

THE EXTENDED MIND THESIS IS ABOUT DEMARCATION AND USE OF WORDS

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The «extended mind thesis» sounds like a substantive thesis, the truth of which we should investigate. But actually the thesis *a*) turns about to be just a statement on where the demarcations for the «mental» are to be set (internal, external,...), i.e. it is about the «mark of the mental»; and *b*) the choice about the mark of the mental is a verbal choice, not a matter of scientific discovery. So, the «extended mind thesis» is a remark on how its supporters or opponents want to use the word 'mind', not a thesis of cognitive science or philosophy. The upshot of the extended mind discussion should not be to draw the line further out, but to drop the demarcation project.

Keywords: Cognition, Cognitivism, Computationalism, Embodiment, Extended Mind, Mark of the Mental.

I. BACKGROUND: EMBODIED COGNITION

I.1. GOOD OLD COGNITIVE SCIENCE

This paper is an investigation of the nagging suspicion that the discussion about the «extended mind thesis» is merely a discussion about words: a matter where a discovery is sought, but all there is to be found are some intuitions about the semantics of central words, such as the word «mind». Perhaps the discussion is pointless, even if one takes cognition to be embodied and embedded, as I happen to do? I want to advance two theses here: *a*) much of the extended mind discussion is a discussion about demarcation of the mental, and *b*) a discussion about demarcation is merely verbal, in this case. The conclusion is that we should not limit cognitive science to what philosophers want to call «cognitive» – in that sense the defenders of the «extended mind» are right.

In order to carry out this investigation, I will first briefly embed the discussion in its context of the philosophy of cognition and cognitive science (with deference to Müller 2012): The good old standard

view of cognition is that self-contained agents pursue their own goals, sometime in cooperation with other agents, and sometimes using external tools. This typically, but not necessarily, goes together with a view of these agents as rational agents that perceive, then model, plan, and finally act; and the view that robots should be built that way: with sensors, central processor (to model & plan) and actuators – this view of agents through internal cognitive states, rather than behavioral dispositions, is what I would call *cognitivism*. Cognitivism often goes together with the view that humans and other natural cognitive agents are computational information processors made up of several modules that take in symbolic representations of the world, process these according to specified rules and then produce a symbolic output – this view I call *computationalism*. In philosophy, cognitivism and computationalism are often taken to be scientific explanations of the traditional view that humans have a mind and mental states, and that these states partially explain human behaviour. Even those that reject either one or both of these explanations tend to maintain that the traditional view of the mind is largely correct (the Churchlands are a notable exception).

1.2. THREE EMBODIMENT THESES

The rejections of some of the two traditional theses take various forms and there is a rather confusing landscape of options. However, one unifying point of criticism is that the traditional view – in distancing itself from its original opponent, behaviorism – puts undue emphasis on a central processing notion of cognition; it talks as if cognition was something that I, the agent, do from within my body, taking the information from my sensory system as input, processing this and producing output in the form of actions (typically movements). This image, which has first been properly developed by René Descartes, talks as though there were a little person, a homunculus, inside me watching what Dennett aptly called the «Cartesian theatre» (Dennett 1991, 107) and taking decisions. He says: «It is a mistake to believe that the brain has any deeper headquarters, any inner sanctum, arrival at which is the necessary or sufficient condition for conscious experience» (Dennett, Kinsbourne 1992, 185). But not only is there no little person inside me and cognition cannot fruitfully be explained by this model, but the model seems inconsistent, even: The little person would seem to need

yet another little person to watch what *he/she* is doing, etc. – or, in a different terminology, the information would have to be «encoded» in some way, which results in a need for further decoding of the decoding (Bickhard 1993).

Instead of this image, we need to take in many of the cognitive features of the agent that only come into existence due to the interaction with the environment. Also, it seems that any symbols in the cognitive systems need to have «grounding» (Harnad 1990) in physical interaction with the world, in order to be meaningful for the system. The cognitive system is thus embodied in the sense of a «dynamical interaction (coupling) of an embodied system that is embedded in the surrounding environment» [...] «it never goes completely formal» (Calvo-Garzón 2006, 7, 20)

The rejections of cognitivism and the rejection of computationalism are often lumped into one, presumably because a rejection of cognitivism is thought to imply a rejection of computationalism – but this might not be true (certainly not for pancomputationalists) and the inverse is clearly not true. Descartes was not a computationalist, but he surely was a cognitivist.

In my view, the thesis that «cognition is embodied» takes three main forms:

1. Embodiment as an *empirical thesis*. For example:
 - sensation and experience require movement (e.g. of eyes or percept), so perception is a kind of action (Myin, O'Regan 2006; Noë 2005) and we should really speak of a «sensorimotor system» rather than «sensory system»;
 - conscious experience is action experience (O'Regan 2011).
2. Embodiment as an *engineering thesis*. For example:
 - many tasks can be achieved by active control or by body morphology (e.g. running) (Müller, Hoffmann 2017; Pfeifer, Bongard 2007);
 - body involvement is a design choice (e.g. active sensing) [...] (Cangelosi, Riga 2006).
3. Embodiment as a *metaphysical thesis*. For example:
 - there can be no disembodied homunculus inside watching a «Cartesian theatre» (Dennett);

– there can be no meaningful symbols in a cognitive system without embodiment and embeddedness (Hutto, Myin 2012).

I think it will become clear shortly that the extended mind thesis is first and foremost a metaphysical thesis, which then has an empirical consequence (the human mind is often extended) and an engineering consequence (it does not matter where you locate the resources for a cognitive function). But what is the thesis?

2. EXTENDED MIND

2.2. EXPOSITION

Andy Clark and David Chalmers (Clark, Chalmers 1998) have proposed the much-discussed thesis that cognitive processes of humans can and do take place outside the head; in particular that artifacts we use, like notebooks or electronic devices are part of our cognitive apparatus. We are thus, in the words of Clark's book titles «Natural Born Cyborgs» (Clark 2003) with «Supersized Minds» (Clark 2008).

Clark and Chalmers show a number of examples where it does not seem to matter whether the human cognitive activity takes places 'in the head' or outside: rotating blocks mentally or physically (to see whether they would fit a gap in the computer game «Tetris»), touching something with hands or a stick, counting in the head vs. with fingers and, finally, Inga and Otto who have the belief that «The Museum of Modern Art is on 53rd Street». Since beliefs are still the staple 'mental state' for most philosophers, this example in (Clark, Chalmers 1998) has produced the most debate: Inga knows there the museum is because she remembers it, quite normally. Otto also knows where the museum is, but he has Alzheimer's Disease and thus keeps such information in a notebook that he can consult. If you find the idea of the notebook to 'external', imagine that Otto has a brain implant that functions as his notebook. Also note, that we quite naturally say such things as «I know what time it is» (because I have a watch) or «I believe I have an appointment» (my smartphone says so).

So we have extended mental processes (like mental rotation), extended perception and extended belief – in short, the extended mind.

The main line of the extended mind thesis is summarized in what Clark calls a *Parity Principle*:

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 recognizing as part of a cognitive process, then that part of the world *is* (so we claim) part of the cognitive process (Clark 2008, 114-115; Clark, Chalmers 1998, 8).

This principle is meant to overcome the traditional image which is «in the grip of a simple prejudice: the prejudice that whatever matters about mind must depend solely on what goes on inside the biological skin-bag, inside the ancient fortress of skin and skull» (Clark 2000). Instead, we should accept that «non-biological resources, if hooked appropriately into processes running in the human brain, can form parts of larger circuits that count as genuinely cognitive in their own right» (Clark 2009) It does not matter that these processes are not biological and it does not matter *how* they are hooked into the processes – using perceptual apparatus (as in the notebook) is just as acceptable as a more direct brain interface. What matters is that they are *intuitively mental*, in particular they function as such. So, the extended mind thesis is that mental processes do not only take place inside the skull or skin.

2.2. CLARIFICATIONS

The extended mind thesis belongs in the tradition that rejects cognitivism, but it also has older pedigree; e.g. (Sprevak 2009) argued convincingly that it really follows from good old functionalism. This relation still produces some debate, however (Miyazono 2017). Functionalism says only the process counts, not where it is, but an internalist might reject this principle, perhaps in favour of a new internalist parity principle that says location matters (Coleman 2011, 105). Note that rather than having human cognition extended via artifacts, there could also be artificial cognition extended via humans – this interesting idea (consonant with Clark’s overall direction of the cyborg) is investigated in (Smart 2018).

It seems that the extended mind thesis does not belong to the group of views that reject computationalism, or representationalism in

the philosophy of mind. Dreyfus points out what Clark and Chalmers retain of the Cartesian picture:

Wheeler's cognitivist misreading of Heidegger leads him to overestimate the importance of Andy Clark's and David Chalmers' attempt to free us from the Cartesian idea that the mind is essentially inner by pointing out that in thinking we sometimes make use of external artifacts like pencil, paper, and computers. Unfortunately, this argument for the extended mind preserves the Cartesian assumption that our basic way of relating to the world is by using propositional representations such as beliefs and memories whether they are in the mind or in notebooks in the world. In effect, while Brooks happily dispenses with representations where coping is concerned, all Chalmers, Clark, and Wheeler give us as a supposedly radical new Heideggerian approach to the human way of being in the world is to note that memories and beliefs are not necessarily *inner* entities and that, therefore, *thinking* bridges the distinction between *inner and outer representations* (Dreyfus 2009, 52).

So, while the extended mind thesis is a metaphysical embodiment thesis, it is fairly moderate in that it rejects neither central processing nor representation and computation. Its implications for engineering and empirical study are thus less straightforward than those of its more radical cousins.

2.3 IS THERE AN ARGUMENT?

Opponents have spent a lot of time on discussing examples where the extended mind thesis seems more or less plausible. They have urged us not to confuse «part the mechanism» with «doing cognition» (Adams, Aizawa 2007) – but which parts are doing 'cognition', which parts are constitutive, are only central parts doing cognition, are any parts doing cognition without the whole, are there distinguishable parts, etc. etc.? For example, Kirchhoff is trying to distinguish «constituents of cognitive systems from resources having a mere causal influence on cognitive systems» (Kirchhoff 2017). It is easy to see that this discussion can go on forever (some philosophers will think that is good news). I think this discussion is pointless because the extended mind thesis is a thesis on how to use the words 'cognitive' or 'mental'.

2.4. COLEMAN

To start supporting this view it is important to look at the relation between the parity principle and the extended mind thesis. Sam Coleman has suggested that «Clark and Chalmers beg the question by employing their parity principle rather than the internalist one. I conclude that they fail to provide a proper argument to support the extended mind thesis» (Coleman 2011, 100). It is right that Clark and Chalmers rely on the parity principle and this principle might be unpalatable to some, especially when they see that it generates externalist consequences. But of course Clark and Chalmers are not *just* begging the question: At the very least they show that *if* one accepts the parity principle, it turns out that a number of human mental processes actually do take place outside the human body, that there is an «extended mind», so they do provide support for a *conditional thesis*: If the parity principle is true, then the extended mind thesis is true. Also, they argue for the plausibility of their antecedent, the parity principle. But not everybody is impressed.

2.5. FODOR

For example, the most prominent opponent, the late Jerry Fodor, thinks Clark's argument for the external mind just boils down to a «slippery slope» argument: Because there is a gradual move from mind to external, therefore there is no difference between mind and external. This would be a fallacy, of course: Just because there is no sharp cut-off between mental and non-mental, this does not mean there is no distinction (Fodor 2009).

In this review of (Clark 2008), Fodor complains about impressionistic and metaphorical exposition and finds it just incredible that a mind has parts or that some of my mind should be outside my body. He says that he does not know how to cash in the 'parity principle' because he is not sure what is «part of a cognitive process» and that external objects lack (underived) intensionality, the hallmark of the mental. He says «what one thinks about the parity principle itself depends on what one thinks about EMT [extended mind thesis]. If it's your view (as I guess it's mine) that mental events are ipso facto 'internal', then you will, of course, deny that something that happens on

the outside *could* be mental» (Fodor 2009, 14). In other words, the principle begs the question.

Pierre Jacob seems to put his finger on what is actually at issue here when he says that the extended mind thesis is a way to express the embodied mind thesis (Jacob 2012).

2.6. WILSON

What is actually at stake in the debate is not so easy to say. In his useful collection, Robert Wilson distinguishes not less than ten different questions and he seems to assume that there is a substantive dispute here, between different views of cognition (and sides with the externalists). I want to argue that one of these «7. Sometimes I wake up at night and worry that this is all merely a terminological or semantic matter» (Wilson 2014, 24f) is roughly the right worry.

Wilson does not agree and says that «there is an empirical fact of the matter in at least *some* cases» and then cites an «integratively coupled system containing cognitive resources» (and some stories about digestion) – but that is surely precisely the kind of case that does not impress internalists, who would say that this is a system where cognitive processes are coupled with others to achieve certain performance or output. The importance of interaction and external tools in the understanding of natural cognition that people like David Kirsh (Kirsh 2009; 2010) do such valuable work on says nothing about which of these processes we should count as «cognitive» or not. Nothing *of this sort* will convince an internalist.

3. A VERBAL DISPUTE?

3.1. THE MARK OF THE COGNITIVE – ROWLANDS

Some authors (not discussed by Wilson) take on this demarcation problem directly. If the question is not «how does cognition work?» but «what out of all this should we count as cognition?», then we have a different issue. Adams and Aizawa use the notion of «the mark of the cognitive» to support a distinction between processes that are constitutive of cognition and those that merely contribute causally (Adams

2010; Adams, Aizawa 2007). In other words, they suggest that in order to settle the «where» question, we need to settle the «what» criterion.

Clark describes his own view as that «according to which thinking and cognizing⁴ may, at times, depend directly and noninstrumentally upon the ongoing work of the body and/or the extraorganismic environment.» (Clark 2008, xxviii). And the crucial endnote 4 reads: «The term *cognizing* is here used to mark a notion of the mental that is broader than the one suggested by introspection and common sense alone. Where introspection and common sense might identify mind simply as a locus of beliefs, desires, hopes, fears, and so forth, the scope of the cognitive may include states and operations unearthed by science», what I want to suggest is that we should stop granting special status to the «common sense» notion of «mind» (the Churchlands had told us so).

Mark Rowlands agrees that finding the «mark of the cognitive» (Rowlands 2009, 2010) is central, and so does (Pernu 2017). Rowlands discusses what he calls Adams' and Aizawa's «The Mark of the Cognitive Objection»: «EM [extended mind] 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. This objection is developed by Adams and Aizawa (2001; 2009)» (Rowlands 2009, 2).

Rowlands briefly considers the possibility that a «mark» may not be needed but dismisses it, saying: «Underlying this attitude is the idea that science simply does what it does – identifies its laws and constructs its theories – and, as long as it can do this, has no need for any deeper understanding of what it is doing. Thus, it might be argued, we have an adequate intuitive grasp of what counts as cognitive, and this grasp is sufficient for us to adjudicate the claims of EM» (Rowlands 2009, 7). This is gesturing: The onus is on the discussants of the conceptual issues to show that there is a «deeper understanding» to be had here, in fact that there is a demarcation to be found. In any case, this is not the position I want to suggest here: It is not that I have an «intuitive grasp» and judge the demarcation from there, but rather that I suggest we should stop searching for that demarcation (*b*) and that the issue boils down to demarcation (*a*).

Let us look at his proposal:

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 (Rowlands 2009, 8).

Of course I do not pretend to discuss these deep matters here; I only say that a lot of this will depend on the terminological choices one has already made, on the intuitions one brings to bear. So on my diagnosis, Rowlands understands correctly that the mark of the cognitive is central to the extended mind debate (my thesis a), but he makes the wrong assumption that there is a factual empirical question here where that «mark» is to be found (against my thesis b).

Some argue that the mark of the cognitive is a real empirical question that can be advanced scientifically (Varga forthcoming) – but the same idea is assumed here: There is a mark, so let us find it. Varga wants «to avoid an unproductive stalemate», and thus says «it would be beneficial to offer independent support for the choice of a coarse-grained notion [of cognition] beyond the claim that it is consistent with intuitions about folk-psychology» (3). This is a polite way of saying that if we do not find independent support for a particular notion of «cognition», then we are at an unproductive stalemate. My point exactly: we *are* at such a stalemate and the consequence is to stop this discussion about demarcation, not to keep searching for a «mark».

My objection is not that the extended mind thesis violates a mark of the cognitive that I wish to support, but that it assumes there is a mark of the cognitive, and thus a substantive question where the demarcation really is. «Cognition» is not a natural kind term.

3.2. WE NEED NO MARK OF THE COGNITIVE – ALLEN

Do people doing the actual work in cognitive science need a solution to this demarcation problem? It does not look like that, since this discussion is mostly just ignored by «practitioners». Some have been more explicit: «Philosophers seeking a unique «mark of the cognitive» [...] are working at a level of analysis upon which hangs nothing that either

cognitive scientists or philosophers of cognitive science should care about. [...] The term «cognition» is at a level of description that is too general to be worth defining precisely or characterizing categorically» (Allen 2017, 4233). Allen discusses tendencies to expand the notion of cognition given discoveries about organisms (plants, bacteria) and collectives (swarms, human groups) and advocates a «relaxed pluralism» for cognition. He rightly says «a definition of cognition is less important than attention to theories and models of specific capacities» (Allen 2017, 4237) In a sense that is Clark's point: Let us not allow some philosophers to limit what cognitive scientists can look at; let us adopt Allen's «relaxed pluralism».

4. CONCLUSION: VERBAL DISPUTES AND REALISM

If we consider the full picture of «cognition», we can not restrict ourselves to what is «inside the skin», we must allow for cooperation, even intelligence of complex wholes (like «swarms»), for cognitive offloading onto the environment and culture (Hutchins 2011), for construction of our own cognitive niche (Clark 2006; 2008, 61ff) and we must remember that much of the abilities of agents are due to the morphology of their bodies (Müller, Hoffmann 2017; Pfeifer, Bongard 2007). This does not mean, however, that we must conclude that «the mind is extended» but that we must forget about describing the abilities of such agents and systems in terms of «minds» and their location.

As (Allen 2017) stresses, the actual work on the cognitive systems and organisms is untouched by our verbal disputes. Where the «mark of the mental» lies it is a conceptual question and we very likely can't settle it – because what we have to rely on are vague intuitions on the use of an English word (for which there is no correlate in other languages) and a discredited philosophical tradition. We are in a situation of «conceptual relativity» (Putnam 1981) where no natural kind is to be found and several conceptual schemes are possible. Instead, we must admit that our perspectives and explanatory purposes determine where we want to make the «cut» – and then the best explanation wins, whether it involves only systems inside a skin or not.

I conclude that the discussion about the «extended mind» comes down to a discussion about demarcation of cognition (thesis *a*) and that this discussion about demarcation is merely verbal and thus to be

avoided (thesis *b*). It has been an excellent ‘intuition pump’, however, that has brought out a number of interesting aspects of the philosophy of cognitive science. And Clark was very right to demand rejection of «the prejudice that whatever matters about mind must depend solely on what goes on inside the biological skin-bag»: We do not have a mark of the mental, so there is no reason to draw hard limits, either at the skin-bag or anywhere else.

Generally speaking, the notion of the «mind» has been especially dangerous in the past, a place where our «intuitions» have lead us astray (e.g. to souls and dualism). This is a dangerous four-letter word and I would suggest to ban it from philosophical and scientific discourse altogether. Let us get back to cognitive science and philosophy.

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