarity-based criterion of when a cognitive process such as remembering can be extended into the world: *If* an external process is sufficiently similar to internal cognitive processes, it too is a cognitive process. Rupert argues that because external processes involved in memory are in fact *not* sufficiently similar to internal cognitive processes, they are not cognitive processes. Presumably this is intended as an inductive argument: Because the internal and external processes involved in cognition are not sufficiently similar, the parity principle provides no reason to regard the latter as cognitive.⁸

This Differences argument, however, rests on a failure to properly understand the arguments for the extended mind. The thesis does not rely on a similarity-based criterion of when a cognitive process may legitimately be regarded as extended. The notion of parity is indeed an important one for EM; however, equally important is the notion of *integration*, the meshing of disparate types of process that, precisely because of their disparate character, can enable a cognizing organism to accomplish tasks that it would not be able to achieve by way of either type alone (Menary 2006; 2007; Sutton in press). From this integrationist perspective, the differences between internal and external processes are at least as important as the similarities. The reason cognition extends into the environment is precisely because, with respect to the accomplishing of certain cognitive tasks, external processes can do things that internal processes cannot (or, depending on how you want to understand the extended mind, in certain cases simply *do not*) do. External structures and processes possess quite different properties from internal ones, and it is precisely this difference that affords the cognitive agent the opportunity to accomplish certain tasks that it could not, or might not be able to, accomplish purely by way of internal cognitive processes. Without these differences, the external processes would be otiose.

Thus, for example, extended models tend to emphasize the relative *stability* of relevant external structures and the enhanced possibilities for manipulation and exploitation that this stability engenders (Donald 1991; Rowlands 1999; O'Regan and Noë 2001; Noë 2004). These possibilities, it is argued, have little or no echo in the case of internal processes, and they underwrite the abilities of organisms to accomplish certain cognitive tasks that they could not (or perhaps simply do not) accomplish by way of internal processes alone. The extended mind tends also to emphasize the distinctive *structure* of external items (for example, linguistic or combinatorial)—structure that, again, arguably has no echo in internal items (Donald 1991; Hurley 1998; Rowlands 1999). In each case, it is precisely the different properties of external structures that allow the cognitive agent to accomplish things that it either could not or in fact does not accomplish by way of internal processes alone.

Given the central role that integration plays in EM, one cannot predicate, as does the Differences argument, an objection to this thesis simply by citing differences between internal and external processes. The extended mind, properly understood, both predicts and requires such differences. Understood on its own terms, therefore, the Differences argument fails.

However, the integrationist's emphasis on the differences between the internal and external processes involved in cognition does leave the extended mind vulnerable to another objection. If EM requires significant differences between internal processes and the external processes that it regards as cognitive, what reason is there for supposing that the latter are

really part of cognition rather than a merely external accompaniment to real, internal, cognitive processing? What reason is there for supposing that the external processes amount to anything more than a form of scaffolding in which real, internal, cognitive processes are embedded? Given the integrationist's emphasis on the differences between the internal and external processes involved in cognition, it is not possible to establish the cognitive status of the latter simply by analogical extension from the former. So how *do* we establish it? If the extended mind is to defend the cognitive status of the extended processes, it needs to provide an adequate and properly motivated criterion of the cognitive—a criterion that would allow the extended mind to justify the claim that the external processes involved in cognition are indeed cognitive processes. In short, the integrationist response deflects the Differences argument only by leaving the extended mind vulnerable to the Mark of the Cognitive objection.

The Coupling-Constitution Fallacy Objection. This objection can take slightly different forms. According to Adams and Aizawa, "This is the most common mistake that extended mind theorists make. The fallacious pattern is to draw attention to cases, real or imagined, in which some object or process is coupled in some fashion to some cognitive agent. From this, they slide to the conclusion that the object or process constitutes part of the agent's cognitive apparatus or cognitive processing" (2001, 408).

Rupert expresses a similar objection, albeit in more cautious terms. Referring to my version of EM, he writes: "Rowlands, however, does not make clear why the use of an internally represented code applied to the contents of an external store implies HEC, rather than what it would seem to imply: HEMC" (Rupert 2004, 411). HEC is the *hypothesis of extended cognition*, which Rupert, correctly, distinguishes from HEMC, the *hypothesis of embedded cognition*. What reason, Rupert asks, do we have for regarding the external processes as part of cognition rather than simply a form of extraneous scaffolding in which real, internal, cognitive processes can be causally embedded?

It is implausible to suppose that proponents of EM are, in general, guilty of simply confusing constitution and causal coupling (although there may be some instances of this confusion). Far from confusing the two, the most natural way of understanding the arguments for the extended mind are precisely as arguments for reinterpreting what traditionally had been regarded as extraneous causal accompaniments to cognition as part of cognition itself. To *argue* for the identification of *X* and *Y*, when *X* and *Y* hitherto had been regarded as distinct types, is not to *confuse X* and *Y*.

Consider my arguments for extended memory cited by Rupert. I argued that in certain cases the external processes involved in cognition—bodily manipulation and exploitation of information-bearing structures in the cognizer's environment—possess certain abstract, general features of

processes commonly regarded as cognitive while also differing in the sorts of concrete ways required by the integrationist underpinning of EM. These external processes are employed in order to accomplish cognitive tasks. They involve information processing—the manipulation and transformation of information-bearing structures. This processing results in the making available to organisms of information that was previously unavailable, and so on. That is, I *argued* for the cognitive status of external processes of these sorts by trying to show that they satisfy a certain criterion of the cognitive. One can legitimately question whether I rendered this criterion sufficiently explicit, and even if it were explicit whether it is adequate;⁹ but one can hardly accuse me of *confusing* causation and constitution. And if I were in possession of an adequate and properly motivated criterion of the cognitive, and if the sorts of external processes he identifies were to satisfy this criterion, I would have made it clear why his view implies HEC rather than HEMC.

Thus, like the Differences argument, the Coupling-Constitution Fallacy objection is a derivative of the Mark of the Cognitive objection. If the extended mind can provide an adequate criterion of the cognitive, and demonstrate that the external processes it regards as cognitive satisfy this criterion, there is no substance to the charge that it confuses constitution and mere coupling.

The Cognitive Bloat Objection. In essence, this is a slippery-slope argument usually raised in connection with Clark and Chalmers's discussion of Otto's notebook. If we are willing to allow that the sentences in Otto's notebook are beliefs, why stop there? Why not the entries in Otto's telephone directory, of which he also makes frequent use? Why can these not be numbered among Otto's beliefs? Indeed, why stop even there? Why does Otto not believe everything posted on the Internet, given that he is able to use this in a way akin to the way he uses his notebook?

Clark and Chalmers try to preclude this problem of bloat by advocating a *conscious endorsement* criterion on beliefs. The entries in Otto's notebook count as beliefs, whereas the entries in his telephone book do not, because Otto has at some point consciously endorsed the former but not the latter. However, as they note, this condition is questionable: Beliefs can form subliminally as well as through conscious experience, and presumably we would not regard their mode of formation as automatically excluding them from the class of cognitive states.

The Cognitive Bloat objection, I argue, also can be rebutted by way of an adequate criterion of the cognitive. The key to this rebuttal lies in the role played by the concept of ownership in qualifying a state or process as cognitive. The entries in the telephone directory and the pages on the Internet are not, at least as they figure in the Cognitive Bloat objection, *owned* by anyone. And I think that a strong case can be made for the idea that if

something is to count as a cognitive process it must be owned by a cognitive agent or subject. This, however, is an argument for elsewhere (Rowlands in press).

THE MARK OF THE COGNITIVE

If the arguments of this essay are correct, future development of the extended mind should be guided by two factors. First, to the extent that EM is dependent on a liberal form of functionalism, it is vulnerable to the charge of question-begging. Therefore, it would be good if there were a way of taking functionalism out of the equation or at the very least mitigating its influence. To do this we need to find a way of motivating and defending the extended mind without relying entirely on a controversially liberal form of functionalism. Second, EM needs to provide an adequate and properly motivated criterion of the cognitive. If it can do so, it will be in a position to answer the specific objections that have been raised against it—objections that reduce to the Mark of the Cognitive objection and that can be allayed by the provision of an adequate and properly motivated mark or criterion of the cognitive.

Here I do not address either of these issues in any sort of satisfactory way. The following should be understood as merely offering a flavor of current works in progress (Rowlands 2008; in press).

An adequate and properly motivated criterion of the cognitive, I argue, looks like this:

A process *P* is a cognitive process if and only if:

1. *P* involves information processing—the manipulation and transformation of information-bearing structures;
2. this information processing has the proper function of making available either to the subject or to subsequent processing operations information that was (or would have been), prior to (or without) this processing, unavailable;
3. this information is made available by way of the production, in the subject of *P*, of a representational state;
4. *P* is a process that belongs to the subject of that representational state.

This is a *sufficient* condition for a process to count as cognitive, not a *necessary* one. The criterion can be extracted with relative ease from examination of paradigmatically internalist accounts of cognitive processes—David Marr's (1979) theory of vision being an obvious example—so it can hardly be accused of being motivated with extended mind aforethought. It is also the criterion of the cognitive tacitly assumed in the arguments of *The Body in Mind*. My arguments for extended perception, memory, reasoning, and so forth developed there were all predicated on this criterion of the cognitive.

Condition 4, the ownership condition, is the most difficult to explicate and defend. Doing so, however, is rewarding. Explaining ownership of cognitive processes ultimately requires us to properly understand the nature of intentionality. The account of intentionality I develop is not functionalist; but the thesis of the extended mind emerges from this account in a straightforward, indeed obvious, way. This account of intentionality therefore provides us with a way of motivating the extended mind without presupposing any contestable form of functionalism.

This is the outline, of course. The devil that is inevitably to be found in the details will have to be deferred until a later time.

NOTES

My thanks to Tony Chemero for comments on an earlier version of this essay.

1. The idea that conscious experiences are extended is far more controversial than the claim that cognitive processes are extended, and its defenders are thinner on the ground. The extendedness of conscious experiences has been defended in print by Hurley (1998), Rowlands (2002; 2003a, b; in press), and Alva Noë (2004).

2. There are other possible ways of understanding the thesis of the extended mind, but this was the status of the thesis I developed and defended in Rowlands 1999.

3. This is because this epistemic claim is also a corollary of a weaker claim to be discussed shortly: the thesis of the embedded mind.

4. It is surprising how often I find it necessary to repeat this obvious point.

5. Someone with enthusiasm bordering on the rabid may even be tempted to claim that some mental processes are *necessarily* constituted by processes of environmental manipulation. This *de re* version of the necessity claim would be even more plausible than the modalized *de dicto* claim.

6. See Clark 2008 for the connection between the extended mind and functionalism.

7. Mike Wheeler pointed this out to me in conversation.

8. Understood deductively, of course, the argument would be a version of the *modus tollendo ponens* (affirmation of the consequent) fallacy.

9. I am being modest. I believe that it is relatively simple to make explicit the criterion of the cognitive implicated in the arguments of *The Body in Mind* (Rowlands 1999). When it is made explicit, it is clearly adequate to carry the weight of the arguments developed there.

REFERENCES

- Adams, Fred, and Kenneth Aizawa. 2001. "The Bounds of Cognition." *Philosophical Psychology* 14:43–64.
- . In press. "Why the Mind Is Still in the Head." In *The Extended Mind*, ed. Richard Menary. Cambridge: MIT Press.
- Clark, Andy. 2008. *Supersizing the Mind*. Oxford: Oxford Univ. Press.
- Clark, Andy, and David Chalmers. 1998. "The Extended Mind." *Analysis* 58:7–19.
- Donald, Merlin. 1991. *Origins of the Modern Mind*. Cambridge: Harvard Univ. Press.
- Gibson, James J. 1966. *The Senses Considered as Perceptual Systems*. Boston: Houghton-Mifflin.
- . 1979. *The Ecological Approach to Visual Perception*. Boston: Houghton-Mifflin.
- Heidegger, Martin. [1927] 1962. *Being and Time*. Trans. J. Macquarrie. Oxford: Blackwell.
- Hurley, Susan. 1998. *Consciousness in Action*. Cambridge: Harvard Univ. Press.
- Luria, Anton, and Lev Vygotsky. [1917] 1992. *Ape, Primitive Man, and Child*. Orlando, Fla.: Paul M. Deutsche.
- Marr, David. 1979. *Vision*. San Francisco: W. H. Freeman.
- Menary, Richard. 2006. "Attacking the Bounds of Cognition." *Philosophical Psychology* 19 (3): 329–44.

- . 2007. *Cognitive Integration: Attacking the Bounds of Cognition*. Basingstoke, U.K.: Palgrave.
- Merleau-Ponty, M. [1943] 2002. *The Phenomenology of Perception*. London: Routledge.
- Noë, Alva. 2004. *Action in Perception*. Cambridge: MIT Press.
- O'Regan, Kevin, and Alva Noë. 2001. "A Sensorimotor Account of Vision and Visual Consciousness." *Behavioral and Brain Sciences* 23:939–73.
- Rowlands, Mark. 1999. *The Body in Mind: Understanding Cognitive Processes*. Cambridge: Cambridge Univ. Press.
- . 2002. "Two Dogmas of Consciousness." In *Is the Visual World a Grand Illusion?* ed. Alva Noë, 158–80. Special edition of *Journal of Consciousness Studies*, 9, 5–6.
- . 2003a. "Consciousness: The Transcendentalist Manifesto." *Phenomenology and the Cognitive Sciences* 2 (3): 205–21.
- . 2003b. *Externalism*. London: Acumen.
- . 2006. *Body Language: Representation in Action*. Cambridge: MIT Press.
- . In press. "Consciousness, Broadly Construed." In *The Extended Mind*, ed. Richard Menary. Cambridge: MIT Press.
- . 2008. "Extended Cognition and the Mark of the Cognitive." *Philosophical Psychology* 22:1–19.
- . In press. "The New Science of the Mind: From Extended Mind to Embodied Phenomenology." In *The Extended Mind*, ed. Richard Menary. Cambridge: MIT Press.
- Rupert, Robert. 2004. "Some Problems for the Thesis of Extended Cognition." *Journal of Philosophy* 101:389–428.
- Sartre, Jean-Paul. [1943] 1957. *Being and Nothingness*. Trans. H. Barnes. London: Methuen.
- Sutton, John. In press. "Exograms and Interdisciplinarity: History, the Extended Mind, and the Civilizing Process." In *The Extended Mind*, ed. Richard Menary. Cambridge: MIT Press.
- Wheeler, Michael. In press. "Mind, Things and Materiality." In *The Cognitive Life of Things: Recasting the Boundaries of the Mind*, ed. C. Renfrew and L. Malafouris. Cambridge McDonald Institute for Archaeological Research Publications.
- Wilson, Robert. 2004. *Boundaries of the Mind*. Cambridge: Cambridge Univ. Press.
- Wittgenstein, Ludwig. 1953. *Philosophical Investigations*. Oxford: Blackwell.