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Introduction to the special issue “Extended Mind”

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The significance of Clark and Chalmers’ “The Extended Mind” paper (Clark & Chalmers, 1998) is that seems to have provided a high-octane shot in the arm to an “a priori-orientated philosophy of mind. Given that the paper had been rejected three years earlier by three major journals (Chalmers, 2008), it must have come as an enormous surprise to the authors that a veritable cottage industry (themed conferences and workshops and a steady flow of publications) has been generated by the paper’s audacious thesis. Whether or not one subscribes to the Clark–Chalmers argument (or independently to Clark (2009)) or indeed to its relatives (Susan Hurley’s “vehicle externalism;” Francesco Varela, Evan Thompson, and Alva Noë’s “enactivism;” Mark Rowlands’ “environmentalism;” Rob Wilson’s “locational externalism”) what cannot be denied is the palpable excitement and overall quality of the literature. This said, it was not until about 2001 that a sustained criticism began to emerge led primarily by Adams and Aizawa (2001). Until then, much of the literature could best be characterized as digesting the implications of Clark and Chalmers’ provocative thesis giving wing to other works in a similar vein. A critical pincer movement was opened up with the publication of Rob Rupert’s paper in 2004 (Rupert, 2004). Both Adams and Aizawa and Rupert consolidated their critiques culminating in Adams and Aizawa (2008) and Rupert (2009).

The extended mind literature cuts across a bewildering smorgasbord of (often overlapping) and even incompatible (Kiverstein & Clark, 2009) research interests collectively known as “situated cognition” (Robbins & Aydede, 2008) and includes distributed cognition, embodied cognition, enactive cognition, and dynamic cognition – there are perhaps many more supposedly distinctive research areas that would be included under the situated umbrella. Herein lies a problem. The terminology in this ever-fluid coalition is hardly settled. Hutchins’ (1996) seminal work, for example, is viewed by himself as dealing with situated cognition as a

topic. Others consider his work a classic exercise in distributed cognition. Yet more see this work as grist for the extended mind mill. In discussion with Phil Robbins, the coeditor of the *Cambridge Handbook to Situated Cognition*, he suggested that “extended mind” talk was a species of the genus “situated cognition.” And who was I to disagree with him?: without exception, others privy to the discussion endorsed Phil’s view. As it transpires, all the papers that comprise this issue are centrally concerned with the extended mind so it is perfectly natural that the title reflects this ostensibly more focused theme. This said, it is clear that the notion of extended mind has made inroads into other domains: (a) epistemologists who view mind and epistemology as two sides to the same coin and are engaged in the project to “cognitively epistemology” and “socialize the mind” (Goldberg, 2007; Marsh & Onof, 2008b; Prichard, *in press*); (b) writers with a religious sensibility (see Marsh, 2009) and; (c) a rag-bag of papers that reference the Clark–Chalmers thesis (for example, Verma, 2010). At the very least I take “extended mind” talk as being continuous with a companion themed issue of a few years back (Marsh & Onof, 2008a).

Whether one is critical of – or harbors sympathies for – the extended mind thesis, the flourish of monographs published by top-notch presses indicates that perhaps the extended mind literature that has come of age. But a word of caution: one should be skeptical of the claim that extended mind/situated cognition constitutes a paradigm shift. A senior research scientist and a collaborator of mine was bemused by the idea that the term “paradigm” was being applied to situated cognition and extended mind. “And to think we’ve been calling it,” she dryly replied, “human–computer interaction.” On the other hand, there is much to be said for Andy Clark’s view that “[M]uch of what goes on in the complex world of humans, may thus, somewhat surprisingly, be understood in terms of so-called stigmergic algorithms” (Clark, 1996, p. 279). Stigmergy (the phenomenon of indirect communication mediated by modifications of the environment) I take to be a form of

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extended mind that I believe can successfully negotiate “the bounds of cognition.”

The line-up can be broadly split into two groups: those critical of extended mind and those whose work in some way takes wing from the extended mind thesis. Perhaps unusually I begin with critics rather than with the “extended minders.” The unifying topic of this first group is the vexed demarcation problem – that is, what is it that distinguishes the cognitive from the non-cognitive. First up is Weiskopf’s (2010) panoptic paper that argues for just this – that it should be viewed as a debate over the location and bounds of cognitive systems. The second and third papers are by the “old firm” of Adams and Aizawa – except here they each go it alone. Not surprisingly, Adams (2010) addresses the question of what is it that makes something a cognitive process. Likewise Aizawa (2010) is concerned with the demarcation problem, an issue that he and Adams have, in the past, vigorously pursued as the “mark of the cognitive.” The fourth paper in this grouping is by Rupert (2010) who questions the extended mind thesis’ supposed revolutionary credentials while presenting an alternative proposal emphasizing the virtue of the integrated nature of cognitive architectures. While Barker (2010) might not be a critic *per se* – he also recognizes the demarcation problem – but tackles it from an epistemological perspective and as such, is a bridging paper.

The second grouping begins with Drayson (2010): she attempts to clarify the debate by examining the clearly metaphysical import of the extended mind thesis. Allen, Goldstone, Theiner (2010) extrapolate the idea of the extended mind thesis to the idea that groups are capable of cognition. The collection is rounded off by Nivedita Gangopadhyay’s (2010) defence of Alva Noë’s strong sensorimotor externalism against Adams’ and Aizawa’s critique.

Uncited reference

Gangalaway (2010).

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References

- Adams, F. (2010). Why we still need a mark of the cognitive. *Cognitive Systems Research*, 148.
- Adams, F., & Aizawa, K. (2001). The bounds of cognition. *Philosophical Psychology*, 14, 43–64.
- Adams, F., & Aizawa, K. (2008). *The bounds of cognition*. Malden, MA: Wiley-Blackwell.
- Aizawa, K. (2010). The coupling-constitution fallacy revisited. *Cognitive Systems Research*, 154.
- Allen, C., Goldstone, R., & Theiner, G. (2010). Recognizing group cognition. *Cognitive Systems Research*, 156.
- Barker, M. (2010). From cognition’s location to the epistemology of its nature. *Cognitive Systems Research*, 157.
- Chalmers, D. (2008). A piece of iMe. *The Philosophers’ Magazine*, 43, 41–49.
- Clark, A. (1996). Economic reason: The interplay of individual learning and external structure. In J. Drobak & J. Nye (Eds.), *The frontiers of the new institutional economics* (pp. 269–290). San Diego: Academic Press.
- Clark, A., & Chalmers, D. (1998). The extended mind. *Analysis*, 58(1), 7–19.
- Drayson, Z. (2010). Extended cognition and the metaphysics of mind. *Cognitive Systems Research*, 168.
- Gangalaway, N. (2010). Experiential blindness revisited: In defence of a case of embodied cognition. *Cognitive Systems Research*, 170.
- Goldberg, S. (2007). *Anti-individualism: Mind and language, knowledge and justification*. Cambridge: Cambridge University Press.
- Hutchins, E. (1996). *Cognition in the wild*. Cambridge, MA: MIT Press.
- Kiverstein, J., Clark, A. (2009). The enacted mind and the extended mind. *Topoi: an International Review of Philosophy* 28.1.
- Marsh, L. (Ed.) (2009). *The extended mind and religious thought* (Vol. 44 (3)). Zygon.
- Marsh, L., & Onof, C. (Eds.). (2008a). Introduction to the special issue “Perspectives on Social Cognition”. *Cognitive Systems Research*, Vol. 9, 136–149.
- Marsh, L., & Onof, C. (2008b). Stigmergic epistemology, stigmergic cognition. *Cognitive Systems Research*, 9, 136–149.
- Prichard, D. (in press). Cognitive ability and the extended cognition thesis. *Q2 Synthese*.
- Robbins, P., & Aydede, M. (2008). *A short primer on situated cognition*. *Cambridge handbook to situated cognition*. Cambridge: Cambridge University Press.
- Rupert, R. (2004). Challenges to the hypothesis of extended cognition. *Journal of Philosophy*, 101, 389–428.
- Rupert, R. (2009). *Cognitive systems and the extended mind*. New York: Oxford University Press.
- Rupert, R. (2010). Extended cognition and the priority of cognitive systems. *Cognitive Systems Research*.
- Verma, D. (2010). *Network science for military coalition operations: Information exchange and interaction*. Hershey, PA: Information Science Publishing.
- Weiskopf, D. (2010). The Goldilocks problem and extended cognition. *Cognitive Systems Research*, 199.