

Extended Mind, Extended Conscious Mind, Enactivism

Victor Loughlin

University of Antwerp

For Catherine

For my brother Grahame (1981-2006)

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Preface and acknowledgements

The following thesis is a work of philosophy. It is an attempt to think seriously about issues that are current within philosophy of mind and cognitive science. The writing was largely a solo effort. But the thinking involved was in many cases made possible by the support of others.

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The cover picture is an altered image of performance artist Hiroaki Umeda whose work can be found at <http://hiroakiumed.com/>.

Introduction

1 Out of our minds ¹

Where is my mind? Is it located inside my head? Is it bound by the boundaries of skull and skin? Or could my mind extend? Could my mental states and processes in fact be partially made up of things in my environment? Andy Clark (1997) once remarked that we make the world smart so we don't have to be. What he meant was that we (along with many other animals) alter and transform our environments in ways that enable us to do things or perform tasks that would prove difficult or indeed impossible without such transformations. For creatures like us, these transformations can range from the trivial (think about how the layout of a kitchen facilitates the cooking of food) to the truly profound (notations such as alphabets etc). Yet if the environment is not simply a passive player in our lives but can be structured and modified so as to play an active and driving role, then this has significant consequences for how we understand ourselves. In particular, it impacts on how we understand mind and experience.

For example, think of someone whose reliance on their mobile phone or other piece of technological equipment is so constant that they appear to do little without it. If Clark is right and the environment can play an active, driving role, then such a device could be regarded as more than simply a tool used by the person to perform a task. Rather this device could be understood to be a genuine part of that person's mind. This striking claim has been given eloquent treatment by Clark and Chalmers (1998). Christening their view *Extended Mind*, Clark and Chalmers have argued that objects and structures in our environments could be as equally deserving of the title of mentality as anything found inside the skull. If so, then mental states and cognitive processes can, on certain occasions and under particular circumstances, be understood as partially extending into the environment. In short, the mind is not a solely heady affair.

Yet Clark (2009) has argued that the *Extended Mind* claim does not apply to consciousness. That is, although the environment may play an active role in mentality, this role does not extend to realizing

¹ The heading here borrows from the title of Alva Noë's (2009) book, *Out of Our Heads*.

conscious states and processes. For when it comes to conscious experience, insists Clark, the real action still does take place inside the head. There is no Extended Conscious Mind.

Restricting the Extended Mind claim turns out to be important since, as many have noted (for example, Di Paolo, 2009), Extended Mind seeks to challenge some intuitions about the mind while preserving others. We can see that one intuition Clark wants to preserve is that consciousness remains an internal phenomenon. However, as is the way with philosophy, others have sought to drag even this intuition over the coals. Varela, Thompson and Rosch (1991) have argued for what they called an Enactive account of experience. On their account, our cognitive and experiential processes are “enacted” by us when we move and interact with our environment. Taking to task orthodox approaches in cognitive neuroscience, where experience is viewed as the product of neural firing patterns in the brain, Enactivists counter that experience is an emergent, personal-level phenomenon constituted by a nexus of sub-personal neural, bodily and worldly processes (see Thompson and Varela, 2001; Cosmelli and Thompson, 2010; Ward, 2012). On this Enactivist picture, consciousness also breaks free of the boundaries of skull and skin.

Yet despite this, it would still seem that Extended Mind advocates and Enactivists should have lots to talk about. The former denies that the mind is in the head and champions the mental role that can be played by environmental objects and processes. The latter denies that mind and experience are in the head and champions the idea that interaction with an environment is as important to conscious experience as anything happening inside the brain. And indeed some philosophers have sought to bring these two approaches into alignment (for a recent example, see Gallagher, 2013).

A potential obstacle to such an alignment however is that within both approaches there are significant disagreements. For example, not all agree about what is meant by Extended Mind. Some think that environmental objects and processes can become part of someone’s mind when they play the right kind of causal or functional role (Clark, 2008 a, b; Wheeler, 2010 a, b). Other insist that it is only when such objects and processes involve bodily manipulation (Menary, 2006, 2007) or play a complementary role to the biological inner (Sutton, 2010) that such parts of the environment can be regarded as integrated into a mind extending agent-environment routine. Similarly, not all agree about what it means to be an

Enactivist about experience. Some think it means that experience (principally visual experience) depends on a type of practical knowledge (O'Regan and Noë, 2001; Noë, 2004) whilst others go much further and argue that “the vast sea of what humans do is best understood by appealing to dynamically unfolding, situated embodied interactions and engagements with worldly offerings” (Hutto and Myin, 2013, pix). In which case, attempts to align Extended Mind and Enactivism raise the inevitable question, what readings of Extended Mind and Enactivism are being aligned?

In this thesis, I will defend the claim that Extended Mind, Extended Conscious Mind and Enactivism cannot be reconciled. They cannot be reconciled because Extended Mind and Extended Conscious Mind understand the role of the body in mind and experience in very different terms to that of (a certain reading of) Enactivism. That is to say, these approaches have opposing views on embodiment.

2 The body extended or the body enacted

These different views of the body can be illustrated in the following way. Clark (2008a) describes an accountant, Ada, whose keen ability with numbers is the result, not from her making onerous demands on her biological memory, but from her “scanning the columns, copying some numbers onto a paper scratchpad, and then looking to and from those numbers (carefully arrayed on the page) back to the columns of figures” (p69). Clark, in reference to Ballard et al (1997), describes Ada as employing a number of “minimal memory strategies”. That is,

“[i]nstead of attempting to commit multiple complex numerical quantities and dependencies to biological short-term memory, *Ada creates and follows trails through the scribbled numbers*, relying on self-created external traces every time an intermediate result is obtained. These traces are visited and re-visited on a *just-in-time, need-to-know basis*, briefly shunting specific items of information into and out of short-term bio-memory in much the same way as a serial computer shifts information to and from the central registers in the course of carrying out some computation.” (Clark, 2008a, p69, emphasis added)

Thus, rather than solving the accounting problem in her head, Ada engages in a complex back-and-forth with her environment which involves “a distributed combination of biological memory, motor actions, external symbolic storage, and just-in-time perceptual access” (ibid). In which case, Ada’s cognition is extended because her completion of the task involves the environment playing a *constitutive* role in that task. In other words, the environment is as crucial to the completion of the task as anything going on inside Ada’s head.²

The Ada example introduces a number of important theoretical considerations. First, it assumes that mental processes can be understood in terms of their causal or functional roles, that is, it assumes a functionalist account of the mind. Functionalism is the claim that mental states and cognitive processes are constituted by the sub-personal causal roles played by sensory inputs, intermediate states and behavioural outputs.³ Clark acknowledges this point when he remarks that, “it is the *roles* played by various elements, and *not* the specific ways those elements are realized, that do the explanatory work” (ibid, p14, emphasis in original and added). For example, it is the role the physical scratchpad plays in the task that matters and not the fact that it actually *is* a physical scratchpad (think about how Ada could use a tablet computer or other device to do the same thing).

A related but importantly distinct claim is that of multiple realizability. Mental states and cognitive processes are multiple realizable if the same functional profile i.e. the same network of inputs, intermediate states and outputs, that can be realized in one type of substrate or material process can also be realized in another. On such an approach, mental states and cognitive processes are substrate independent, that is to say, they are not tied to any one type of body or substrate.

Clark vividly illustrates this with his science fiction example of Adder, a snake-like creature placed on top of a touch screen environment (ibid, p203). In this environment, Adder’s wriggling movements trigger symbolic tokens to appear on a screen, which Adder then processes via a form of Braille. Clark

² As this indicates, the term ‘constitutive’ has come to have special importance in the discussions surrounding Extended Mind. For example, a prominent objection to Extended Mind is that it confuses the causal role that the environment can play for a constitutive one (see Adams and Aizawa, 2001). I discuss this so-called coupling-constitution objection at length in chapter 1.

³ As Wheeler (2010b) points out, this is only one way of reading the functionalist claim. Nonetheless, this arguably remains the reading adopted by those who endorse a functionalist approach to Extended Mind. See chapter 1.

claims that Adder could “carry out the same complex accounting as the standard, pen-and-paper accountant Ada..[since] [e]ach implements the same extended computational process. They even, we may suppose, divide the biological and nonbiological contributions in the same way, making use of external storage and notations at exactly the same points in their distributed problem-solving routines” (ibid).

Clark’s point is the following. The cognitive process that Ada realizes in her completion of the task is multiply realizable. This is because Adder could instantiate the same distributed combination of memory, actions, storage and perceptual access and so, according to Clark, realize the same cognitive process. In which case, the cognitive process involved can be realized in more than one type of substrate. That is, it can be realized by a human being interacting with a normal environment (in the case of Ada) and by a snake-like creature interacting with an artificial environment (in the case of Adder). In chapter 1, I will show why multiple realizability plays a role in making the case for (a certain reading of) Extended Mind.

Second, the Ada example accords an important role to the body. Clark makes it clear that he wishes to “recognize the profound contributions that embodiment and environmental embedding make to the solution of the problem and display those contributions clearly and distinctly” (ibid, p202). Think of how Ada uses her physical scratchpad to note down intermediate results and then continuously scans back and forth between those results and the columns of numbers. Clearly, Ada’s bodily actions play a distinctive and significant role here. This is even more apparent in the case of Adder whose bodily wriggling is what causes the external symbolic tokens to appear on the screen. Embodiment and environmental embedding can be understood to be partially constitutive of Ada’s cognitive process just as such embodiment and embedding can be understood to be partially constitutive of Adder’s cognitive process.

This recognition of the importance of the body may seem to challenge the earlier claim of multiple realizability. For if the body plays such a significant role, then it would seem to follow that mental states and cognitive processes are, contrary to what is claimed, tied to particular bodies or material substrates. Yet the Ada example reveals the subtlety inherent in Clark’s approach. This is because the

contribution the body makes to the mind is determined, according to Clark, by “the information-processing role of specific (both gross bodily and neural) operations in [the] performance of the task” (ibid, p202). Clark describes the body as “the gateway to intelligent offloading”, or “a bridging instrument enabling repeated emergence of new kinds of distributed information processing organization” (ibid, p207). Thus, Ada’s bodily processes i.e. her use of the scratchpad, her scanning back-and-forth between the results on the scratchpad and the columns of numbers, are to be understood solely in terms of how her bodily processes store, transmit and transfer information. For Clark, embodiment is a purely information processing term. That is, although bodies matter, and indeed can play important and significant roles in the completion of tasks, they only matter to the extent that they fulfill the required information processing roles. And since such roles are not tied to one type of body or substrate, but rather can be filled by many types of bodies or substrates, then this is compatible with multiple realisability. As Clark puts it, “[c]reatures with radically different bodies, brains and worlds from us might thus contrive to use their varying resources to implement many of the very same cognitive and information-processing routines” (ibid).

The foregoing considerations suggest that if we follow Clark’s reading of the Ada example and we accept that it is one of Extended Mind, then this commits us to a number of theoretical considerations. First, it commits us to a functionalist account of mental states and cognitive processes.⁴ Second, it commits us to an information processing account of embodiment. These considerations are the hallmark of the Extended Mind approach as defended by Clark and Chalmers (1998) and by Clark (2008a).⁵

A further consideration Clark’s reading commits us to is the so-called vehicle/content distinction. Clark (2008a) notes that Extended Mind is a claim “about extended vehicles – vehicles that may be distributed across brain, body and world” (p76). The distinction between vehicles and contents is the distinction between physical or material processes and the information or content transmitted or

⁴ Clark has recently described his approach as that of extended functionalism (Clark, 2008b) which Wheeler (2010b) characterizes as the claim that, “a mental state is constituted by the causal relations that it bears to systemic inputs, systemic outputs, and other systemic states...[and on this approach] the borders of the cognitive system [can, on certain occasions and under certain circumstances] fall somewhere other than the sensory-motor interface of the organic body” (pp6-7).

⁵ As pointed out in section 1, there are alternative readings of Extended Mind that do not endorse these considerations. For example, see Menary (2006, 2007) or Sutton (2010). However, in chapter 1, I defend a Clarkian extended functionalist reading.

transferred by those processes. If Extended Mind is a claim about extended vehicles, then it is a claim about the physical processes that realize mental states and cognitive processes. This is apparent in the Ada example. The vehicles of Ada's cognitive process include a "distributed combination of biological memory, motor actions, external symbolic storage, and just-in-time perceptual access".

Yet, as noted earlier, Clark (2009) denies that Extended Mind supports Extended Conscious Mind. He insists that, although Extended Conscious Mind is a claim about the vehicles responsible for conscious awareness, there are good empirical reasons as to why these vehicles remain confined to the skull. However, if Clark is wrong about the machinery of consciousness, then the sort of information processing, functionalist account that supports Extended Mind could also be used to support Extended Conscious Mind. That is, if we are prepared to accept that the vehicles that realize cognition could extend to include environmental objects, then we should also be prepared to accept that the vehicles that realize consciousness could extend to include such objects as well (see chapter 2 for a defense of this claim). If so, then both Extended Mind and Extended Conscious Mind could be understood to be claims about the information processing roles of the vehicles of mind and experience.

Significantly, the sort vehicle/content distinction assumed here has recently come under attack. Hutto and Myin (2013) point out that "[t]he fate of vehicles depends on the fate of content" (p20) yet the reach of content (and thus of vehicles) may not be as pervasive as previously supposed. They argue that claims about informational content confront a Hard Problem of Content. The Hard Problem emerges once it is acknowledged that information-as-covariance is not sufficient to constitute information-as-content (ibid, p67). Information-as-covariance can be understood to be the information revealed when there is a reliable covariance between certain states of affairs. For example, the rings of a tree reliably co-vary with the age of the tree such that the rings can be used to obtain information about the age of the tree. However, according to Hutto and Myin, "[a]nything that deserves to be called content has special properties - e.g. truth, reference, implication - that make it logically distinct from and irreducible to mere covariance relations holding between states of affairs. While the latter notion is surely scientifically respectable, it isn't able to do the required work of explaining content" (ibid). That is to say, states of affairs "do not 'say' or 'mean' anything just in virtue of instantiating covariance relations" (ibid).

This is problematic, insist Hutto and Myin, because only claims about informational covariance can be given a naturalistic i.e. scientific explanation. In which case, there is a “gaping explanatory hole” (ibid, p68) in accounts that rely on naturalistic accounts of content. Hutto and Myin canvas a number of possible responses to this Hard Problem (ibid, pp68-69). Their preferred option is to deny that informational content is a ubiquitous feature of the natural world and claim instead that content is scaffolded by social and linguistic practices. If there is no such naturally occurring content, then although creatures are informationally sensitive to features of their environment i.e. they can exploit the sorts of covariances that exist between states of affairs to gain information about their environments, such creatures do not literally “trade in” or “traffic in” informational contents.

Such a Radical Enactive (or Embodied) Cognition or REC throws down the gauntlet to the type of functionalist, information processing account assumed by Clark’s Extended Mind. For if the fate of vehicles depends on the fate of content, and there are no such naturally occurring contents, then there are also no such naturally occurring vehicles. Of course, Clark need not embrace the response to the Hard Problem endorsed by REC. As noted above, alternative responses are available (see chapter 4 for an overview of such responses) and these might offer a means to salvage the vehicle/content distinction. Nonetheless, since Clark’s Extended Mind is firmly committed to such a distinction, then it is apparent that REC and Clarkian Extended Mind endorse opposing ways of understanding the mind.

Moreover, while attacking the importance and prevalence of informational content, REC also endorses a different account of embodiment. For example, REC argues for what it calls the Embodiment Thesis, which “equates basic cognition [as opposed to scaffolded, non-basic cognition] with concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments” (Hutto and Myin, 2013, p5). As Hutto and Myin note, the term ‘body’ here means something different from our everyday conceptions of bodies and their boundaries. ‘Bodies’ now refers to “wide reaching organismic sensorimotor interactions that are contextually embedded. These interactions are assumed to take the form of activity that unfolds across time and which essentially involve individuals engaging with aspects of their environments” (ibid, p6). This then marks a clear difference between the REC view and the Extended Mind view. As we have seen, Clark’s Extended Mind is committed to

understanding the body in purely information processing terms. The body, according to Clark, is “the full suite of encodings and operations made available by some combination of neural, gross bodily, and worldly opportunities” (2008a, p203). Contrarily, the Embodiment Thesis ensures that REC rejects the claim that the body must be understood solely in these terms. As regards basic, non-contentful forms of cognition, the body refers to contexts and spatially and temporally extended interactions with environments. These considerations suggest that REC and Extended Mind to have divergent views on embodiment. But are these views opposed?

Recall our example of Ada. However, rather than considering the Extended Mind explanation, let us now consider a RECish explanation. What would such an explanation look like? First, it would require acknowledging that Ada’s behaviour is contentful. This is because accountancy is a practice scaffolded by other complex social and linguistic behaviours. Second, Ada is certainly engaging in information processing. That is, she is manipulating vehicles and their attendant contents according to well-prescribed rules and procedures. However, third, the role of her body in this practice is certainly not confined to information processing alone. Rather, understanding that role, according to REC, also requires factoring in equally important considerations such as context and the spatially and temporally extended interactions between her and her environment. This is because more basic forms of cognition, such as that referenced by the Embodiment thesis, are part of conditions that include Ada’s current non-basic scaffolded behaviour (see chapter 5 for development of this point). In which case, understanding Ada’s current cognitive process requires acknowledgment of these sorts of biological and contextual details.

We can now see why the RECish account and the Extended Mind (and Extended Conscious Mind) accounts are opposed. A Clarkian Extended Mind confines itself to understanding the role of the body in mind and cognition in terms of information processing alone. For although Extended Mind acknowledges the importance of the body and the environment, this acknowledgment is restricted to the causal or functional role played by the body and environmental objects and processes. However, such a restriction is removed by REC. For REC, the importance of the body and its environmental embedding is paramount. Indeed, it is part of the conditions that include all basic and non-basic cognitive behaviours, including those involving information processing. This ensures that the body

Enacted is a very different beast from the body Extended since the body Enacted requires consideration of factors (like biology and context) that are ignored by the body Extended.

3 Overview of thesis

The following chapters argue for readings of Extended Mind, Extended Conscious Mind and (Radical) Enactivism that display the sort of irreconcilability described in section 2 of this introduction. These readings then support the contention that there can be no reconcilability between these three approaches. Before outlining the various chapters, I should point out that the chapters were originally written as stand alone pieces (and can be read as such). As a result, there is some overlap in the content of the individual chapters.

In chapter 1, I argue for an extended functionalist or what I call a first wave approach to Extended Mind. I do this in two ways. First, I attack second wave Extended Mind (Sutton, 2010) by arguing that second wave is vulnerable to the coupling-constitution fallacy (Adams and Aizawa, 2008, 2010). The coupling-constitution fallacy is the objection that Extended Mind confuses the causal role that environmental objects and processes can play in mind and cognition for a constitutive role. I argue that first wave is not vulnerable to this fallacy and can accommodate the sorts of considerations favoured by second wavers. Second, I defend the type of functionalism that motivates the first wave position from Sprevak (2009). Sprevak objects that the type of liberal functionalism sanctioned by Extended Mind leads to cognitive bloat. Cognitive bloat is the worry that if we endorse Extended Mind, then potentially any (and every) environmental object and process could become mental and hence the mind could expand rampantly into the environment. I challenge Sprevak's objection and argue that cognitive bloat can be avoided once it is understood that (1) parity does not play a sufficient role in making the case for first wave Extended Mind and (2) that dynamical coupling and information processing both play necessary roles in constituting an extended functionalist system.

In chapter 2, I link Extended Mind and Extended Conscious Mind. Extended Conscious Mind is, according to Clark (2009), the claim that the material vehicles responsible for conscious experience can

extend outside the brain to include bodily and/or environmental objects or processes.⁶ Clark opposes any link between Extended Mind and Extended Conscious Mind. I challenge this opposition using Clark's (2001; 2003) example of the artist and their sketchpad. Clark claims that when an artist is interacting with their sketchpad, then this interaction can play a constitutive role in the cognitive processing of the artist. To this I add that not only can the cognitive processing of the artist extend to include their interaction with the sketchpad but the artist's conscious experience (understood in a particular way) can extend to include that interaction as well. That is, the artist's cognition and consciousness can extend. Clark also offers a number of empirical claims designed to show that, as a matter of contingent fact, the vehicles responsible for consciousness do not extend. I assess these claims and argue that these claims can be challenged. If so, then Extended Mind and Extended Conscious Mind can be linked.

Chapter 3 examines Rowlands' (2010a) defense of a non-Cartesian cognitive science. Rowlands argues that processes beyond the brain can form real, constitutive parts of an agent's mind and experience if and when they conform to a mark of the cognitive. A mark of the cognitive is a set of sufficient conditions that can qualify any process (bodily internal, bodily external and/or environmental) as cognitive. Rowlands' argument is significant for two reasons. First, he claims that Enactivism (or what he calls Enacted Mind) is simply a version of Embodied Mind (a view shared by Clark, 2008b). I also endorse this view (see chapter 4). Second, he argues that Embodied and Extended Mind can be reconciled via his ownership argument. His ownership argument is the claim that an agent owns their bodily processes and activities and the environmental structures that they interact with when such processes, activities and structures reveal or disclose the world to that agent. I argue however that his ownership argument leads to cognitive bloat i.e. to the rampant expansion of the mind into the environment. I then propose that Rowlands can avoid bloat by claiming that his ownership argument only demonstrates Embodied Mind but not Extended Mind. In which case, he fails to reconcile Embodied and Extended Mind. Rowlands' project is thus relevant to this thesis since if we accept that he has failed to reconcile Embodied Mind and Extended Mind, and we also accept that Enacted Mind is

⁶ There are, as with Extended Mind, alternative ways to read the Extended Conscious Mind claim. See Ward (2012) for such an alternative. See also the conclusion of this thesis where I discuss such an alternative reading.

a version of Embodied Mind, then this offers further weight to the claim that there are difficulties in reconciling Enacted Mind with Extended Mind.

Chapter 4 defends Sensorimotor Theory (O'Regan and Noë, 2001; Noë, 2004) by aligning it with a radical reading of Enactivism (Hutto, 2005; Hutto and Myin, 2013). Sensorimotor theory claims that what you do and what you know how to do constitutes your visual experience. Central to the theory is the claim that such experience depends on a special kind of knowledge or understanding. In this chapter, I assess this commitment to knowledge in light of three objections to the theory: the empirical implausibility objection, the learning/post-learning objection and the causal-constitutive objection. I argue that although the theory can respond to the first two objections, its commitment to know-how ultimately renders it vulnerable to the third and arguably most serious objection. I then suggest that sensorimotor theory has two options: concede the causal-constitutive objection or challenge it. I argue for the latter. I claim that a radical sensorimotor theory offers the best means of responding to this objection. A radical sensorimotor (or enactive) theory involves (1) re-affirming a commitment to embodiment as constitutive of perceptual experience i.e. Enacted Mind is a version of Embodied Mind, and (2) dropping appeals to informational content.

In the fifth and final chapter, I change tack and rather than defend Enactivism, I examine what follows from a radical reading of this view. REC (Hutto and Myin, 2013), as we have seen, involves the claim that certain forms of mentality i.e. basic cognition can be equated with temporally and spatially extended physical interactions between an agent and their environment. But REC also claims that other forms of mentality i.e. scaffolded, non-basic cognition are dependent on socially and linguistically enabled practices. This seems to raise what can be called a cognitive gap question, namely, how does basic cognition give rise to, or allow for the emergence of, socially and linguistically enabled non-basic cognition? In this chapter, I show how REC can tackle this question. I argue that by adopting a (later) Wittgensteinian approach, REC can deny that there is a genuine cognitive gap and instead claim that basic and non-basic behaviours constitute different aspects of our complex form of life.

This completes the survey of the five chapters. However, the arrangement of the five chapters may seem to raise the following issue. If, as claimed in section 2 of this introduction, Extended Mind,

Extended Conscious Mind and Enactivism endorse opposing views of embodiment, and if, as claimed in section 3, the readings of the three approaches defended in the various chapters display this opposition, then it follows that the arguments present in chapters 1 and 2 must be in conflict with the arguments present in chapters 4 and 5. That is, if one accepts the sort of functionalist, information processing claims endorsed in the earlier chapters, then one cannot also accept the sort of strong embodiment claims endorsed in the later chapters and vice versa. The worry might then be: is the thesis inconsistent?

I propose answering this question in the following way. It is indeed true that the arguments of chapters 1 and 2 are in conflict with the arguments of chapters 4 and 5 and vice versa. This must be so if the thesis is to support the claim that Extended Mind, Extended Conscious Mind and Enactivism cannot be reconciled. In which case, the inconsistency between the chapters is an intentional feature of the thesis. Still, the claim that this thesis defends - that the three positions are inconsistent - is itself a consistent claim. This is shown by the fact that although the thesis does contain arguments for Extended Mind, Extended Conscious Mind and Enactivism, it does not contain an argument that encompasses all three positions (since, on the readings given, no such argument looks feasible).

Moreover, as section 2 claimed, Extended Mind (and by extension, Extended Conscious Mind) are premised on three conditions: (1) a functionalist account of mental states and cognitive processes, (2) an information processing account of embodiment, and (3) a vehicle/content distinction. If one is persuaded by the arguments given in chapters 1 and 2, then one is committed to these three conditions. In other words, if one endorses a particular framework, there are good arguments for endorsing Extended Mind and Extended Conscious Mind. Alternatively, if one is persuaded by the arguments given in chapters 4 and 5, then one has reason to doubt this framework. Yet, as section 2 also showed, the arguments given in the later chapters are conditioned on one accepting the REC response to the Hard Problem of Content. If one is not persuaded by the REC response and/or one endorses a different response to the Hard Problem, then one may also have reason to doubt the arguments given in chapters 4 and 5. In which case, the earlier arguments could be back on the table. All of which simply reaffirms the point that the three positions canvassed in this thesis cannot all be reconciled.

To conclude, this thesis defends the claim that Extended Mind, Extended Conscious Mind and Enactivism cannot be reconciled and it does this by arguing for readings of these three approaches that display this irreconcilability. It is to these readings that we now turn.

Chapter 1

First Wave Extended Mind

1 Introduction

In recent work, Sutton (2010) has set out to “defend the conceptual priority and fruitfulness of the second wave [extended mind]” (p193). Second wave Extended Mind can be defined as an attempt to make the argument for cognitive extension on the basis of considerations other than parity-driven functionalism. In this chapter, I will defend a first wave approach to Extended Mind.⁷ That is, I will defend the type of extended functionalism that has been endorsed by Clark (2008a, b).

I intend to do this in two ways. First, I will attack second wave Extended Mind by arguing that second wave is vulnerable to the coupling-constitution fallacy (Adams and Aizawa, 2008, 2010). The coupling-constitution fallacy is the objection that Extended Mind confuses the causal role that environmental objects and processes can play in mind and cognition for a constitutive role. I argue that first wave is not vulnerable to this fallacy. Second, I will defend the type of functionalism that motivates the first wave position from Sprevak (2009). Sprevak objects that the type of liberal functionalism sanctioned by Extended Mind leads to cognitive bloat. Cognitive bloat is the worry that if we endorse Extended Mind, then potentially any (and every) environmental object and process could become mental and hence the mind could expand rampantly into the environment. I challenge Sprevak’s objection and argue that cognitive bloat can be avoided once it is understood that (1) parity does not play a sufficient role in making the case for a first wave Extended Mind and (2) that dynamical coupling and information processing both play necessary roles in constituting an extended functionalist system.

⁷ There is also talk of a possible third wave approach to extended mind (Kirchhoff, 2012). However, I will not consider this position here.

The layout of this chapter then is as follows. In section 2, I will briefly outline a first wave approach to extended mind. I will do this by describing the two key claims that make up the extended functionalist view. In section 3, I will introduce Sutton's second wave extended mind. I will claim that second wave is vulnerable to the coupling-constitution fallacy whereas a first wave is not. In section 4, I will show how a first wave approach can respond to Sprevak.

2 Clark and Extended Functionalism

Extended Mind (EM) is the claim that physical processes in the environment can form real parts of the minds of agents (Clark, 2008a). From notebooks to sketchpads, EM argues that non-biological environmental resources can, on certain occasions and under certain circumstances, literally become part of someone's mind. As such, EM is an explicitly ontological claim. That is, it is the claim that the physical processes or the vehicles that constitute mental states and cognitive processes can extend to include environmental resources.

Rather than rehearse what are by now familiar arguments for EM, I shall focus on Clark's (2008b) more recent formulations where he describes EM as an extended functionalist claim. Extended functional systems, according to Clark,

“may..include motor behaviours as processing devices and environmental structures as storage and encoding devices. Such bodily and worldly elements emerge as genuine parts of extended computational regimes, and apt for formal description in both dynamical and information-processing terms.” (Clark, 2008b, pp14-15)

Thus, according to Clark, an extended functional system involves both dynamical coupling between an agent and an environmental resource (for example, motor behaviours as processing devices) and that resource playing a particular information-processing role (for example, environmental structures as storage and encoding devices).

As the literature makes clear, EM involves appeal to a very particular kind of causal coupling between agent and resource. This involves, according to Clark, continuous reciprocal causation or CRC (Clark, 1997, p163; see also Clark and Chalmers, 1998, p29).

Clark describes CRC as occurring when,

“some system S is both continuously affecting and simultaneously being affected by, activity in some other system O...Think of the dancer, whose bodily orientation is continuously affecting and being affected by her neural states, and whose movements are also influencing those of her partner, to whom she is continuously responding!” (Clark, 2008a, p24)

The key idea here is that when the back-and-forth between agent and resource (or in the example above, a person) involves continuous reciprocal causation, then just as the agent causes changes in that resource through their interaction with it, then similarly the resource can cause changes in the agent through that interaction as well. The type of dynamical coupling between agent and resource evident in an extended functional system is thus one that exhibits CRC.

Traditionally, EM has established the information-processing role of the environmental resource via an appeal to parity. The consensus now is that parity involves a particular reading of functionalism (see Wheeler, 2010a).⁸

Clark and Chalmers (1998) originally described parity in the following terms:

“[i]f, 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 the cognitive process, then that part of the world is ... part of the cognitive process” (p29).

Parity is meant to act as a “veil of metabolic ignorance” or an insistence on “equality of opportunity: avoiding a rush to judgment based on spatial location alone” (Clark, 2008a, p114). That is, it is

⁸ Though see Drayson (2010) for a challenge to this consensus.

designed to counter the common intuition that what counts as cognitive can only be found in the head. However, parity plays another, compatible but importantly distinguishable, role. It is also meant to individuate what counts as a proper part of a cognitive system. It does this via functionalist considerations.

Briefly, functionalism can be understood to be the claim that, “what makes something a mental state of a particular type does not depend on its internal constitution, but rather on the way it functions, or the role it plays, in the system in which it is a part” (Levin, 2008). One of the (alleged) virtues of such a view is that it avoids unwarranted chauvinistic views about minds. For if functionalism is correct, then mental states and cognitive processes are multiply realizable, that is, they can be realized in different types of material substrates. This ensures that agents with very different internal constitutions from us could still have recognizable minds or display recognizable cognitive traits (Wheeler, 2010a).⁹

If it is functional role that determines whether an object or process is part of a cognitive system, and such roles are multiply realizable, then it follows that environmentally outer processes could have parity with biologically inner processes since both could play a functional role within that system. For EM, how we demarcate those functional properties that make something part of such a system from those functional properties that do not will depend on our level or grain of functional analysis.

Parity assumes a coarse grain of analysis. Clark states that, “none of the arguments for extended cognition turn on or otherwise require the fine-grained functional similarity of the inner and outer contributions” (2008a, p114). Thus, for parity to be applicable in a coupled agent-environment system, then the functional roles played by the inner and the outer need only be equivalent. That is, there is no requirement that the roles also be functionally similar i.e. display any fine-grained similarity of causal profile.

This distinction between functional equivalence and functional similarity may look minor but it has major consequences (as sections 3 and 4 will attempt to show). It is thus worth clarifying exactly what this distinction entails.

⁹ See section 4 of this chapter for a discussion of the Martian Intuition.

First, functional equivalence and functional similarity are compatible. We can imagine an environmental resource playing an equivalent and a similar role to biologically inner processes within a coupled agent-resource system. Second, since functional similarity is the more restrictive notion (as it demands a finer grain of analysis), then if an environmental resource is functionally similar to biologically inner processes within such a system, then it must also be functionally equivalent. However, third, equivalence need not entail similarity. That is, we can imagine an environmental resource playing a functionally equivalent role to biologically inner processes within such a system without that role also being regarded as functionally similar. One way of reading Extended Mind is that it is this third option that does the heavy lifting. That is, for parity to apply, an environmental resource need only be functionally equivalent to biological inner processes. In section 4, I will show why strengthening this insistence on equivalence and denying the need for similarity potentially protects the extended functionalist approach.

Thus, to recap: an extended functional system has (at least) two notable features. First, it involves continuous reciprocal causation between an agent and an environmental resource. Second, parity will apply when the resource plays a functionally equivalent role to the role played by biological inner processes in a coupled system. In the coming sections, I will attempt to show why these dual components of dynamics and information processing reveal the strength of a first wave approach to EM.

3 Sutton, second wave and the coupling-constitution fallacy

Second wave extended mind (Sutton, 2010) aims to introduce new considerations for why the mind need not be confined to the head. The distinction between first wave and second wave is not sharp and some of the issues championed by second wavers (for example, the complementary roles of the inner and outer) are already evident in Clark and Chalmers (1998)¹⁰ and given further support in recent Clark (2010, p93). Nonetheless, what remains distinctive about second wave is its desire to shift the focus

¹⁰ Hutto and Myin (2013, p147) point this out in reference to Clark and Chalmers' (1998) discussion of language.

away from the sort of parity-driven functionalist considerations that are assumed by first wave EM. Identifying what motivates this dissatisfaction with parity will help clarify what the second wave position is.

Sutton introduces the term “second wave” (2010, p194) and so it is reasonable to assume that his views can be taken to characterise a second wave approach to extended mind.¹¹ Sutton wishes “to defend the conceptual priority and fruitfulness of the second wave” (ibid, p193). Using Merlin Donald’s (1991) distinction between “engrams” and “exograms”¹², Sutton (2010) understands parity as the claim that, “[i]f “exograms” act as engrams do, then for explanatory purposes they can be treated as engrams, the difference in their location being entirely superficial” (pp193-194). According to Sutton, parity is the claim that environmental resources must “mimic or replicate the formats, dynamics or functions of inner states and processes” (ibid, p194).

Sutton regards this as problematic for two reasons. First, he asks us to consider the “individual differences in the amount and style of reliance on external resources [that] are often glaring in the ways people plan and engage in complex activities, such as writing an academic paper, shopping for a party, or chairing a department meeting. Do I memorize the train timetable in advance, or do I just turn up at the station and see?” (ibid, p199) This suggests, argues Sutton, that EM is more likely to be true of some people than others since some people simply make more use of environmental objects or processes. But since parity only focuses on “generic features of cognitive states and processes” (ibid, p199) and so abstracts away from the concrete details, then it looks unable to account for these significant differences.

Second, parity “threatens to flatten out the important differences between cognitive artifacts” (ibid, p199). For if parity is correct, then the “particular nature of the external resources....does not really matter” (ibid, p199). Yet for Sutton the differences between engrams and exograms turns out to be

¹¹ I do not discuss here Richard Menary’s (2006, 2007) Cognitive Integration view (though see the conclusion of this thesis for a brief summary of this view). First, although it could be associated with Sutton’s complementarity view, there remain important distinctions between the two approaches and it would take me too far afield to address all of these in the text. Second, Menary is careful to distinguish his position from talk of “extended mind”.

¹² Sutton (2010, p189) states: “..Merlin Donald calls “exograms” or external symbols, by analogy with the brain’s memory traces or “engrams”.”

extremely important since these differences help explain why some objects or artifacts more easily lend themselves to incorporation into cognitive routines than others. Thus, parity “fails directly to suggest study of idiosyncratic or peculiar features of particular external symbol systems, or particular ways of interacting with them” (ibid, p200).

These concerns with parity lead Sutton to argue for a complementarity view of extended mind. Sutton makes it clear that complementarity “subsumes and takes precedence over parity” (ibid, p206). Complementarity is the view that, “different components of the overall (enduring or temporary) system can play quite different roles and have different properties while coupling in collective and complementary contributions to flexible thinking and acting” (ibid, p194). A second wave extended mind is thus understood to “permit and encourage quite different kinds of interaction and coupling and thus different kinds and degrees of extendedness. EM, thus understood, is more an invitation to give detailed attention to these differences in specific contexts and case studies than a fixed new metaphysics of mind” (ibid, p206). These remarks suggest that, following Sutton, we could define second wave EM as an attempt to make the argument for cognitive extension on the basis of complementarity (and not parity) considerations.

However, as I will now attempt to show, a complementarity approach looks vulnerable to a prominent objection to EM. EM has long been dogged by the objection that it confuses claims about causation for claims about constitution. For example, according to Adams and Aizawa,

“[t]he 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, one slides to the conclusion that the object or process constitutes part of the agent's cognitive apparatus or cognitive processing.” (Adams and Aizawa 2010, p. 68)

Ramsey (2010) notes that complementarity approaches look especially vulnerable to this objection:

“[w]hat [second wave or complementarity] authors need, but do not really provide, is an argument for treating external structures as not only important for (and integrated with) cognitive systems during

various cognitive tasks - something Adams and Aizawa are happy to concede - but for also treating them as actually mental states.” (Ramsey, 2010)

Consider the following example. Sutton (2010, pp201-204) endorses Tribble’s (2005) study of Shakespearean actors at the Globe theatre. Sutton argues that this study demonstrates how the environmental resources in the Globe acted as an external memory resource since they played a crucial role in enabling actors to learn and memorize their respective cues and dialogue. In other words, these resources had transformative potential for the memory of these actors because they enabled the actors to complete cognitive tasks that would have proved impossible (or at least extremely difficult) without such resources.

Yet even if Sutton is correct, and the props in the Globe theatre did indeed “scaffold” the memory abilities of these actors, Adams and Aizawa could counter that this does not support the further claim that the actor’s cognitive processes were literally partially constituted by these props. This is because the sorts of scaffolding that Tribble identifies only supports the claim that these props were essential tools used by the actors to remember their respective cues and dialogue. To think otherwise is to commit the coupling-constitution fallacy.

If this is correct, then in seeking to distance itself from parity second wave throws into doubt its own status as an approach to EM. For without parity, it is difficult to see how complementarity can provide an argument for EM without falling foul of the coupling-constitution fallacy. Moreover, it is difficult to see what is the advantage of a second wave approach. This is because an extended functionalist approach could allow that environmentally outer processes can play importantly different roles and have different properties to the biologically inner. This could follow from the distinction (introduced in section 2) between functional equivalence and functional similarity. Since equivalence only requires a coarse grain of analysis, then it can accommodate fine-grained differences between inner and outer. If first wave were to insist that it is only committed to functional equivalence and that this need not entail functional similarity,¹³ then a first wave could accommodate such differences.

¹³ See section 4 of this chapter for reasons why first wave should endorse such a claim.

Sutton may reply that the advantage of second wave is methodological. This would fit with the claim that second wave is “more an invitation to give detailed attention to these differences in specific contexts and case studies than a fixed new metaphysics of mind” (Sutton, 2010, p191). But this only raises a further problem. For if second wave is a methodological claim i.e. a claim about how we should investigate issues of cognitive extension, and not a claim about constitution (or what makes up the vehicles for mental states and cognitive processes), then first wave and second wave do not have equivalent status. This is because extended functionalism is quite explicitly an ontological claim about what constitutes the mind (Clark, 2008b, p12). In which case, it is hard to see why second wave should “subsume and take precedence” or have “conceptual priority” over first wave. Second wave would seem to amount to nothing more than an insistence that we do first wave better.

These considerations indicate that second wave Extended Mind is vulnerable to the coupling-constitution fallacy. Yet Adams and Aizawa would no doubt also add that first wave Extended Mind is equally vulnerable. I will now show why this is not the case.

The coupling-constitution fallacy seems to hinge on two assumptions. First, that coupling alone is not sufficient to demonstrate constitution. Adams and Aizawa (2008) offer examples of coupled systems that they claim demonstrate that coupling is not sufficient to regard all parts of that system as playing constitutive roles. Second, that EM is a claim about the cognitive status of the environmental resource. That is, if an environmental resource is to count as a real, constitutive part of the machinery of the mind, then it must have, in the words of Wheeler (2010a), “fully paid up cognitive status” (p246).

Recent Clark (2010) seemingly denies both of these assumptions. He denies both the claim that coupling can never show constitution¹⁴ and the claim that extended mind is about the cognitive status

¹⁴ This may seem to challenge Clark (2008a) where he writes: “..coupling alone is not enough. Sometimes, all coupling does is provide a channel allowing externally originating inputs to drive cognitive processing along” (p131). However, Clark then offers an important qualification to this claim: “There are cases when we confront a recognizably cognitive process, running in some agent, that creates outputs (speech, gesture, expressive movements, written words) that, recycled as inputs, drive the cognitive process along. In such cases, an intuitive ban on counting *inputs* as part of *mechanisms* seems wrong. Instead, we confront something like the cognitive equivalent of a forced induction system [like a turbo-driven automobile engine]” (ibid, emphasis in original). In such cases then, coupling can ensure a constitutive role for inputs. In the coming pages, I will argue that this qualification can be used to explain the example of the actors and their props.

of the environmental resource.¹⁵ According to Clark, EM is a claim about the *constitutive* (and not *cognitive*) role played by the environmental resource. Constitution is determined by the information-processing role of that resource i.e. it's functional role, and understanding this requires factoring in the “precise nature of the coupling” (p190) that occurs when the agent interacts with that resource. This view is advantageous, argues Clark, because it allows that properties displayed by the whole agent-resource system need not be displayed by all parts of that system. For example,

“suppose it were essential, for any system to count as properly cognitive, that the system be capable of conscious awareness. We would not want to insist (indeed, it would be crazy to insist) that every proper part of that system be capable of such awareness. We would not even want to insist (to draw closer to the case in the hand) that every proper part of the subsystems that support conscious awareness need to be such as to exhibit such awareness when considered in isolation.” (Clark, 2010, p89)

Thus, a Clarkian extended functionalist approach denies both of the assumptions that underpin the coupling-constitution fallacy. That is, it argues that coupling, under certain circumstances, can bring about constitution and it is the constitutive role of the environmental resource that makes it part of the machinery of the mind.

As noted earlier, an extended functional approach need not insist on any fine-grained similarity between the biological inner and the environmental outer. That is, it can allow that parity can hold even if inner and outer have different roles and display very different properties. Think back to Tribble and her example of the Shakespearean actors. The point of the example was that these actors could perform cognitive tasks when using the props that they would not be able to perform on their own. The suggestion was that these props had transformative potential for the cognition of these actors.

¹⁵ This reveals the principal difference between Clark's version of extended functionalism and Wheeler's version of extended functionalism. As noted in the text, Wheeler claims that a non-biological environmental resource must have “fully paid up cognitive status” (Wheeler, 2010a, p246). This then supports Wheeler's claim about the need for a mark of the cognitive (Wheeler, 2013). Yet Clark seems to deny that this is part of the extended functionalist claim.

But, as was pointed out, Adams and Aizawa could object that there is nothing in the example that supports the further claim that the props partially constituted the cognition of the actors. However, an extended functionalist approach could deny the Adams and Aizawa objection. For first wavers could argue that the transformative potential evident in this example is not a property of the props themselves but rather a property of a softly assembled actor-prop system. On this reading, transformative potential occurs when the prop is playing the right kind of information processing role when coupled to the actor, and this in turn is determined by the “precise nature of the coupling” that occurs when the actor makes use of that prop. The actor-prop example could be an instance where the actors “turbo-charged” their memory abilities by looping their activity through the environment. That is, the outputs, such as the use of props, are recycled as inputs, and this recycling through the environment propels the cognitive process forward, akin to a turbo-driven engine (Clark, 2008a). And as Clark also makes clear, if so, then “an intuitive ban on counting *inputs* as part of *mechanisms* seems wrong” (ibid, p131, emphasis in original). In other words, the props do partially constitute the cognition of the actors because they can play real, constitutive roles when coupled to the actors. Hence, pace Adams and Aizawa, the Tribble example is an example of (first wave) EM.

I would argue then that first wave does not display the same vulnerability to the coupling-constitution fallacy as second wave. Of course, Adams and Aizawa are unlikely to be convinced by the sorts of maneuverings sketched above. Yet this need not concern us at the moment. The point remains that of the two approaches considered – first wave and second wave – it is the latter and not the former that appears most exposed to the coupling-constitution fallacy. Moreover, the sorts of considerations endorsed by second-wavers (such as the transformative potential of environmental resources for cognition) can be accounted for with a first wave approach.

4 Sprevak, functionalism and the Martian Intuition

As made clear in section 2, functionalism supports the idea that there could be creatures with mental states and cognitive processes that differ from us not only physiologically but also psychologically. Sprevak (2009) calls this the Martian Intuition (or what I will call MI). Sprevak then argues that functionalism entails claims about EM on the grounds that if MI is correct, then there must be cases of

Extended Mind. This is because “if the [level at which we determine functional role] is set at least coarse enough to allow for intelligent Martians, then it also allows in many cases of extended cognition” (2009, p12). The idea here is that if we can imagine the interaction between an agent and an environmental resource as occurring inside the head of a Martian, then such an agent-resource interaction would be cognitive since it would then have parity with the now cognitive process occurring inside the head of the Martian.

However, Sprevak also argues that this is actually disastrous for EM. This is because the functionalism that underpins MI leads to a rampant expansion of the mind into the environment. For once you set the parameter that controls how functional roles should be specified at a coarse enough grain at which they satisfy the Martian intuition, then potentially any and every process in the environment could occur inside the head of a Martian and so could be regarded as cognitive. Sprevak’s objection is thus one of “cognitive bloat”.¹⁶ That is, his objection is that if we endorse the sort of functionalism that supports MI (and by extension EM), then “the mind threatens to spread rampantly into the world” (Kiverstein and Farina, 2011, p6)

Sprevak’s argument is significant since, as section 2 showed, functionalism underpins a first wave approach. Since my aim is to defend a first wave approach, then this requires addressing the issues raised by Sprevak. I intend to do this in two ways. First, I will show that Sprevak’s argument depends on a stronger reading of MI than first wave need commit itself to. Second, I will argue that cognitive bloat can be curtailed once it is appreciated that (1) parity does not play a sufficient role in making the case for first wave Extended Mind and (2) that dynamical coupling and information processing both play necessary roles in constituting an extended functionalist system.

If you set the parameter that controls the analysis of functional roles at a coarse enough grain that it satisfies MI, then a Martian could have a state that is functionally equivalent to a mental state in a human being (a pain, a belief etc) without that state being functionally similar. That is, the state could fulfill an equivalent role to a pain, belief etc but nonetheless has a different (even radically different) causal profile. For example, as Sprevak (2009, p29) notes, a Martian could have beliefs that do not

¹⁶ The term “cognitive bloat” comes from Clark (2001, p156).

exhibit negative transfer, have different learning curves and reaction times. That is, they could have states that correspond to different causal profiles to the states that we call beliefs but that nonetheless fulfill an equivalent functional role within their overall mental economy. If so, then functional equivalence is sufficient for MI. Martian states can have different (perhaps very different) causal profiles from human states and yet still be regarded as mental on the grounds they are functionally equivalent to human mental states.

However, Sprevak's argument assumes a stronger reading of MI.¹⁷ The stronger reading is that a Martian's mental states are not only functionally equivalent to human states but also functionally similar. That is, there has to be some similarity of causal profile. This is the stronger reading since, as section 2 showed, functional similarity is the more restrictive notion since it demands a finer grain of analysis. I shall argue that it is this stronger reading that motivates Sprevak's argument against functionalism.

For example, Sprevak asks us to imagine that there is a program on his computer that can calculate the dates of the Mayan calendar 5000 years into the future. He claims that if MI is correct, then "I possess a mental process that calculates the dates of the Mayan calendar. The justification: one could imagine a Martian with an internal cognitive process that calculates the dates of the Mayan calendar *using the same algorithm*" (2009, pp21-22, emphasis added). This is a stronger reading of MI. It is the claim that there is a functional similarity and thus a functional equivalence between the program on the computer and the Martian in-the-head process and since the latter is cognitive, then so too is the former.

Moreover, Sprevak's argument only works with this stronger reading of MI since Sprevak's aim is to show that intuitively non-cognitive environmental processes – picking up a book, stepping into a library, browsing the internet – can become cognitive when found inside the head of intelligent Martians. Yet it only seems plausible that a non-cognitive process could become cognitive when placed inside the head of the Martian if such a process were hooked up in appropriate ways to other cognitive functions. This is because questions of cognitive status demand a finer setting on our functional grain

¹⁷ Wheeler (2010a, p263) also thinks that Sprevak's argument depends on a stronger or what he calls a more radical reading of MI. However, Wheeler's analysis of Sprevak's reading of MI differs from mine.

parameter since they depend on the particular properties of that object, state or process. However, this then ensures that Sprevak requires a stronger reading of MI.¹⁸

Conversely, if Sprevak were to endorse the weaker reading of MI – a reading that would only commit him to functional equivalence – then the proposed transfer from non-cognitive to cognitive seemingly breaks down. After all, equivalence is the less restrictive notion since it involves no requirement that there need be any similarity of causal profile between the environmental process and the Martian in-the-head process. But if so, then it is much more difficult to conceive how this non-cognitive process goes about acquiring cognitive status. On a weaker reading, it seems that Sprevak is simply left to assert that, “any state or process that happens to be found inside the head of a Martian must, simply because of its in-the-headness, count as a cognitive state or process” (Wheeler, 2010a, p263).

All of which suggests that if a first wave, extended functionalist approach were to only endorse the weak reading of MI, then it could avoid Sprevak’s argument. However, this move would require that first wave commit itself to the following claims.

First, an extended functionalist approach needs to maintain that it is only a functional equivalence reading of parity that does the heavy lifting in EM.¹⁹ Yet this doesn’t look to be problematic. As we have seen, for Clark, the issue is the constitutive (and not cognitive) role of the environmental resource. And as also noted, this depends on the information-processing role the resource plays within the

¹⁸ If Sprevak needs a functional similarity reading in order to motivate the idea that an intuitively non-cognitive environmental process can become cognitive when placed inside the Martian’s head, then does parity not also require such a reading? After all, parity takes an environmental process, imagines it inside the head, and claims that if it were to occur inside the head and it would be regarded as cognitive, then that environmental process can also be regarded as cognitive. However, I think there is a crucial dissimilarity between the two cases. On the Sprevak approach, the question is the *cognitive status* of the environmental process. Yet on the Clark approach, the question is the *constitutive* role of the environmental process. And as the text makes clear, Clark’s approach only requires a coarse grain setting on our functional parameter. Thus, although Sprevak may depend on a functional similarity reading, no such reading is implied by the parity outlined in section 2.

¹⁹ This would challenge the Clark and Chalmers’ (1998, pp33-34) original reading of Otto and Inga. On that reading, Otto’s use of his notebook looks to play a similar and equivalent role in his overall mental processing to the role played by biological memory in Inga’s overall mental processing. However, rejecting this reading could be beneficial. For on a functional equivalence reading, one could still preserve the example as one of EM while acknowledging that there are functional dissimilarities between Otto and Inga.

cognitive system. In which case, for parity to apply, the particular properties of that resource only matter to the extent they affect this information-processing role. This isn't to exclude the importance of those properties. The precise nature of the coupling ensures that those properties are bringing about changes in the agent and are in turn leading to the agent bringing about changes in the resource. But it is to restrict that importance of such properties to the information-processing role that they play.

Second, first wave needs to make it clear that parity is not a sufficient condition for EM. For if parity were such a condition, then Sprevak could argue that since functional similarity is the more restrictive notion, and similarity leads to bloat (a point which even first wave accepts), then it would seem to follow that equivalence must display even greater exposure to bloat.

However, if first wave were to insist that dynamical coupling and information processing both play necessary roles in constituting an extended functionalist system, and the parity between the biological inner and environmental outer can only be understood within this context, then first wave could avoid bloat. This follows from Clark's challenge to the coupling-constitution fallacy. For if the information processing role of the environmental resource is determined by the "precise nature" of coupling between agent and resource, then this places determinate limits on the extent of an extended functionalist system. This is because the agent that partially comprises that system can only continuously reciprocally engage with a certain number of artifacts, objects or processes at any one time. This would fit with Clark's (2008a) hypothesis of organism centered cognition or HOC, which he describes as the following claim:

"Human cognitive processing (sometimes) literally extends into the environment surrounding the organism. But the organism (and within the organism, the brain/CNS) remains the core and currently the most active element. Cognition is organism centered, even when not organism bound" (p139).

If cognition is organism centered (but not organism bound), then there is no potential for the machinery that realizes the agent's cognitive processes to expand indefinitely or to spread rampantly into the environment. This is because the limitations imposed by the (human or otherwise) body will also place limitations on how far the machinery of cognition can extend.

I would suggest then that if first wave were to commit itself to these claims, then it could reject the Sprevak argument. And since both claims are entirely amenable to an extended functionalist approach, then it looks like such an approach does have the resources to preserve the Martian Intuition without conceding to cognitive bloat and so can defend the type of functionalism that motivates or underpins Extended Mind.

5 Conclusion

In this chapter, I have tried to defend a first wave approach to Extended Mind. I did this in two ways. First, I argued that second wave Extended Mind is vulnerable to the coupling-constitution fallacy whereas first wave is not. Second, I argued that Sprevak's attack on functionalism can be resisted by insisting that first wave is only committed to a functional equivalence reading of MI and (1) parity is not sufficient for first wave Extended Mind and (2) that dynamical coupling and information processing both play necessary roles in constituting an extended functionalist system. In which case, the functionalism that first wave endorses need not lead to cognitive bloat. If these considerations are correct, then the case for second wave Extended Mind looks tenuous. At best, second wave simply serves as a reminder that we need to do first wave Extended Mind better.

Chapter 2

Sketch This: Extended Mind and Consciousness Extension ²⁰

1 Introduction

Claims about extended mental states and/or cognitive extension have in the past decade received lots of attention in philosophy of mind and cognitive science. One of the foremost exponents of Extended Mind (EM) is Andy Clark. Clark argues that mental states and cognitive processes can, under certain circumstances, be partly constituted by material vehicles that criss-cross brain-body-world boundaries (Clark, 2008a). However, interestingly, Clark (2009) explicitly rejects the claim that the same applies to consciousness. Instead, he argues that the vehicles responsible for conscious experience must, as a matter of contingent fact, remain brain-bound.

The central concern of this chapter is with consciousness extension. This chapter will examine and defend the claim that if you accept that the cognitive processes of an agent can extend, then you should also accept that the conscious experience of an agent can also extend. The example that will be used to illustrate this comes from the EM literature, namely that of the artist and their sketchpad (Clark, 2001; 2003). It will be claimed that if the cognitive processing of the artist extends to include their interaction with the sketchpad or canvas (as Clark and many others have argued), then the conscious experience of the artist also extends.

Two notions are worth clarifying at the outset however. First, in the debate over EM, the term “constitution” is to be contrasted with the term “causation”. Extended Mind is a constitutive claim (Clark and Chalmers, 1998). It is a claim about the constitutive role of environmental objects or processes in an agent’s mental or cognitive processing. It is this constitutive role that substantiates the notion of mental or cognitive extension. One of the main criticisms leveled against EM is that the

²⁰ This is a slightly altered version of the paper published as Loughlin (2013a).

examples it gives only reveal the causal (and not constitutive) role of environmental objects or processes and hence do not demonstrate that the mind or cognition can extend outside the head (Adams and Aizawa, 2001, 2008, 2010).²¹ Thus, the distinction between constitution and causation has become (and is) central to the EM debate.

Second, EM is a constitutive claim because it is explicitly concerned with “vehicles”, that is, the physical processes or mechanisms responsible for mental and cognitive states and processes.²² This is important since it may strike some as confused to talk of the mind extending. After all, do minds even have a location? If they do not, how can they extend? EM avoids this problem by focusing on vehicles. For whether or not minds or cognitive states have a location, the vehicles responsible for minds or cognitive states must be spatially and temporally located.²³

The layout of this chapter is as follows. In section 2, two examples from the EM literature will be introduced and outlined. The first example is that of Otto and his notebook (Clark and Chalmers, 1998). The second is that of the artist and his sketchpad (Clark, 2001; 2003). Clark and Chalmers argue that the Otto example demonstrates how mental states can be partly constituted by vehicles outside the agent. Clark argues that the artist example demonstrates how cognitive processes can be partly constituted by material vehicles outside the agent. Understandably, these examples have generated much debate (see Menary, 2010a). For the purposes of this chapter, it will be assumed that both examples are indeed cases of EM.

In section 3, it will be argued that there is an important difference between these two examples. In the Otto example, there is a clear separation between cognition and consciousness. This entails that the Otto example is one of EM that does not support an argument for consciousness extension. However,

²¹ See chapter 1 for development of this criticism.

²² Hutto and Myin (2013) argue that Extended Mind is vulnerable because of an uncritical acceptance of the existence of contents and associated vehicles.

²³ This is a point that some fail to recognise. For example, Ross and Ladyman (2010) say “...our view is straightforwardly opposed to any thesis that minds are, as a matter of fact, partly located outside people’s heads. We don’t think there is any such matter of fact, as a special case of there being no fact about where minds are located at all. To talk about the location of the mind is simply to resort to metaphor.” (p156) I would agree that talk about the location of the mind is metaphorical, but since this is not what EM is doing i.e. it is talking about the location of vehicles, this charge cannot be leveled against it.

in the artist example, there is no such clear separation between cognition and consciousness. Consequently, if you accept that the artist's cognitive processes are extended by their interaction with the sketchpad, then you should also accept that the consciousness of the artist is extended by that interaction as well. That is, the artist is an example of EM that does support an argument for consciousness extension. Since this challenges Clark's own views on the material vehicles of consciousness, section 4 will offer reasons as to why Clark's view should be rejected.

Thus, it is the central claim of this chapter that in those moments of interaction between an artist and their sketchpad or canvas, the material vehicles responsible for the consciousness of the artist can be partly constituted by, and so extend to include, that interaction.

2 Two examples of extended mind

Consider the following two examples of EM. The first example is that of Otto and his notebook. It is claimed that Otto's mental state, that is, his belief about the location of a museum, can be partly constituted by material vehicles outside his body – in this case, entries in his notebook (Clark and Chalmers, 1998). The second example is that of the artist and his sketchpad. It is claimed that when using the sketchpad, the cognitive processes of the artist can extend to include their interaction with their sketchpad (Clark, 2001; 2003). The following section will outline in detail these two claims.

Imagine two people: Otto and Inga. Otto suffers from Alzheimer's disease and so has difficulty remembering things. In order to remedy this, he always carries with him a notebook. Any time Otto learns something new, he writes it down in his notebook. Inga, on the other hand, does not suffer from Alzheimer's. Her memory functions normally.

Now, consider the following scenario. Inga hears about a new exhibition at the Museum of Modern Art (MoMA) in New York that she is really keen to see. She thinks for a moment about where MoMA is, recalls it is on 53rd street and then sets off to visit the museum. Suppose that Otto also hears about the same exhibition and he also decides he really wants to see it. Using his notebook, Otto retrieves the address of the museum and then he too sets off to visit MoMA.

Clark and Chalmers (1998) argue that, dependent on certain important conditions, the notebook can be viewed as much a part of Otto's mind as Inga's biological memory is a part of hers.²⁴ This is because "the notebook plays for Otto the same role that memory plays for Inga" (ibid, p34). This is a claim about functional parity. Clark and Chalmers argue "[i]f, 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 recognising as part of the cognitive process, then that part of the world is (so we claim) part of the cognitive process" (ibid, p29).

We can summarise Clark and Chalmers' argument as follows. The claim is that there is functional parity between (1) the role of the notebook in Otto's long-term belief about the location of the museum and (2) processes within Inga's biological memory involved in her long-term belief about the museum.²⁵ This is because the contents of the notebook are poised to guide and control Otto's behaviour just as the contents of Inga's biological memory are poised to guide and control her behaviour. As Clark and Chalmers put it, "the information in the notebook functions just like the information constituting an ordinary non-occurrent belief; it so happens that this information lies beyond the skin" (ibid, p34). Since there is functional parity between the role of the notebook and the role of biological memory, and since biological memory can be regarded as partially constitutive of a cognitive process, then we can also regard Otto's use of the notebook as partially constitutive of a cognitive process. That is, the notebook can be regarded as playing a constitutive role in Otto's long-term non-occurrent belief about the location of the museum. In which case, Otto's mental state extends to include the physical entries in the notebook. More simply, Otto's mind extends beyond his body into the world.

²⁴ Clark and Chalmers (1998) argue that there are four such conditions: "First, the notebook is a constant in Otto's life – in cases where the information in the notebook would be relevant, he would rarely take action without consulting it. Second, the information in the notebook is directly available without difficulty. Third, upon retrieving information from the notebook, he automatically endorses it. Fourth, the information in the notebook has been consciously endorsed at some point in the past, and indeed is there as a consequence of that endorsement" (p38).

²⁵ In chapter 1, I challenge this reading of Otto on the grounds that functional parity should only be understood in terms of functional equivalence alone and not, as Clark and Chalmers seem to suggest, in terms of functional similarity and equivalence.

The second example of EM comes from Clark (2001; 2003) and is that of the artist and their sketchpad. Clark argues that there is evidence to suggest that by externalising an image through drawing or sketching, agents can manipulate and transform that image in ways that they could not do by internal means alone.

For example, Chambers and Reisberg (1985) asked subjects to observe and then recall an ambiguous drawing such as the famous duck/rabbit picture. Subjects were briefly shown the drawing and then asked to engage in mental imagery so that they could re-draw the picture at a later date. The researchers found that when they asked the subjects to attend to the imagined drawing and find what is ambiguous in it - for example, in the case of a rabbit, find the duck, and vice versa - none of the subjects tested were able to do so. However, when asked to draw the image and find the alternative interpretation, all of the subjects tested were able to find the alternative interpretation.

Van Leeuwen, Verstijnen and Hekkert (1999) reached a similar conclusion when they examined the role of sketching in the creation of abstract art. They argued that our internal imaginative capacities allow us to combine components that retain their shapes into new recombined wholes. However, those very same capacities also prevent us from decomposing an imagined shape into wholly new components. Van Leeuwen et al then claimed that this shows why sketching plays an important role in abstract art. This is because abstract art often depends on the deliberate creation of “multilayered meanings” – for example, cases where a shape or pattern supports multiple different interpretations. In which case, the inability of the artist to decompose an internal imagined shape into new components means that the only way for the artist to discover such new meanings in their work is by engaging in an iterated “trial-and-error process” with an external source. That is, it is only by sketching, observing what they have sketched, then re-sketching, then re-observing what they have sketched etc, that the artist can uncover new perceptions in what they have drawn or sketched.

Clark (2001) argues that both the Chambers and Reisberg and the Van Leeuwen et al research demonstrate that “human thought is constrained, in mental imagery, in some very specific ways in which it is not constrained during online perception” (p147). This leads Clark to conclude that when we think of the artist and their sketchpad, we should recognise that “the use of the sketchpad is not just

a convenience for the artist, nor simply a kind of external memory, or durable medium for the storage of particular ideas. Instead, *the iterated process of externalising and re-perceiving is integral to the process of artistic creation itself*" (ibid, p149, emphasis not in original).

Clark's claim then is that since the interaction between the artist and their sketchpad is integral to the process of artistic creation (as follows from the Van Leeuwen et al research), then the interaction should be viewed as a constitutive part of the cognitive processing of the artist. In which case, the vehicles responsible for the cognition of the artist will extend to include that interaction. If this is correct, then the cognitive processing of the artist will, under these particular circumstances, extend into the world.²⁶

We now have our two examples of Extended Mind. If Clark and Chalmers are right about Otto, and Clark is right about the artist²⁷, then both examples are instances of EM. That is, mental states (in the case of Otto) and cognitive processes (in the case of the artist) can both be partly constituted by material vehicles (notebooks and sketchpads) outside the agent's body. For the purposes of this chapter, it will be assumed that these analyses of the examples are correct and these examples do indeed demonstrate how mind and cognition can extend into the world.

3 Otto and the artist

Section 2 introduced and outlined two examples of Extended Mind – Otto and his notebook and the artist and their sketchpad. However, there is an important difference between the two examples and it is this difference that brings us to the central concern of this chapter. This difference is that in the Otto

²⁶ We can go further and offer an extended functionalist description of the artist. Van Leeuwen et al claim that our internal imaginative capacities allow us to combine components that retain their shapes into new recombined wholes. However, they also argue that those very same capacities prevent us from internally decomposing an imagined shape into wholly new components. This explains why sketching enables the artist to transform the image in new ways. But if so, then when the artist is using the sketchpad, the artist could be deploying both their internal imaginative capacities to combine components into new wholes while also manipulating the images on the pad in order to decompose the perceived wholes into new components. Under such circumstances, there would be a functional equivalence between the artist's internal imagery capacities and their external imagery capacities. That is, both would be playing an equivalent functional role when the artist is coupled to the sketchpad.

²⁷ Others also argue that the artist is an example of EM, for example, Sutton (2002) and Kiverstein and Farina (2011).

example there is a clear separation of cognition and consciousness but in the artist example there is no such clear separation.²⁸

In the Otto example, there is a clear separation between Otto's mental state and his conscious experience. For although the vehicles responsible for Otto's belief about the museum extend to include the contents of his notebook, his extended belief is not a conscious one. As Clark and Chalmers make evident, Otto's extended belief is non-occurrent and dispositional. That is to say, even though the vehicles of Otto's mental state extend to include his notebook, these vehicles are not linked to Otto's conscious awareness. This separation between cognition and consciousness ensures that even though the Otto example is one of EM, it does not provide a further argument for consciousness extension.²⁹

However, things are not so clear-cut when it comes to the artist. In this example, there is no separation between cognition and consciousness. To recap: the example builds on research indicating that by externalising an image an agent can manipulate and/or transform that image in ways that they could not do by internal means alone. It is this transformative potential that, according to Van Leeuwen, Verstijnen and Hekkert, demonstrates the crucial role of sketching since sketching enables the artist to uncover "multilayered meanings" in their work. For Clark, this gives us an argument as to why the artist's interaction with the sketchpad plays a constitutive role, namely because "the iterated process of externalising and re-perceiving is integral to the process of artistic creation itself". Since the interaction plays a constitutive role, then it extends the cognitive processing of the artist.

Yet, if you accept all of the above, then this has an interesting consequence. This is because if the artist's interaction with their sketchpad is a cognitive process, then it becomes pretty clear that it must be a conscious process as well. This does not mean that the artist must self-reflectively acknowledge

²⁸ This claim is based on Clark and Chalmers' formulation of the Otto example. Rowlands (2010a) might argue that once we understand the Otto example in terms of his mark of the cognitive, then there is no such separation between cognition and consciousness in Otto. However, given that Clark rejects claims about the need for a mark of the cognitive as well as claims about consciousness extension, I think it is doubtful that he would accept Rowlands' reading of Otto. See also chapter 3 for separate reasons as to why Rowlands' mark of the cognitive might be problematic.

²⁹ Clark (2010) states: "we allowed that (as far as our argument was concerned) conscious mental states might well turn out to supervene only on local processes inside the head. But insofar as the scope of the mental is held to outrun the conscious, occurrent contents (to include, for example, my long-term dispositional beliefs as well as my current conscious believing) there was no reason to restrict the physical vehicles of such nonconscious mental states to states of the brain or central nervous system" (p45-46).

their interaction with the sketchpad as a conscious process. Conscious experience is not limited to self-reflective awareness. It simply means that to the extent to which the artist is acting consciously during their back-and-forth with the sketchpad, then this back-and-forth will be a conscious process.

This fits with claims made by Van Leeuwen, Verstijnen and Hekkert who remark that “at the moment synthesised mental products are externalised, the unanticipated new information that can be taken from the sketch, comes much to the surprise of the artist. Also, in experimental settings (Verstijnen et al, submitted) many subjects reported this kind of *AHA-experience*” (1999, p213, emphasis not in original). This suggests that the artist’s interaction with the sketchpad is a conscious process. Importantly, this would also apply to those moments when the artist is so fully immersed in the artistic process that the back-and-forth between them and their sketchpad can be best characterised as a “flow”. Even during such “flow” moments, the artistic process remains a conscious one, even if not an explicitly self-reflective one.

These considerations support the idea that there is no clear separation between cognition and consciousness in the artist example. That is, if you accept that the artist’s interaction with their sketchpad is a constitutive part of the cognition of the artist, then you should also accept that this process is a constitutive part of the consciousness of the artist. In other words, if you accept that the example is one of EM, then you should also accept that it is an example of consciousness extension.

This then marks a key difference between the Otto example and that of the artist. In the Otto example, there is a clear separation of cognition and consciousness. However, in the artist example, there is no such separation and if the cognition of the artist extends to include their interaction with the sketchpad or canvas, then the conscious experience of the artist extends as well.

4 Clark and consciousness extension

Despite everything that Clark says about cognition, he maintains that claims of extension do not apply to consciousness. For Clark, the material vehicles responsible for conscious experience must, as a matter of contingent fact, remain confined to the head of the agent. Thus, if the position of this chapter

is correct and the artist is an example where the consciousness of the artist is extended, then Clark must be wrong to think that consciousness must be internal to the agent.

Clark (2009) argues that there are empirical reasons as to why the vehicles responsible for cognitive processes and those responsible for conscious experience must remain separate. This is because it is possible that “conscious awareness is special among cognitive functions in so far as it requires (in us humans at least) certain information-accessing and information-integrating operations whose temporal scale makes neural (brain/CNS) processes (just as a matter of contingent fact, in us humans) the only adequate ‘vehicle’” (p983).

Clark draws together two points in support of his claim. The first is to do with the body as a low-pass filter. The second is to do with neural synchronicity and temporal binding in the brain. Clark argues that these points support the claim that the only adequate vehicle for conscious experience is neural (brain/CNS) processing.

The first point is based on work by Eliasmith (2008). Eliasmith argues that bodies have mass and act like “low-pass filters” in that they slow down the transfer of information. This ensures there can only ever be low bandwidth information transfer between brain and body. If, as Clark claims, consciousness depends on high bandwidth information processing, then Eliasmith’s work supports the idea that such processing cannot, as a matter of empirical fact, occur between brain and body. That is, high bandwidth processing must be confined to the brain. Clark then argues that there is evidence that demonstrates that this is indeed so. For example, evidence that indicates that fine time-scale synchronies of neural firing patterns are the means by which the brain binds together neurally represented information (Singer, 2003).

These points lead Clark to claim that “[i]f indeed the physical machinery of conscious experience requires fast timescale operations and processing, and the non-neural body acts as a low-pass filter preventing external (and internal, muscular etc) signals from directly entering into such operations and processing, then such signals are fit to play only a causal role, driving the neural systems within which the right kinds of fast binding and processing can occur” (2009, p986).

Clark's argument then is that the neuroscientific evidence demonstrates that the link between brain, body and world for consciousness can only ever be causal; it cannot be constitutive. That is, the brain may causally depend on its interactions with the body and world to produce conscious experience. Nevertheless, the actual machinery that constitutes conscious experience – the adequate vehicle - must, for straightforwardly empirical reasons, be found in the brain. If Clark is right, then even if the artist is an example of EM, it cannot, as a matter of contingent fact, also be an example of extended consciousness.

However, there are reasons to challenge Clark's argument. Notice that if internalism about consciousness is true – what Noë (2004) refers to as the “consciousness in the head” model - then neural (brain/CNS) processing must be both necessary and sufficient for conscious experience. That is, the brain must be necessary in that there is no conscious experience without a brain and the brain must be sufficient in that it is the brain that constitutes your conscious experience (even if the brain depends for its proper functioning on being embedded in a living body).

Internalism about consciousness must then demonstrate a necessary and sufficient relation between neural processing and conscious experience. This is because if neural processing is simply necessary for conscious experience, then the externalist can argue that brain-body coupling (Cosmelli and Thompson, 2010), or even brain-body-world coupling (Thompson and Varela, 2001), are also required for conscious experience. The problem for Clark, as we shall see, is that the mechanisms he appeals to – synchronicity and binding – do not demonstrate such a necessary and sufficient relation. In which case, they cannot be used to support an internalist claim about consciousness.

Consider the following evidence. Revonsuo and others (Revonsuo et al 1997; and Revonsuo, 1999) tested the hypothesis that 40-Hz synchronisation of neural populations was associated with the binding of visual precepts into coherent wholes. In one experiment, they used scalp EEG measuring to test subjects perceiving the same stimulus (generated by a random dot auto-stereogram) in one condition as an incoherent collection of random dots and in another condition as a coherent, symmetrical three-dimensional gestalt.

What they found was that “[c]ontinuous viewing of the same stimulus in the incoherent vs. coherent condition was not associated with significant differences in 40-Hz synchronisation” (Revonsuo, 1999, p183). That is, although there were large changes at the level of the subject’s visual awareness i.e. the transition from incoherent image to a coherent image, these changes in perceptual experience did not correspond to changes in high bandwidth synchronicity in the brain.

In a further experiment, subjects were asked to “free fuse” the random dot stereogram image and push a button as soon as they saw the three-dimensional gestalt. It was found that although an increase in 40-Hz synchronicity was detected at occipital and right parieto-temporal scalp electrodes, this increase occurred *before* visual awareness of the coherent precept was reported. Revonsuo states that, “40-Hz synchronisation thus seems to participate in the construction of the unified precept, but not in the continuous viewing of the same stimulus once it has been constructed and persists in visual awareness” (1999, p183).

This data suggests that there is not a necessary and sufficient relation between high-bandwidth synchronicity and perceptual experience. In the first experiment, there were changes in visual experience without changes in 40-Hz synchronicity. In the second experiment, such synchronisation seemed to participate only in the construction of the visual experience and was not a direct neural correlate for that experience. This suggests that there is only a necessary relation between high bandwidth synchronicity and visual experience - you need the former to have the later. But there is not a necessary and sufficient relation since changes in one could occur without changes in the other. This data then indicates that neural mechanisms like that of synchronicity and binding do not rule out the possibility that factors beyond the brain, such as brain-body coupling, or brain-body-world coupling, are also necessary conditions for conscious experience. In other words, such brain mechanisms do not look to demonstrate internalism about consciousness.

Of course, nothing said so far rules out other brain mechanisms from being both necessary and sufficient for conscious experience. All that has been shown is that the neural mechanisms Clark appeals to do not demonstrate such a relation. But if such mechanisms do not demonstrate such a necessary and sufficient relation, then Clark’s claim that the only adequate vehicle for conscious

awareness is neural (brain/CNS) processing looks to be unsubstantiated. Crucially for this chapter, Clark cannot then exclude the possibility that the conscious experience of the artist can also extend to include their interaction with their sketchpad or canvas.

5 Conclusion

Consider the following quote from the abstract expressionist painter Jackson Pollock: “When I am in my painting... I try to let it come through. It is only when I lose contact with the painting that the result is a mess. Otherwise, there is pure harmony, an easy give and take, and the painting comes out well” (Frank, 1983, p68). I have argued that if Clark’s example of the artist is one of EM, then this example supports an argument for consciousness extension. That is, the example supports the idea that the material vehicles of conscious experience can, under certain circumstances and on particular occasions, be partially constituted by environmental processes. This challenges Clark’s view of consciousness but, as we have seen, there are reasons to doubt the veracity of Clark’s view. All of which means when we consider the above quote from Pollock, we should recognise that it perhaps describes not only his creative process but also how this process could extend his conscious experience into the world around him.³⁰

³⁰ This also raises a question that I have not explored in this chapter. Could the interaction between artist and sketchpad help explain the therapeutic value of art in art therapy? For example, if patients can access new perceptions through drawing or painting - perceptions that they could not access by internal imagery alone - then perhaps it is this accessing that affords them better understanding of their own problems. If this were true, then cognitive and conscious extension could be important to understanding the therapeutic value of art in art therapy.

Chapter 3

Mark Rowlands and the New Science of the Mind ³¹

1 Introduction

Over recent years, non-Cartesian approaches to cognitive science have come to be labeled 4e. This refers to the overlapping but importantly distinct claims that mental states and cognitive processes can be variously *embodied*, *embedded*, *enacted* and/or *extended* (hence 4e). Mental states and cognitive processes are *embodied* when they are partly constituted by bodily processes; they are *embedded* when there is an essential causal dependence between such states and processes and the environment; they are *enacted* when the actions of the agent can partly constitute these states and processes; and they are *extended* when environmental structures can partly constitute such states and processes.

Mark Rowlands' book, "The New Science of the Mind" (2010a), aims to provide the conceptual foundations for a 4e approach. Rowlands, along with many others, has long been a critic of the orthodoxy in cognitive science. He has repeatedly attacked the assumption that the mind is solely realized by mechanisms in the brain (Rowlands, 1999; 2003). In "The New Science of the Mind", Rowlands expands and develops this attack by arguing that processes outside the brain can form genuine parts of an agent's mind.

Such an approach however raises the following question. Why should we think that processes outside the brain are real, constitutive parts of an agent's cognizing, rather than simply causally important for that cognizing? ³² Rowlands answers this with his mark of the cognitive. This is a set of four sufficient (though not necessary) conditions that if fulfilled qualify any process (whether bodily internal, bodily

³¹ This chapter is an expanded version of a review of Rowlands' book. The review was originally published as Loughlin (2013b).

³² As chapters 1 and 2 indicate, this refers to the (by now familiar) issue of causal versus constitutive claims.

external and/or environmental) as a cognitive process. It is Rowlands' contention that processes outside the brain do conform to his mark of the cognitive and consequently, "[c]ognitive processes [can be] an *amalgam* of neural structures and processes, bodily structures and processes, and environmental structures and processes" (ibid, p83, emphasis in original). Rowlands christens this view the Amalgamated Mind.

However, as Rowlands also makes clear, the conceptual relationships among the ideas of embodied, embedded, enacted and extended are various and complex. And it turns out that not all aspects of 4e are compatible. For example, Rowlands claims that enacted mind, which he regards as a version of embodied mind, is not compatible with extended mind. Moreover, embedded mind operates "as a sort of Cartesian fifth column" within 4e and hence a non-Cartesian cognitive science needs to rule out the embedded claim. Rowlands' objective is to show that only embodied mind and extended mind are needed for a non-Cartesian science. That is to say, embodied mind and extended mind are in fact compatible.

Yet if enacted mind is a version of embodied mind, and enacted mind and extended mind are not compatible, then one may wonder why the same lack of compatibility does not also apply to embodied and extended mind. In other words, how can Rowlands achieve his objective of reconciling embodied and extended mind in his *New Science* once he also accepts that enacted mind and extended mind cannot be so reconciled? Rowlands' proposal is to argue for extended mind but not on the basis of functionalist considerations.

Such considerations look to be problematic since they illustrate how extended mind and embodied mind display opposing views of the role of the body in mind and experience. For example, extended mind (or at least a certain reading of this claim) argues that fine-grained details of embodiment are not crucial since it is the functional role (understood in a particularly liberal sense) that determines the constitutive contribution the body makes to mind and experience. Yet embodied mind claims that bodily details do play crucial roles since embodied mind endorses a "principled body-centrism, according to which the presence of humanlike minds depends quite directly upon the possession of a humanlike body" (Clark, 2008b, p8).

This then motivates Rowlands' (2010a) proposal is to take "functionalism out of the equation" (p105). Specifically, he argues that condition 4 of his mark of the cognitive – his ownership argument – establishes both embodied and extended mind in a way that does not rely on functionalism. I shall argue however that condition 4 actually leads to cognitive bloat i.e. to the rampant expansion of the mind into the environment. I then claim that Rowlands can avoid bloat by conceding that condition 4 only establishes embodied mind and not extended mind. He then fails to show how to reconcile embodied and extended mind. I will thus suggest that, contrary to what Rowlands claims, one of the lessons that his *New Science* teaches is that among 4e, it remains unclear that embodied mind and extended mind are in fact compatible ways of understanding mentality.

2 When 4e becomes 2e

In comparing and contrasting embodied, embedded, enacted and extended mind, Rowlands claims that his mark of the cognitive demonstrates both embodied and extended mind. As noted in the introduction, Rowlands argues that enacted mind and embedded mind can be excluded from his account. Understanding why this is so also clarifies why Rowlands thinks a mark of the cognitive is needed for a non-Cartesian cognitive science.

Rowlands claims that enacted mind is a version of embodied mind. This assessment agrees with Clark who claims that enactivism displays a "sensorimotor hypersensitivity" (Clark, 2008a) and is evidence of a "new-wave body-centrism" (Clark, 2008b). For both Rowlands and Clark, enacted mind boils down to the claim that you need a body like ours (in all its fine-grained details) in order to experience the world the way we do.³³ What Rowlands adds to this assessment is an argument designed to show that enacted mind cannot be understood to be a version of extended mind.

³³ I agree with this assessment. Enacted mind or Enactivism is committed to strong embodiment claims. For example, see Radical Enactivism's Embodiment Thesis (Hutto and Myin, 2013, p5), which claims that certain forms of mentality are to be equated with bodily interactions between an agent and their environment. See chapter 4 for development of this point.

Rowlands' target here is sensorimotor theory (O'Regan and Noë, 2001). This theory argues that each sensory modality - vision, touch, taste, sound and smell - corresponds to a unique set of sensorimotor contingencies. Sensorimotor contingencies are relations of lawful dependence between features of our sensory apparatuses and features of the environment. These relations of dependence are sensory in that they refer to our sensory apparatuses and they are motor in that they refer to how those apparatuses react to the environment during movement. An example of a sensorimotor contingency, claim O'Regan and Noë (2001), is that "when the eyes rotate, the sensory stimulation on the retina shifts and distorts in a very particular way, determined by the size of the eye movement, the spherical shape of the retina, and the nature of the ocular optics" (p941). According to sensorimotor theory, it is an agent's implicit, practical knowledge of such contingencies (the agent's know-how) that constitutes their sensory experience.

Rowlands argues that sensorimotor theory (or what he calls enacted mind) thus involves two distinct claims. First, the claim that visual experience is constituted by sensorimotor knowledge whereby such knowledge is understood to involve expectations about how visual experience changes with bodily movement. Second, the claim that visual experience depends on the ability to act in the world. Rowlands then argues that sensorimotor theory/enacted mind is reliant on expectations and abilities and not on exploratory activities.³⁴ As such, it does not support an extended account of perception.

Rowlands then argues that if sensorimotor/enacted mind is to support an extended account of perception, then it must involve an appeal to our ability to act in the world. But we can distinguish between (1) the claim that visually perceiving the world depends on the ability to probe and explore the world and (2) the claim that visually perceiving the world depends on both the ability to probe and explore and the actual exercise of this ability. This distinction is important, insists Rowlands, because

³⁴ There are two possible responses here. First, one could argue that expectancies could be given a non-representational explanation i.e. one involving the agent interacting with their environment. In which case, it is possible that expectancies would still involve exploratory activities. Or, second, one could argue, as I do in chapter 4, that sensorimotor theory is reliant on expectations and abilities and not on exploratory activities to the extent that it retains a commitment to sensorimotor knowledge. If it were to drop this commitment (and I provide reasons as to why it should do so), then a radical sensorimotor or enactive account does become a claim about embodied exploratory activities. However, this still would only support an embodied account of perception and not an extended one.

although some abilities are embodied and even environmentally embedded, there is no reason to think that they are also extended. Hence (1) does not support an extended account of perception.

This leaves (2) the claim that perception depends on the ability to probe and explore the world and the actual exercise of this ability. However, according to Rowlands, this claim raises problems for the perception of novel visual phenomena. For example, suppose when I enter my kitchen, I see a tomato sitting on the counter. Suppose further that when I entered the kitchen, I noticed something on the counter before I was able to identify it as a tomato. That is, *before* I probed and explored the world, I noticed something in my visual field. We can thus distinguish between perception and judgments that we make about that perception. That is, I can potentially perceive something in my immediate environment without always being able to determine what it is that I perceived. Yet if perception depends on my ability to probe and explore the world and the actual exercise of that ability, then prior to the exercising of that ability, I should have no visual experience. But, as our example suggests, this is not the case. I can perceive something without being able to determine what exactly it is that I perceived. All of which leads Rowlands to doubt the veracity of (2).

The sensorimotor theorist/enacted mind advocate could respond that the actual exercise of the ability to probe and explore the world is only required during learning how to perceive.³⁵ And if so, then “only learning how to perceive a visual property will be an extended process” (Rowlands, 2010a, p81). Yet Rowlands is adamant that this leaves sensorimotor/enacted mind with a dilemma:

“[i]f the enacted mind claims that the actual exercise of one’s ability to visually probe the world is required for perception, then it is implausible. If, on the other hand, it claims that exercise of this ability is required only during the learning phase, then it yields only an extremely attenuated version of the extended mind: an extended account of learning to perceive, but not of perception itself. As far as its account of the latter goes, the enacted mind supplies us with a solidly internalist account oriented around the possession of expectations and abilities.” (ibid, p81)

³⁵ Clark (2009) also acknowledges that this is a possible move that the sensorimotor theorist could make. See chapter 4, section 3.2.

Rowlands concludes then that there is nothing in the enacted account of perception that supports extended mind. To which he adds, “it is not even clear that [enacted mind and extended mind] are compatible views” (ibid, p74).

Just as Rowlands challenges the link between enacted mind and extended mind, he also challenges the role of embedded mind within a non-Cartesian cognitive science (ibid, pp69-70). Embedded mind insists that the environment only *causally contributes* to mental states and cognitive processes. It thus denies that the environment partly *constitutes* those states and processes. This allows embedded mind to acknowledge the important (perhaps crucial) role the environment can play in mental activity while denying that the processes that constitute such activity are anything other than internal to the agent. In other words, embedded mind acknowledges the force of non-Cartesian arguments while denying that such arguments prove that mind and experience are anything other than internal processes.

If so, then non-Cartesian cognitive science needs to provide an argument against the embedded claim. But how to do this? One way is to show that processes outside the brain can play a *cognitive* (and not merely causal) role in cognitive processing. This is the strategy Rowlands pursues with his mark of the cognitive. The idea is that if bodily and/or environmental processes fulfill a set of conditions set out in a mark of the cognitive, then such processes will qualify as playing a cognitive role and hence can be understood to be real parts of the cognitive processing of the agent. If Rowlands is correct, then non-Cartesian cognitive science needs a mark of the cognitive if it is to refute embedded mind and thereby establish its non-Cartesian credentials.

Understanding why Rowlands reaches this conclusion becomes clearer when we contrast his position with that of recent Clark. Clark (2010) denies that non-Cartesian cognitive science needs a mark of the cognitive on the grounds that parts of an extended brain-body-world system need not display properties exhibited by the system as a whole. That is, even if the “body” and “world” parts of such a system do not display characteristics we traditionally associate with cognition, this should not exclude such parts from playing a potentially constitutive role in the cognitive routines performed by an extended agent-environment system.

Rowlands' objection is that such a claim remains vulnerable to embedded mind. His position seems to be that if there are no requirements that the parts of the system all exhibit similar properties, then it is unclear that all parts of the system are playing cognitive (and not merely causal) roles. Moreover, following Adams and Aizawa (2001) and Rupert (2004), Rowlands seems to endorse the claim that coupling alone is not sufficient to show constitution (2010a, pp91-93).

Into this breach steps the mark of the cognitive. For Rowlands, such a mark sets out the properties that bodily processes must possess if they to be regarded as cognitive (and hence establish embodied mind) and/or the properties that environmental processes or structures must possess if they are to be regarded as cognitive (and hence establish extended mind).³⁶ In which case, only a mark of the cognitive can show why such bodily and environmental processes partly constitute (and not merely cause) the cognition of agents. That is, only a mark of the cognitive can provide the conceptual credentials for a truly non-Cartesian cognitive science.

3 The mark of the cognitive

Rowlands' mark of the cognitive consists of four inter-related conditions that if fulfilled qualify a process (whether bodily internal/external and/or environmental) as cognitive (2010a, pp110-119). The first condition is that a process must involve the manipulation and transformation of information-bearing structures. The second condition is that the manipulation and transformation of such structures must have the proper function of making new information available to the agent or to processing operations within the agent. The third condition is that this new information must be made available via a representational state in the agent. The fourth condition is that the agent must own the process.

³⁶ As noted in chapter 1, there is an important contrast between marks of the cognitive and sorts of claims that recent Clark thinks are needed for extended mind. Marks of the cognitive imply that what matters is the *cognitive status* of the environmental process. Yet, according to Clark (2010), what matters is the *constitutive role*. Questions of cognitive status and constitutive role demand different things. A mark of the cognitive requires that processes possess certain properties. Yet constitutive role only requires that processes fulfill a certain information-processing role when coupled to agents. In other words, particular properties of processes matter but only to the extent that they fulfill this information-processing role. If so, then marks of the cognitive place greater demands on what counts as a proper part of a mind extending agent-environment routine than constitutive role. And as also shown in chapter 1, clarifying this point has important implications for how a (first wave) extended mind can respond to coupling-constitution fallacy (Adams and Aizawa, 2008, 2010) and to Sprevak (2009).

Rowlands bases his mark of the cognitive on cognitive scientific practice. That is, he claims that his mark follows from (and so is compatible with) the judgments made by orthodox cognitive scientists as to what counts as a cognitive process. The purpose of this strategy seems to be twofold. First, it is to protect his mark against the charge that it has no basis in the day-to-day work of actual science. As Rowlands makes clear (for example, with David Marr's (1982) theory of vision), his mark is entirely compatible with such science. Second, it is to show that his mark "has conservative origins – origins that even the most dyed-in-the-wool defender of tradition would have to accept – but radical consequences" (2010a, p114). In other words, he claims that his mark of the cognitive is the logical consequence of concepts already pursued in cognitive science.

Rowlands' strategy is commendable but it is not without its costs. For example, it commits him to the existence of "non-derived representational states (states that possess non-derived content)" since such states are "a staple [of cognitive scientific] practice" (ibid, p116). But this is a significant ontological commitment and demands much further argument than simply strategic considerations. For although it may be an attractive strategy to adopt the assumptions of your opponent in order to demonstrate that such assumptions prove your argument, this strategy will not work if those assumptions are themselves problematic. And for some within the 4e community, representations with non-derived content are indeed a problem (see Hutto and Myin, 2013).³⁷ Can cognitive science actually substantiate claims about informational content? Rowlands doesn't provide an answer.

A related worry is Rowlands' endorsement of representational states. Given that orthodox cognitive science regards such states as straightforwardly internal, then one may wonder how Rowlands proposes to square such an internalist commitment with the externalist ambitions of his mark of the cognitive. Rowlands' thinking seems to be that his mark of the cognitive gives everything that an internalist might want within an explanatory framework that also supports externalism. Yet the danger with this approach is that it falls between two stools. On the one hand, it is unlikely to convince internalists since once internal representational states are accepted, then the internalist can quite rightly ask, why go outside the head at all? And on the other, it is unlikely to convince externalists since it requires endorsement of the very internalist commitments that (some) externalists set out to challenge.

³⁷ See chapters 4 and 5 for development of the idea that informational content is problematic.

However, it is the fourth condition of Rowlands' mark of the cognitive that is arguably the most important. This is because, according to Rowlands, both embodied and extended mind (and hence Amalgamated Mind) "are straightforward implications of our *ownership* of cognitive processes, when this is properly understood" (ibid, p150, emphasis in original).

Rowlands addresses this issue of ownership with his analysis of intentionality, that is, with his analysis of the structure (or what could also be called the vehicles) of intentional experience. He argues that on the standard model of intentionality, the concept of mode of presentation has two possible interpretations. First, there is the empirical mode of presentation. This refers to the contents of experience. So, for example, when I perceive the shininess or redness of a tomato on the kitchen counter, this is to experience the tomato under an empirical mode of presentation. Second, there is the transcendental mode of presentation. This refers to the conditions that make possible or in virtue of which an object is presented to us. That is, the transcendental mode of presentation is that "in virtue of which the tomato, or relevant part of the world, is *disclosed* or *revealed* to me as shiny and red" (ibid, p186, emphasis in original). Thus, the transcendental mode of presentation refers to the physical processes or vehicles that disclose or reveal the world to me.

Rowlands expands on this notion of disclosure or revelation with the help of Merleau-Ponty's (1962) famous example of the blind person and their cane. On the one hand, we can think of the cane as a straightforward empirical object. That is, as an object that the blind person uses to explore their world. However, Rowlands (following Merleau-Ponty) points out that this fails to capture the experience of the blind person "from the inside" (Rowlands, 2010a, p196). For when we investigate the blind person's experience from the inside, we can see that the cane is much more than just an object. Rather it is part of the conditions of possibility or that in virtue of which the blind person has experience of their world. In other words, the cane is part of the physical processes or vehicles that *disclose* or *reveal* the world to the blind person.

Rowlands argues that Amalgamated Mind emerges as a natural consequence of this account of ownership. This is because ownership requires intentionality and intentionality is a form of disclosing

or revealing activity that “typically – not always, not necessarily, but typically – extends out from the brain through the body and out into the things we do in the world” (ibid, p187). In other words, such disclosing or revealing activity can involve brain, body and/or environmental processes or vehicles.

To recap then: when processes involve (1) the manipulation and transformation of information bearing structures which (2) make available new information to the agent via (3) representational states in the agent and (4) are owned because they disclose or reveal the world to the agent, then such processes will conform to the mark of the cognitive and so can be understood to have cognitive status. Since such processes need not be confined to the head but rather can extend to include bodily and/or environmental processes, then this mark of the cognitive, according to Rowlands, establishes both embodied and extended mind (and hence Amalgamated Mind) and thus provides the conceptual foundations for a non-Cartesian cognitive science.

4 An amalgamated affair

We can illustrate Amalgamated Mind by contrasting Clark and Chalmers’ (1998) familiar reading of Otto and his notebook with Rowlands’ (2010a) reading of the same example.

Briefly, Otto has Alzheimer’s disease and so always carries with him a notebook in which he jots down important pieces of information. Inga on the other hand has no cognitive impairments. Clark and Chalmers ask us to imagine that Otto and Inga both hear about an exhibition at the MoMA in New York. Inga thinks for a moment where MoMA is, remembers that it is on 53rd street and then sets off to see the exhibition. Otto cannot remember the location of the museum but after checking his notebook and finding the address he too sets off to visit MoMA. The key point Clark and Chalmers make is that there is functional parity between the two cases, that is, the role that the notebook plays in Otto’s unconscious dispositional belief about the location of the museum is functionally equivalent to the role that biological memory plays in Inga’s unconscious dispositional belief about the location of the museum and since we regard Inga’s biological memory as part of her cognitive processes, then we should regard Otto’s use of his notebook as part of his cognitive processes as well.

Yet things look very different on an Amalgamated Mind reading of the Otto example. On Rowlands' reading (2010a, pp206-212), Otto's use of his notebook is cognitive because it conforms to a mark of the cognitive. For example, it fulfills conditions 1 and 2 of the mark since it involves the manipulation of an information-bearing structure (the use of the notebook), which has the proper function of making available new information i.e. it helps Otto recall that the MoMA is on 53rd street. It fulfills condition 3 since this new information is made available to Otto via an internal representational state. It also fulfills condition 4. Otto owns his use of the notebook since it is part of the conditions or vehicles that reveal or disclose the world to Otto. This helps clarify what Rowlands means when he talks about "taking functionalism out of the equation". Otto's use of his notebook is cognitive, not because it has functional parity with Inga's use of her biological memory, but because it possesses the properties that a process must have if it is to fulfill the conditions set out in a mark of the cognitive.

As section 2 made clear, not all aspects of 4e are compatible. Enacted mind is not compatible with extended mind and embedded mind is not compatible with a non-Cartesian cognitive science. Rowlands insists that only embodied and extended mind are needed for such a science. However, as I indicated in the introduction, functionalist considerations pose a particular problem for attempts at reconciliation of embodied mind and extended mind. It is now worth pausing to consider why this is so.

Extended mind, according to certain interpretations, argues that it is the functional role that determines the constitutive role of brain, body and/or environmental processes in some overall extended agent-environment system. As such, the fine-grained details of the body matter but only in so far as those details enable the body to fulfill the requisite functional role. This leads Clark (2008b) to describe extended mind as depicting "the body as just one element in a kind of equal-partners dance between brain, body and world, with the nature of mind fixed by the overall balance achieved" (p25).

Yet embodied mind endorses what Clark and Toribio (2001) have elsewhere called "sensorimotor chauvinism". That is, embodied mind is the claim that you cannot abstract away from the fine-grained details of bodies in order to understand mind and experience since these details play pivotal, non-eliminable roles.

For example, Shapiro (2004) challenges what he calls the Separability Thesis (ST). ST is the idea that a “humanlike mind could very well exist in a non-humanlike body” (Rowlands, 2010a, p53).³⁸ Contrarily, Shapiro argues that, “psychological processes are *incomplete* without the body’s contribution” (Shapiro, 2004, 190, emphasis in original). A case in point is the following: “in processing visual-depth information, the brain deploys disparity information from two eyes. Were there more than two eyes or fewer, or if the distance between the eyes differed, the processes in the brain that compute depth from disparity would require significant revision” (Rowlands, 2010a, p53).

In which case, embodied mind is the claim that fine-grained details of the body make a non-eliminable contribution to visual and other forms of experience. Were a creature to have a body different from ours, it would thus undergo very different experiences from us. As such, contrary to the sort of functionalism endorsed by certain readings of extended mind, details of the body play unique and irreplaceable roles. Embodied and extended mind thus assume clearly opposing views of the role of the body in mentality.

Rowlands is well aware of this opposition. Yet he insists that condition 4 of this mark of the cognitive - his ownership argument - can bring about reconciliation between embodied and extended mind on the grounds that disclosing or revealing activity “typically – not always, not necessarily, but typically – extends out from the brain through the body and out into the things we do in the world” (ibid, p187).

However, I think there is a significant problem with this claim. Notice that Rowlands’ ownership argument is designed to avoid cognitive bloat. Cognitive bloat is the worry that if mental states and cognitive processes can be partly realised by processes outside the head, then there could be (potentially) no limit to what counts as part of the human mind.³⁹ Rowlands states:

“I shall argue..that the cognitive bloat objection 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

³⁸ Compare this with the Martian Intuition described in chapter 1. Clearly, if extended mind endorses the Martian Intuition (as chapter 1 argues), then extended mind also endorses the Separability Thesis.

³⁹ See chapter 1 for further discussion of cognitive bloat.

state or process as cognitive. The processes occurring in [the environment] are not, at least as they figure in the cognitive bloat objection, owned by anyone. And anything that is to count as cognitive, I shall argue, must be owned by someone or some thing” (ibid, p94).

Yet I shall argue that the notion of disclosing or revealing activity seems to lead directly to bloat. For if we extend this notion to include environmental processes – that is, we have ownership of environmental processes because they disclose or reveal the world to us - then this means we can potentially have ownership over any and every object or process that we encounter in the environment.

For example, when I look at the tomato on the kitchen counter, I can have ownership of the tomato since it is now part of the environmental processes that disclose or reveal the world to me. But I would also have ownership over any and every aspect of my kitchen once it is understood that such aspects are all part of the environmental processes that disclose or reveal the world to me. Moreover, even when I glance out of the kitchen window, I can have ownership of the passing cars on the road since they are now part of the environmental processes that disclose or reveal the world to me. Clearly, this is to expand my mind rampantly into the environment, that is, it is to incur a form of cognitive bloat given that there now are no limits to what may count as part of my mind. Of course, whether or not this qualifies as an objection to Rowlands’ view depends on how serious a problem one thinks cognitive bloat poses. Yet given that Rowlands claims his ownership argument is designed to avoid bloat, then this objection arguably challenges Rowlands’ claim.

One way that Rowlands could avoid such bloat worries is to restrict the notion of revealing or disclosing activity to just bodily processes. That is, the agent only has ownership over their bodily processes and not also ownership over bodily external environmental structures or processes. The difficulty with such a maneuver however is that Rowlands’ ownership argument then does not reconcile embodied mind and extended mind since it only provides evidence for embodied mind and not also evidence for extended mind. In which case, it is not clear how Rowlands can support the claim that his mark of the cognitive reconciles embodied and extended mind approaches.

Alternatively, Rowlands could concede that his mark of the cognitive only demonstrates embodied mind. That is, all four conditions of his mark can be fulfilled by properties of bodily processes. The problem with this move is two fold. First, it is unclear what it means to say that bodily processes involve (1) the manipulation of information bearing structures that (2) have the proper function of making new information available to the agent. Second, on this reading of Rowlands' mark, Otto's use of his notebook is no longer cognitive. At best, the Otto example is evidence for embedded mind, that is, evidence for the important (perhaps crucial) causal dependence between Otto and his notebook in Otto's recall of the location of the museum. But given that Rowlands sets out to exclude embedded mind from his account, then this reading is unlikely to appear that attractive.

I would contend that the best option available to Rowlands is to restrict his mark to condition 4 and settle for condition 4 – his ownership argument – establishing embodied mind. Rowlands' project then would not be, as the title suggests, "From Extended Mind to Embodied Phenomenology", but rather the more prosaic (but still potentially interesting), "Embodied Phenomenology". The advantage of this move would be that it would fit with the phenomenological pretensions of his account of intentionality and it would have the merit of showing how bodily processes can become real parts of the minds of agents and so go some way towards substantiating a non-Cartesian cognitive science. Yet it would nonetheless leave it undecided how any such science could reconcile embodied mind and extended mind. In which case, Rowlands' Amalgamated Mind, as interesting and thought provoking as it is, is illustrative of the sort of tension that still remains at the heart of 4e.

5 Conclusion

Mark Rowlands attempts to provide the conceptual foundations for a non-Cartesian cognitive science. His approach has much to recommend it yet I have argued that it fails in one crucial respect. This is because it fails to bring about any sort of reconciliation between embodied mind and extended mind. The larger moral that can be drawn is that the conceptual geography of 4e is a highly fractured affair. Enacted mind is not compatible with extended mind.⁴⁰ Embedded mind is "neo-Cartesian" and so is opposed to the sorts of considerations that support extended mind. Enacted mind is a version of

⁴⁰ This, of course, is the claim that this thesis sets out to demonstrate.

embodied mind and embodied mind and extended mind have not been shown to be compatible. That is, although one could potentially endorse either embodied mind or extended mind, I would suggest that Rowlands fails in his endeavor to show how one could endorse both.

Chapter 4

Sensorimotor Knowledge and the radical alternative ⁴¹

1 Introduction

O'Regan and Noë (2001) have argued that what you do and what you know how to do constitutes your visual experience. Sensorimotor theory challenges internalist notions by claiming that it is embodied know-how or skillful engagement with the environment that realizes such experience. This theory has undergone many changes since its inception in 2001 (for example, see Noë and O'Regan, 2002; Noë, 2004, 2009; O'Regan, 2011) yet throughout these changes, proponents of the theory have remained committed to the claim that visual experience is realized by embodied know-how or skillful engagement. Indeed, Noë (2004) states that “[t]his is one of the central claims of the enactive or sensorimotor approach to perception” (p64)

The theory has had some high profile critics. Jesse Prinz (2006), Ken Aizawa (2007), Andy Clark (2009) and Ned Block (2005) have all argued that it faces a number of important objections. In this chapter, I will focus on three of these objections: the empirical implausibility objection, the learning/post-learning objection and the causal-constitutive objection. I will argue that although the theory (both in its original 2001 formulation and later incarnations) can respond to the first two objections, its commitment to know-how ultimately renders the theory vulnerable to the third and arguably most serious objection.

I think this leaves the theory with two options. It could concede the point to the causal-constitutive objection. Sensorimotor theory then becomes a methodological and/or epistemic claim about visual experience. Or the theory could challenge the objection. I shall argue that sensorimotor theorists should endorse option two. I will suggest that they do this by “going radical”. Utilising arguments

⁴¹ This chapter has been published as Loughlin (2014).

offered by those who have both criticized and developed sensorimotor theory (for example, Hutto, 2005, and Hutto and Myin, 2013), this chapter will describe how a radical version of sensorimotor theory can successfully challenge the causal-constitutive objection.

The layout of this chapter is as follows. In section 2, I offer a brief outline of sensorimotor theory. In section 3, I examine three objections that challenge sensorimotor theory and argue that the causal-constitutive objection poses the most serious challenge. In section 4, I sketch out a radical sensorimotor theory.

2 Sensorimotor theory

O'Regan and Noë (2001) argue that “vision is a mode of exploration of the world that is mediated by knowledge of what we call sensorimotor contingencies” (p940). Sensorimotor contingencies are understood to be relations of lawful dependence between features of an agent’s sensory apparatuses and features of the agent’s environment. These contingencies are sensory since they refer to the agent’s sensory apparatuses (for example, eyes, ears, hands, noses etc) and they are motor since they refer to how those apparatuses react to the environment during movement by the agent.

For example, a sensorimotor contingency unique to human vision is the following:

“If you are looking at the midpoint of a horizontal line, the line will trace out a great arc on the inside of your eyeball. If you now switch your fixation point upwards, the curvature of the line will change; represented on a flattened-out retina, the line would now be curved. In general, straight lines on the retina distort dramatically as the eyes move, somewhat like an image in a distorting mirror” (O'Regan and Noë, 2001, p941).

O'Regan and Noë argue that this demonstrates the lawful dependence between movement of a human sensory apparatus (the eyeball) and a feature of the environment (a horizontal line). They also argue that each human sensory modality - vision, touch, taste, sound and smell - corresponds to a unique set of sensorimotor contingencies (ibid).

The key claim O'Regan and Noë make in their 2001 paper is that it is an agent's practical knowledge of sensorimotor contingencies - the agent's sensorimotor know-how - that constitutes the agent's visual experience.

For example,

“the feeling of seeing a stationary object consists in the knowledge that if you were to move your eye slightly leftwards, the object would shift one way on your retina, but if you were to move your eye rightwards, the object would shift the other way. The knowledge of all such potential movements and their results constitute the perception of stationarity” (O'Regan and Noë, 2001, p949).

It is worth noting that there is nothing inherently controversial in the claim that what an agent does influences what the agent perceives. It is a commonplace to assert that actions help shape and guide perception. Where O'Regan and Noë's sensorimotor theory earns its spurs however is in the constitutive role it assigns to embodied know-how or practical understanding. For sensorimotor theory, knowledge or mastery of sensorimotor contingencies is more than just causally important to visual experience. Rather know-how or skillful engagement with an environment is what constitutes or realizes that experience.

Significantly, Shapiro (2011) identifies two possible interpretations of this claim. On the first weaker interpretation, it is only necessary that an agent have the potential to exercise sensorimotor contingencies. According to this interpretation, “it is important only that one has, sometime in the past, acted on the world in ways that created knowledge of sensorimotor contingencies” (Shapiro, 2011, p168). As Shapiro notes, this interpretation is available when, for example, O'Regan and Noë claim that perception of stationarity is dependent on “the knowledge of all such *potential* movements”. On the second stronger interpretation, the agent has to “actually practice those actions that reveal sensorimotor contingencies” (ibid). This interpretation is available when, for example, O'Regan and Noë claim that it is movement or action that reveals the sensorimotor dependence between the eyeball and the horizontal line. These two interpretations of what I will call the knowledge claim will play

important and decisive roles in the following section.⁴²

3 Objections and replies

3.1 The empirical implausibility objection

A prominent objection to sensorimotor theory is that it is empirically implausible to think that actions or bodily movements are needed in order to have sensory experience. Prinz (2006) offers examples that suggest this claim is empirically implausible when applied to visual experience and Aizawa (2007) offers an example that suggests it is implausible when applied to tactile and/or auditory experience.

Prinz states that

“[p]erception is not impaired by spinal cord injuries that cause paralysis, by paralysis of eye muscles or brain structures that control them, by atrophy of motor cortex in Lou Gehrig’s disease, by destruction of action-control centers in parietal cortex, or in frontal cortex (which are presumably destroyed in many cases of Broca’s aphasia)... [I]t is certainly noteworthy that no motor deficits seem to undermine the ability to perceive. There are clear dissociations between perception and action. People with motor deficits can see the world, and people with perceptual deficits can act in it” (Prinz, 2006, p10).

Prinz’s claim is that people suffering from paralysis of the body still retain the ability to perceive the world around them. In which case, it is empirically implausible to argue, as he suggests sensorimotor theorists do, that visual experience is always dependent on bodily movement. As he puts it, there are important dissociations between perception and action.

Aizawa (2007) recounts an example of someone who experienced awareness of touch and sound during

⁴² One of the ways in which sensorimotor theory has been developed since its inception in 2001 is by applying the theory to sensory modalities other than visual experience. For example, Cooke and Myin (2011) offer a discussion of how a broadly sensorimotor approach is applicable to smell. Applying sensorimotor theory to modalities other than visual perception raises its own set of issues. Nonetheless, I would argue that any applications of the theory that retain a commitment to embodied know-how or skillful engagement will have to address the issues outlined in section 3.

surgery despite the administration of anesthesia and neuromuscular blockades. He describes a 74-year old woman who “recalled that during her operation “1) she felt pain during the incision of the abdomen, 2) she heard the operator say, “It is difficult to remove all tumors because the adhesion is very strong” and 3) she remembered someone had been walking around her”” (Aizawa, 2007, p23). This would seem to demonstrate the empirical implausibility of the claim that an agent must move or act in order to have tactile and/or auditory experience of the world around them.

The empirical implausibility objection has had some high profile advocates and although the original 2001 version of sensorimotor theory primarily focused on visual experience, it is relatively straightforward to see how the Aizawa example could be used to block the application of the theory to other forms of sensory experience. Yet I am going to suggest that O'Regan and Noë's original claim has the means to respond to this objection.

As we have seen, O'Regan and Noë claim that visual experience is constituted by know-how of sensorimotor contingencies. Following Shapiro, we identified two possible interpretations of this claim. On the weak interpretation, visual experience only requires the potential to exercise these sensorimotor contingencies. That is, as long as an agent has exercised the relevant contingencies at some point in the past, then they can obtain the relevant experience. However, on the strong interpretation, the agent must realize the relevant contingencies now through actions or bodily movements in order to have the experience.

I would argue that it is the strong interpretation that the Prinz and Aizawa examples target. For if paralysed individuals can still have experience (visual in the Prinz example, tactile and auditory in the Aizawa example), then this suggests that any strong interpretation of the O'Regan and Noë claim is indeed empirically implausible. An agent need not always act or move in order to have sensory experience.

However, if O'Regan and Noë were to reject the strong interpretation and instead adopt the weak interpretation, then they would have the means to respond to the objection. For if it is the potential role played by embodied know-how that constitutes sensory experience, then this practical understanding

can remain even if an individual is currently unable to move. On this interpretation, it an agent's *acquired practical knowledge* or *understanding* of how bodily movement and sensory stimulation depend upon each other that constitutes their experience and not simply their current bodily movement. Hence, a paralysed individual can retain visual experience (and/or tactile and auditory experience) since they possess this acquired know-how. A weak interpretation of the knowledge claim then is not vulnerable to the empirical implausibility objection since such an interpretation does not entail that the agent must currently act or move in order to have sensory experience.

3.2 The learning/post-learning objection

One of the ways in which O'Regan and Noë's sensorimotor theory has been developed is by using it to explain sensory substitution devices. For example, it has been used to explain how agents can gain experience of the world around them via Bach-y-Rita's Tactile Vision Substitution System or TVSS (1972).⁴³

TVSS consists of a head or eyeglass mounted camera whose visual output is transduced to trigger an array of vibrators which are placed somewhere on the body of a blind (or blindfolded) subject. After training with the device, during which time the subject moves with the device and learns how movement alters the sensory tactile input, subjects begin to report experiencing objects arrayed in three-dimensional space around them. It is also reported that they are able to make judgments about the number, relative size and position of objects in their environment (Noë, 2004, p26).

Noë (2004) has argued that a TVSS device enables the user to replicate (albeit in a limited way) the sensorimotor interaction that a normal-sighted person would have with their environment. He claims

“[t]actile vision is vision-like because (or to the extent that) there is, as it were, an isomorphism at the sensorimotor level between tactile vision and normal vision. In tactile vision, movements with respect to the environment produce changes in stimulation that are similar in pattern to those encountered during normal vision. The same reservoir of sensorimotor skill is drawn on in both instances” (2004,

⁴³ For more recent versions of such devices, see O'Regan, 2011.

p27).

In other words, the TVSS user is able to gain vision-like experience because they acquire the embodied know-how of the sensorimotor contingencies that, in a sighted person, normally governs visual interaction with an environment.

However, Clark (2009) challenges this explanation of TVSS. He argues that TVSS is not evidence that the vision-like experience of the TVSS user is realized by sensorimotor contingencies. Clark argues that it is problematic to take “evidence for the role of whole sensorimotor loops in *training and tuning* the neural systems that support conscious perception for evidence of the ongoing role of such loops” (p970, emphasis in original). This is because “nothing in the evidence makes this the case. Perhaps embodied activity is just a causal precondition of setting or re-setting parameters in neural structures that once set and activated, suffice for the experience in question” (ibid). In other words, there may be an important learning/post-learning distinction (what Clark calls “training and tuning”) and it is only during learning to use the TVSS device that sensorimotor contingencies play a crucial or pivotal role.

In response to Clark, I will argue that, as with the empirical implausibility objection, the sensorimotor theorist can reply to a learning/post-learning objection (though such a reply may not save the theorist, as we will soon see).

Given Clark’s learning/post-learning distinction, it would seem to follow that in any post-learning phase only internal factors can constitute the vision-like experience of the TVSS user. As we have seen, TVSS is a touch-based apparatus (since it consists of an array of vibrators placed somewhere on the body) and consequently principally activates (among other things) the somatosensory cortex in the brain of the user (Noë, 2004, p27). The only internal factor that can be appealed to then in a post-learning phase is the somatosensory cortex. The sensorimotor theorist can thus argue that the internalist needs to explain how and why such cortex can realize vision-like experience. That is, how and why does such cortex support vision-like experience as well as tactile experience?

Hurley and Noë (2003, p145) argue that cortex can acquire visual properties when it is embedded

within the particular sensorimotor dynamics characteristic of that modality. If so, then the somatosensory cortex of the TVSS-user can be part of the physical processes that realize vision-like experience because such cortex now defers to the skillful patterns of sensorimotor contingency characteristic of visual experience. The advantage of this explanation for the sensorimotor theorist is two-fold. First, it clarifies how cortex that is associated with touch can, when embedded within the right extended sensorimotor dynamics, also become associated with vision and so explains the experience of the TVSS user. Second, it suggests that even if there is a learning/post-learning phase in the TVSS user's experience, internal factors alone cannot explain this since the internal factor i.e. the activation of somatosensory cortex, remains relatively constant.

Clark however is not swayed by these considerations (see 2009, pp971-972). Moreover, Clark could argue that the weak interpretation of the knowledge claim is in fact compatible with the learning/post-learning distinction. For the weak interpretation only requires that sensorimotor contingencies have been exercised at some point. If the exercise of sensorimotor contingencies were to occur during the learning phase (after which sensorimotor knowledge assumes a potential role), then this is compatible with Clark's claim that during a post-learning phase internal (neural/Central Nervous System) processes assume the pivotal role in TVSS. Clark would need to show how somatosensory cortex could realize visual experience. But if, as he argues, the sensorimotor explanation is only an explanation about the *content* of the TVSS user's experience, then such an explanation does nothing to exclude "standard internalist views about the local (neural) *vehicles* of content" (2009, p971, emphasis added).⁴⁴ Thus, a weak interpretation might actually support rather than challenge Clark's learning/post-learning distinction. This point will be developed further in section 3.3. For now it will suffice to note that issues of know-how could potentially be problematic for sensorimotor theory.

3.3 The causal-constitutive objection

Block (2005) claims that "even if perceptual experience depends causally or counterfactually on movement or another form of activity, it does not follow that perceptual experience constitutively involves movement" (p6). He argues that how experience is produced merely reveals the causal basis

⁴⁴ Though see the hard problem of content (section 4 of this chapter) for a possible reply to this move by Clark.

of perceptual experience and does not reveal what constitutes that experience. This is because “[t]o suppose that the issue is one of how experience can be produced is to shift the topic from a constitutive issue to a causal issue. Certainly the causal sources of our experience include sensorimotor causal loops, but that does not settle the constitutive question” (ibid).

Recall that for O’Regan and Noë, “vision is a mode of exploration of the world that is mediated by knowledge of what we call sensorimotor contingencies” (2001, p940). The causal-constitutive objection is the claim that how visual experience is produced is a separate issue from what experience is. In other words, determining the causal basis of visual experience does not determine what constitutes that experience. Thus, even if embodied know-how may cause perception, this fails to show that such know-how is part of the metaphysically necessary conditions needed for perception to occur.

In section 2, I introduced Shapiro’s distinction between the weak interpretation and the strong interpretation of what I called the knowledge claim. As section 3.1 showed, the strong interpretation is empirically implausible. This leaves the weak interpretation. Yet the weak interpretation looks vulnerable to the causal-constitutive objection.

Consider the following example. O’Regan and Noë claim “the feeling of seeing a stationary object consists in the knowledge that if you were to move your eye slightly leftwards, the object would shift one way on your retina, but if you were to move your eye rightwards, the object would shift the other way” (2001, p949). Yet Block could reply that acquiring the feeling of seeing a stationary object may initially involve engaging sensorimotor know-how i.e. learning how the perception changes with certain bodily movements. But on the weak interpretation, once this visual experience is acquired, then sensorimotor know-how assumes a potential role and a potential role is just that - all it means in reality is that you just see the stationary object. There is in fact no longer any need for embodied know-how.

This opens the door to the causal-constitutive objection. For if sensorimotor know-how is only required during the acquisition of visual experience, then it can only show how such experience is produced and not what constitutes that experience. Moreover, as we saw in section 3.2, the weak interpretation is compatible with the claim that internal (neural/Central Nervous System) processes could be the

metaphysically necessary conditions that realize or constitute visual experience. Simply put, sensorimotor know-how may cause perception but it is still the brain and processes within it that constitute it.

The causal-constitutive objection thus amounts to a two-pronged attack on the knowledge claim: (1) sensorimotor know-how only reveals how visual experience is produced and not what constitutes or realizes that experience and (2) an orthodox, internalist view of visual experience is actually compatible with claims about sensorimotor know-how. Since the knowledge claim is central to sensorimotor theory, then this is arguably the most serious objection faced by the theory.

What then are the options for sensorimotor theory? I think there are two possibilities. One is to simply concede the point to the causal-constitutive objection. Since the objection targets the constitutive claims made by sensorimotor theory, then the theory could just drop those commitments. Sensorimotor theory then becomes a methodological claim about how we should investigate visual experience and/or an epistemic claim about how we come to have knowledge about (rather than for) such experience. These claims may still be significant even if they would entail a downgrading of the ontological reach of the theory.

However, a further option is to challenge the causal-constitutive objection. It is this option that I shall argue for. Hutto (2005) and Hutto and Myin (2013) have both criticized and subsequently refined the original claims made by O'Regan and Noe. In the following section, I shall show how Hutto's development of sensorimotor theory and Hutto and Myin's radical enactivism potentially gives sensorimotor theory the necessary firepower to challenge this objection.

4 Going radical

If sensorimotor theory is to challenge the causal-constitutive objection, then it will need to (1) undermine the picture of visual experience that the objection assumes and (2) show why rival internalist accounts of visual experience – the sort of accounts that would support the causal-constitutive objection - are themselves problematic.

Hutto (2005) argues that sensorimotor theory should abandon the idea that know-how is needed for visual experience. He claims, “the basic *character* of perceptual experience is determined by the features of the different sensory modalities and how they respond to specific objects” (2005, p395, emphasis in original). But he denies that this requires any form of knowledge:

“it is not knowledge – not embodied know-how per se – that gives perceptual experiences their character but *facts about the nature of our embodiment in relation to particular active engagements*. These are facts that we do not know and do not need to know in order to have experiences” (2005, p401, emphasis added).

For example,

“I know that if I take an object from a well lit room to a poorly lit one it will look different. In which ways, I cannot say exactly – even when the object is familiar to me. This does not mean that the way I experience is not dependent upon the appropriate sensorimotor contingencies, only that it is not knowledge of them, at any level, that matters to my perceiving” (2005, p398).

On Hutto’s account of sensorimotor theory, visual experience is constituted by sensorimotor contingencies but it is not dependent on knowledge or know-how of those contingencies. I think this abandonment of know-how helps undermine the picture of visual experience that the causal-constitutive objection assumes. According to the causal-constitutive objection, sensorimotor know-how only reveals how visual experience is produced and not what constitutes or realizes that experience. Contrarily, on the Hutto view, how experience is produced is determined by facts about our embodiment in relation to particular active engagements. This entails that these facts and the determining role they play constitute visual experience. In other words, the “how” and the “what” of visual experience have the same explanans: facts about our embodiment reveal both how experience is produced and what constitutes or realizes that experience. This is a very different picture of experience

from that assumed by the causal-constitutive objection.⁴⁵

However, this is only the first stage in a possible challenge to the causal-constitutive objection. The second stage is to show why rival internalist views about visual experience are problematic.

Internalism requires that the brain play a privileged role in perception. There are a number of considerations that could support this view. One is that future empirical work will reveal that there are special mechanisms within the brain that ensures that the brain plays this special role. If there are any such mechanisms, then the brain is indeed privileged over any potential bodily interaction with an environment. This possibility, were it confirmed, would challenge any externalism about visual experience, though as Hurley and Noë (2003) have shown, claims about brain mechanisms are compatible with sensorimotor explanations. Nonetheless, since it is arguable that evidence of such a possibility is (at present) not available, I will set-aside this consideration for the moment.

Another consideration available to the internalist is to argue that the brain is privileged over bodily interaction because it processes information about the external world, that is, it “trades in” or “traffics in” informational content about the world. Claims about content are at the heart of the orthodox input-output view of visual processing. The story goes something like this: information arrives in the brain via the sensory organs and it is then processed according to certain rules or algorithms. This results in some representational state with informational content about the world. This state then leads to further processing and/or signals being sent to the peripheries and possible bodily movement. Such a story obviously privileges the role of the brain (since this is where the real action happens) and consequently provides support for an internalist view about perception.

However, Hutto and Myin (2013) argue that such an internalist story must to face up to what they call the Hard Problem of Content. This is the problem that “positing informational content is incompatible with explanatory naturalism. The root trouble is that Covariance doesn’t Constitute Content” (2013, p xv).

⁴⁵ Rowlands (2010a, p78) argues that enacted mind (what I call sensorimotor theory) is in fact a claim about embodiment. I think Hutto’s version of sensorimotor theory would agree with this. On the Hutto view, the theory is a claim about the embodied nature of visual experience.

Information-as-covariance is the information revealed when there is a reliable covariance between states of affairs. For example, the rings of a tree reliably co-vary with the age of the tree such that the rings can be used to obtain information about the age of the tree. However, “[a]nything that deserves to be called content has special properties - e.g. truth, reference, implication - that make it logically distinct from and irreducible to mere covariance relations holding between states of affairs. Though covariance is surely scientifically respectable, it isn’t able to do the required work of explaining content” (Hutto and Myin, 2013, p67). This entails that states of affairs “do not ‘say’ or ‘mean’ anything just in virtue of instantiating covariance relations” (ibid). In other words, information-as-covariance does not constitute information-as-content.

This leads Hutto and Myin to make the following claim:

“[i]f covariance is the only scientifically respectable notion of information that can do the work required by explanatory naturalists, it follows that informational content doesn’t exist in nature – or at least it doesn’t exist independently from and prior to the existence of certain social practices. If informational content doesn’t exist in nature, then cognitive systems don’t literally traffic in informational content...[T]here is no naturally occurring informational content in the world” (Hutto and Myin, 2013, pxv).

If Hutto and Myin are right, then the sort of internalist story of visual experience sketched earlier must confront the hard problem. For if the brain is privileged during perception because it “trades in” or “traffics in” informational content about the external world via internal representational states, then it needs to be shown how this claim can be given a naturalistic explanation. That is, it needs to be shown how the sorts of informational covariances that can be confirmed between brain states and events in the external world can substantiate claims about informational content.

The internalist has a number of options here. One is to argue, “contentful properties exist even if they don’t reduce to, or cannot be wholly explained in terms of, covariance relations” (Hutto and Myin, 2013, p68). Such properties might be explained by, for example, “some future physics”. Another

option is to claim that such properties might be “explanatory primitives – metaphysical extras that might be externally related to covariance properties” (ibid). This “might require us to expand our understanding of the scope of the natural” (Hutto and Myin, 2013, pp68-69).

A further move is to simply deny that covariance doesn’t constitute content and show that contentful properties do reduce to covariance properties (Hutto and Myin, 2013, p69). Yet, as Hutto and Myin note, “the metaphysical costs [of this move] will be too heavy for most” (ibid). Alternatively, the internalist could aim to “show that the required notion of information is meatier than covariance but is nonetheless equally naturalistically respectable” (ibid). However, the obvious candidate here – Dretske’s indication relations (1988) - seems to go beyond information-as-covariance (Hutto and Myin, 2013, p70).

I will not adjudicate on these various options. I list them merely to show what is involved in confronting the hard problem and the sorts of questions an internalist must answer if they wish to claim, for example, that the brain plays a privileged role because it utilizes internal representational states with informational content.

I think these various considerations demonstrate how “going radical” can offer sensorimotor theory a way to challenge the causal-constitutive objection. First, the theory abandons the knowledge claim, that is, abandons the claim that embodied know-how is needed for visual experience.⁴⁶ This succeeds in undermining the picture of experience assumed by the objection. Second, the theory argues that any internalist view of perception that is committed to informational content must confront the hard problem. A radical sensorimotor theory avoids the hard problem by denying that there are naturally occurring informational contents in the brain for basic perceptual states and arguing instead that although the brain is necessary for such states, it is not privileged over body-world interaction. Thus,

⁴⁶ If a radical sensorimotor theory abandons the knowledge claim, then how does it explain the visual experience of, say, someone who is paralysed? On the Hutto reading, an agent’s visual experience is constituted by facts about the agent’s embodiment. Someone who is paralysed remains an embodied agent. The extent to which their embodiment differs from an able bodied person will be the extent to which their visual experience differs from an able bodied person. But, conversely, the extent to which their embodiment remains the same will also be the extent to which their visual experience remains the same.

contrary to the causal-constitutive objection, a radical sensorimotor theory can retain its ontological commitments since it can affirm the constitutive role assigned to sensorimotor contingencies.⁴⁷

5 Conclusion

I have examined three objections to sensorimotor theory: the empirical implausibility objection, the learning/post-learning objection and the causal-constitutive objection. I have argued that although the theory can respond to the first two objections, it remains vulnerable to third and most serious objection. I then suggested that this leaves the theory with two options: concede the causal-constitutive objection or challenge it. I argued that sensorimotor theory should endorse the second option. I claimed that it could do this by “going radical”. This involves abandoning the knowledge claim and rejecting informational content as needed for basic perceptual states. Setting aside concerns to do with special mechanisms, I conclude that a radical sensorimotor theory can potentially challenge this objection.

⁴⁷ The internalist might still object that the issue is to do with the supervenience of the mental on the physical and not to do with the issue of content. That is, even if there are no contents (and no vehicles) for basic perceptual states, the mind could still supervene on the brain. I would admit that this remains a possibility. However, if there are no such vehicles and contents, and we accept that there is no evidence (at present) for special mechanisms in the brain that would justify an internalist position, then the onus is on the internalist to provide an argument as to why we should take internalism seriously. For once vehicles and contents are out of the picture, then one of the strongest motivations for an internalist position is removed. In which case, although internalism may remain a possibility, a further argument is required if it is to be regarded as anything more than that.

Chapter 5

REC, Wittgenstein and the cognitive gap

1 Introduction

REC or Radical Enactive (or Embodied) Cognition (Hutto and Myin, 2013) aims to show that creatures can respond in lots of sophisticated, informationally sensitive ways to their environments without the use of internal mechanisms that present or represent the world as being a certain way. REC thus sets out to fulfill what it sees as the original ambition of embodied approaches to the mind, namely to “call into question the assumption – prevalent throughout cognitive science – that cognition consists in the representation of a world that is independent of our perceptual and cognitive capacities” (Varela, Thompson and Rosch, 1991, pxx, as quoted in Hutto, 2013a, p5). REC does this by challenging the idea that we have to posit sub-personal content-involving states in order to explain mind and cognition. According to REC, such an idea confronts a so-called Hard Problem of Content, the avoidance of which entails abandoning the claim that informational content is a ubiquitous feature of the natural world. Given that contentful, representational states constitute a mainstay in orthodox cognitive science, then REC amounts to nothing less than a full frontal assault on that orthodoxy.

Hutto and Myin describe informational content in the following terms: “[a]t its simplest, there is content wherever there are specified conditions of satisfaction. And there is true or accurate content wherever the conditions specified are, in fact, instantiated” (ibid, px). They claim that, “a surprising amount of mental life (including some canonical forms of it, such as human visual experience) may well be inherently contentless” (ibid, pxviii). For example, they argue that although perceptual experiences “can incline or prompt explicitly contentful beliefs and judgments, [such experiences do] not, in and of themselves, attribute properties to the world” (ibid, p87). They also claim that reaching and grasping are non-contentful behaviours since “[a]n individual’s manual know-how and skills are best explained entirely by appealing to a history of previous engagements and not by the acquisition of

some set of internally stored mental rules and representations” (ibid, p47). Hutto and Myin use these various examples to support their (highly contested) view that, “[o]ur most basic ways of responding to worldly offerings are not semantically contentful” (ibid, p82).

However, Hutto and Myin also acknowledge that, “some cognitive activity – plausibly, that associated with and dependent upon the mastery of language – surely involves content” (ibid, pxviii). That is, they do not deny the “importance of contentful and representationally based modes of thinking” (ibid, p13) since they accept that “some problems (indeed, perhaps whole classes of problems) are best addressed through advanced careful planning – planning of the sort that requires the rule-governed manipulation of truth-evaluable representations” (ibid, p40). For “[a]s natural language users, we humans are representation mongers of this sort” (ibid, p41). This suggests that, according to REC, linguistic behavior is contentful behavior. That is, it involves informational content.⁴⁸

REC therefore draws a distinction between the sorts of contentless, non-representational behaviours that are exhibited by basic minds (behaviours which can be sophisticated, even skillful and expert) and the sorts of contentful, representationally based behaviours that are exhibited by non-basic minds. Hutto and Myin refer to these latter sorts of behaviours as “scaffolded”, appealing to a version of Sterelny’s Scaffolded Mind Hypothesis (2010) whereby some “human cognitive capacities both depend on and have been transformed by environmental resources” (Sterelny, 2010, p472, as quoted in Hutto and Myin, 2013, p138). That is, non-basic minds are scaffolded by shared social and linguistic practices.

This distinction between basic minds and non-basic minds raises the following issue. If we, as natural language users, are capable of both non-contentful and contentful behavior, then what is the relationship between these two types of behaviors? In other words, how does non-contentful behavior (reaching, grasping, perceiving etc) give rise to, or allow for the emergence of, contentful behavior such as advanced careful planning? This is what I will call the ‘cognitive gap’ question. Hutto and Myin refer to this question when they state that, “[t]he ultimate task is to explain how basic minds make the development of contentful forms of cognition possible when the right supports, such as

⁴⁸ It suggests this link between linguistic behavior and contentful behavior. REC does not offer an explicit argument in support of such a link.

shared social practices, are in place” (ibid, p36). In separate writings, Hutto (2013a) lays out the gap question in the following terms:

“In abandoning the representationalist’s starting point it can seem that enactivists *owe* a different sort of explanation, one that accounts for *how – and not just that* – contentful thinking emerges or ‘comes into being’ under the right conditions. That obligation seems to follow for any enactivist who admits that contentful thinking is a feature of some sophisticated minds while denying that the capacity for thinking contentful thoughts is a feature of primitive minds.” (Hutto, 2013a, p20, emphasis in original)

However, as Hutto also shows, there are a number of ways of responding to this question. For example, contrary to REC, one could simply deny the existence of contentful behaviour (according to Hutto, “[o]nly *really* radical enactivists would dare go this way” (ibid, p21, emphasis in original)). Or one could argue that even simple organisms like bacteria should be admitted into the cognitive club (e.g. Thompson, 2007) and hence there is no real cognitive gap. Alternatively, one could “aim to close the cognitive gap by *explaining* how contentful, symbolic thought could emerge while assuming that the most basic, primitive minds start life without content” (Hutto, 2013a, p22, emphasis added). This is the option endorsed by some (e.g. Froese and Di Paolo, 2009) yet Hutto claims that all attempts so far fail to offer any sort of explanation (Hutto, 2013a, p23).⁴⁹

An explanation seems needed if the non-contentful behaviour exhibited by basic minds and the contentful behaviour exhibited by scaffolded non-basic minds constitute some form of continuum with non-contentful behaviour at one end and contentful behaviour at the other. It then becomes necessary to explain how the former leads to, or brings about the emergence of, the latter. Yet Hutto also indicates that there may be another way to understand the gap issue. This would require denying that, “enactivists owe us explanations of the same sort as those promised by their intellectualist rivals – i.e. explanations that answer a demanding, philosophical explanatory need” (ibid, p26).

⁴⁹ Hutto’s (2013a) criticism of current enactive efforts to close the cognitive gap is subtle. He claims that such efforts fail because they only offer “descriptions or illuminating characterizations of the conditions for the emergence of contentful minds. What is on offer is a string of descriptive claims, not a set of explanatory proposals” (p24). However, he then claims that the mistake they make is to offer an explanation: “these enactivist observations, worthy as they are, in no way help to close the cognitive gap, *where that is conceived as a philosophical problem*” (p25, emphasis added). Hutto’s view, as we shall see, is to deny that an explanation is in fact needed.

In this chapter, I intend to explore this alternative way to understand the cognitive gap. Following Hutto's claim that "[b]y towing a Wittgensteinian line enactivists can understand the ambitions of their project in a tenable way" (ibid, p3), I will argue that by endorsing a broadly Wittgensteinian approach, REC can dissolve the cognitive gap question.

McGinn (2013) argues that the philosophical significance of later Wittgenstein's remarks resides "on the one hand, in the overcoming of certain deep seated philosophical myths and inclinations, and on the other, in the reorientation of our style of thought towards what lies open to view in our practice of using language" (p130). I shall claim that the cognitive gap is an example of a "philosophical myth and inclination". That is, it is a problem that seemingly only emerges when we sit down to philosophise about aspects of human mentality. I shall claim that the correct response to the cognitive gap then is to see that there is no such gap and the way to do this is by "reorienting" ourselves to "what lies open to view" in our practices and activities.

I intend to demonstrate this point in the following way. For later Wittgenstein (1992, 2001), our psychological judgments are characterized by uncertainty and this is what distinguishes such judgments from judgments we make about, say, colour or physical objects. However, Wittgenstein does not view these differences in our judgments as constituting a continuum such that we need to explain how one type of judgment give rise to, or allow for the emergence of, another type of judgment. Rather such differences reveal aspects of our complex form of life.

As Hutto (2013a) notes, the notion of form of life offers one way to link (or at least draw a parallel between) Wittgenstein and the sorts of considerations favoured by enactivists. I shall claim that once we link REC with Wittgenstein via the notion of form of life, then this shows how to dissolve the cognitive gap. Following readings of form of life available in McGinn (1997), Ter Hark (1990) and Hutto (2006), I will show how this notion plays a constitutive role i.e. it is an appeal to the conditions that make possible all of the aspects of our various language-games. If we understand form of life in such constitutive terms, then form of life is also what makes possible all aspects of human mentality. In which case, there can be no cognitive gap between basic minds and non-basic minds since both are part

and parcel of our complex form of life. Yet this may seem to raise another gap between, say, form of life and basic minds, and/or between form of life and non-basic minds. This possibility is avoided however once we clarify form of life's constitutive role. For this role ensures that although we can *speak* of the conditions that make possible human mentality (natural responsiveness, training, abilities etc), and although we can *describe* these conditions (and the mentality they make possible), such conditions can ultimately only be *shown, revealed or manifested* by our various practices and activities. If so, then there can be no explanatory gap i.e. in Hutto's terms, a "demanding, philosophical explanatory need", between aspects of those practices and activities. In short, once we refocus our attention on what we do and say, then there is no cognitive gap.

For ease of exposition, we can rephrase these points schematically. The cognitive gap is the gap between X and Y. The gap can be dissolved once it is realized that Z constitutes X and Y. The constitutive role of Z ensures that although Z can be spoken of, Z can only be shown or revealed by X and Y. In which case, there can be no explanatory gap between X and Y since X and Y are part of Z and we cannot theorise or explain Z. However, this doesn't preclude us from offering detailed descriptions of X and Y⁵⁰, or of speaking of the conditions that make up Z.

The lay out of this chapter then is as follows. In section 2, I will introduce later Wittgenstein's claims about psychological judgments. In section 3, I will outline REC. In section 4, I will discuss the notion of form of life and how using this notion to link Wittgenstein and REC suggests a possible response to the cognitive gap question. Just to clarify, the argument given in this chapter is predicated on one accepting the readings of human mentality given by REC and the sorts of notions that can be found in later Wittgenstein's philosophical writings. Consequently, my argument does not exclude other ways to approach the gap issue. Instead, this chapter merely seeks to identify how later Wittgenstein can be appropriated by REC in such a way as to avoid the cognitive gap.

⁵⁰ This may be one way to understand the sort of accounts offered by, say, Froese and Di Paolo (2009) i.e. in Hutto's (2013a) terms, as "a string of descriptive claims".

2 Wittgenstein and psychological judgments

Monk (1991) claims that the “really decisive moment” (p302) between Wittgenstein’s transitional and mature phase of philosophy comes about when Wittgenstein, “came to take literally the idea of the Tractatus that the philosopher has nothing to *say*, but only something to *show*” (ibid, emphasis in original). I shall claim that this insistence on having something to show is evident in later Wittgenstein’s discussions on psychological judgments. What Wittgenstein attempted to show was that such judgments are characterized by uncertainty. Yet rather than viewing this as problematic, Wittgenstein understood this as being what distinguishes psychological judgments from other types of judgment.

According to Wittgenstein, you or I may be certain about another person’s psychological expression – their expression of happiness, sadness, grief, remorse, pain or joy etc - but we may be unable to articulate or describe exactly why we are certain. As (1992) Wittgenstein puts it:

“I might know from certain signs and from my knowledge of a person that he is glad etc. But I cannot describe my observations to a third person and – even if he trusts them – thereby convince him of the genuineness of that gladness, etc.” (1992, p86e)

One of the reasons for this, according to Wittgenstein (2001), is that “‘evidence’ here includes ‘imponderable’ evidence...Imponderable evidence includes subtleties of glance, of gesture, of tone. I may recognize a genuine loving look, distinguish it from a pretended one (and here there can, of course, be a ‘ponderable’ confirmation of my judgment). But I may be quite incapable of describing the difference. And this is not because the languages I know have no words for it. For why not introduce new words?” (p194e).

Wittgenstein seems to be suggesting that the certainty I may have about the genuineness of someone else’s expression may be something that I can only show through my judgment about that expression. For although I may be able to distinguish a genuine loving look from a false one, the “imponderable evidence” involved may ensure that I cannot articulate or describe why I think the look is genuine.

And this isn't because there are no words since, as Wittgenstein asks, why not introduce new words? Rather it is because the evidence involved can be extremely subtle and fine-grained, particular to the person and/or the situation. Monk (2005) captures this with the following example:

'How do you *know* your father dislikes your boyfriend? 'I could tell by the way he looked at him' 'And how did he look at him? 'Well,..as if he didn't like him'" (Monk, 2005, p104, emphasis in original).

Yet, as Marie McGinn (1997) points out, "[t]he role of our reaction in how we conceive a situation does, however, open up a possibility for disagreement and uncertainty, which is characteristic of our psychological language-game. Someone who is naturally trusting may, for example, see a smile quite differently from someone who is naturally suspicious" (p168). That is, differences of opinion over someone's psychological expression can be pervasive. I may be convinced of the genuineness of an expression of feeling and you may not be so convinced (due to the "imponderable evidence" involved). But I may be unable to articulate or describe to you exactly why I am convinced and so it is possible that nothing I say may convince you. McGinn notes however that this "is not a defect, but an essential part of our language-game, something which characterizes the essence of human psychological phenomena" (ibid, p167).

To take a high profile example, consider Kierkegaard who, after his famous break from Regina, described in his journal: "On Easter Sunday at evensong in the Church of Our Lady (during Mynster's sermon) she [Regina] nodded to me – I could not tell whether it signified entreaty or forgiveness, but in any case it was so friendly" (as quoted in Lowrie, 2013, p156). As Lowrie also goes on to note however, "[Kierkegaard] was doubtful in view of the distance, whether she actually did nod, or whether perhaps she was nodding to somebody else. In any case, it might have been "only for his eye that it had this immense significance"" (ibid, pp156-157). We too may wonder: did Regina's nod of the head signify entreaty or forgiveness? Might it have simply been only a sign of acknowledgement? Kierkegaard certainly imbued Regina's movement with great importance but the "imponderable

evidence” involved might have ensured that an observer (or even Regina herself) could have reached a very different conclusion.⁵¹

Or, more mundanely, think of the young person in the first throes of a teenage crush. The slightest glance, the briefest remark, from the object of their desire becomes imbued with multiple layers of significance. Yet was the glance so significant? Did it really mean what it was interpreted as meaning? Did the remark in fact carry any importance? Uncertainty plays a seemingly inescapable role here and this can have attractions – ‘did she really look at me? Maybe she did...’ – as well drawbacks – ‘She didn’t and now I am heartbroken.’

For Wittgenstein, “imponderable evidence” and uncertainty are what characterize psychological judgments. Wittgenstein (2001) remarks that, “[t]here is in general no such agreement over the question whether an expression of feeling is genuine or not” (p193e). In the *Philosophical Investigations*, it is clear that this is not intended as an empirical claim. That is, Wittgenstein is not claiming that we never agree over whether an expression of feeling is or is not genuine. There are of course many instances when agreement is possible. Instead his point is a logical or a grammatical one. Ter Hark (2004) summarises this as follows:

“When disagreements arise [between people] about the colour of an object.. they will have another look at the ..object. If they still do not come to terms, they can decide that one of them must be mistaken in his observations or that one of them means something different by a certain term. In cases of disagreement about the sincerity of someone’s words or expressions the undecidability denotes neither a deficiency in skill or knowledge nor an inadequate command of certain terms. Rather, the indeterminacy is a constitutive feature of those judgments, a feature, that is, that sets them apart from measurements of physical objects or judgments about colour.” (Ter Hark, 2004, p141)

⁵¹ Suppose Kierkegaard had confronted Regina in the church and asked her. Could this have resolved the matter? Perhaps. But we can also imagine her being as shocked by Kierkegaard’s confrontation as Kierkegaard was by her possible acknowledgment. She might have replied: “Did I nod at you? I didn’t even see you. I was nodding at my friend.” Or even: “Did I nod? I don’t remember. My neck is sore and I was probably just moving my head to ease the pain.”

If Wittgenstein is right, then we should not equate the uncertainty characteristic of psychological judgments with what can be called epistemic uncertainty, that is, “an epistemic shortcoming in the available evidence” (Ter Hark, 2000, p204). This is because the uncertainty characteristic of such judgments is not the result of lack of knowledge or lack of information about the other person. Such uncertainty “betokens a difference in the manner of judging motives and feelings on the one hand, and, say, the length of physical objects on the other” (Ter Hark, 2004, p139). In other words, “[i]mponderable evidence is..not the basis of a *proof* that another person is feeling such and such” (Ter Hark, 2000, p215, emphasis in original). Monk (2005) claims that for Wittgenstein this type of evidence is completely unlike scientific evidence:

- “1.it can be *seen* as evidence for a particular judgment, but usually it cannot be described other than as evidence for that judgment...
- 2.the value of the evidence varies with experience and the knowledge of the person providing it, and this is more or less the *only* way of weighing such evidence, since
- 3.it cannot be evaluated, weighed, *pondered* by appeal to any system of general principles or universal laws.” (Monk, 2005, p104, emphasis in original)

This is perhaps one of the reasons why psychological judgments, according to Wittgenstein, can be distinguished from other types of judgment. They involve a very different type of evidence. If so, then there can be no suggestion that the differences between psychological judgments and judgments we make about colour or objects require an explanation or reveal, in Hutto’s terms, a “demanding, philosophical explanatory need”. That is, these differences cannot constitute a continuum whereby an explanation is needed to show how one type of judgment gives rise to, or allows for the emergence of, another type of judgment. Since they involve different types of evidence, then they reflect different aspects of our form of life. A reading that fits with Monk’s earlier assessment is that Wittgenstein is attempting to *show* these differences in order to reveal the complexity of our form of life. In section 4, I will suggest that understanding the complexity of our form of life has important implications for REC and a possible response to the cognitive gap question.

3 Radical Enactivism

REC (Radical Enactive (or Embodied) Cognition) aims to show that “a creature’s capacity to perceive, keep track of, and act appropriately with respect to some object or property” (Hutto and Myin, 2013, p82) does not require the “positing [of] internal structures that function to represent, refer to, or stand for the object or property in question” (ibid). That is, creatures can be informationally sensitive i.e. they can “exploit correspondences in their environments to adaptively guide their actions” (ibid) without the use of informational content. Hutto and Myin advocate this view as a result of what they call The Hard Problem of Content. The Hard Problem constitutes the “master argument” (Hutto, 2013b) that motivates the REC position.

Cognitive science has long traded on the orthodoxy that representational states are needed to understand mind and cognition. Such states present or represent the world as being a certain way, that is, such states ‘stand in’ or ‘stand for’ features of the world in such a way that they underpin or play a key role in cognitive behaviour. Naturalising this claim is then the job for the explanatory naturalist. Such a naturalist seeks to explain representational states in scientific terms e.g. in terms involving causation, nomic dependencies or biological function etc. Hutto and Myin (2013), and Hutto (2013a/2013b) variously point out that most theories that invoke representations seek to naturalise this claim by assuming the existence of informational content. Such content is understood as “serving as the platform for..representational accounts” (Hutto, 2013a, p15).

However, Hutto and Myin argue that appeals to informational content confront a so-called Hard Problem. This is because the sorts of claims that can be given a scientific backing - for example, the way states of affairs can reliably co-vary such that one state can be used to gain information about another (think of the age of a tree and the rings of the tree) - do not support claims about informational content. According to REC, informational content has conditions of satisfaction and these conditions must be instantiated if the content involved is to be regarded as true or accurate (Hutto and Myin, 2013, px). Consequently, content “has special properties – e.g. truth, reference, implication – that make it logically distinct from, and not reducible to, mere covariance relations between states of affairs. Though covariance is scientifically respectable, it isn’t able to do the required work of explaining content” (ibid, p67).

If informational covariance is the only scientifically respectable way to understand naturally occurring information, then it looks like informational content is not amenable to a scientific explanation. In other words, informational covariance may have bona fide naturalistic credentials but the same cannot be said about informational content. If so, then “explanatory naturalists in fact lack the basic resources even to begin explaining non-linguistic mental content” (Hutto, 2013b, p17).

Hutto and Myin consider a number of ways of responding to this Hard Problem (2013, pp68-70). They claim that the least costly response is to “retain the scientifically respectable notion of information-as-covariance...while relinquishing the idea that there is such a thing as informational content [outside of shared social and linguistic practices]” (ibid, p68). This entails that, “on-line sensory signals “carry information” in the covariance sense but not that they “pass on” meaningful or contentful messages. There is no naturally occurring contentful information that can be “used and fused” to form inner representations” (ibid, p70). And as Hutto (2013b) points out, this then supports “accounts that appeal only to the existence of devices that have the biological function of responding to non-contentful covariances [which then] supports non-representationalism, not representational theories of mind” (p18). Given that representationalism is the mainstay of cognitive science, it thus becomes clear why REC is so controversial.

According to REC, human beings, as natural language-users, are capable of forms of behavior that do not involve informational contents and forms of behavior that do. As we have seen, an example of the former is visual experience. Hutto and Myin claim that:

“true perceivers fall into the class of aspectual respondents but not that of attributive claimants.. On such a view, perception doesn’t depend on, or entail, the existence of attributive states of mind – states that attribute, say, X’s being F. Rather, it depends on, and entails the existence of, aspectual states of mind according to which X looks or feels F.” (Hutto and Myin, 2013, p121)

By rejecting informational content for basic perceptual states but allowing that creatures can respond in informationally sensitive i.e. aspectual ways to their environments, REC aims to offer a view of

perception that avoids the Hard Problem. It thus challenges rival accounts (for a recent example, see Lauwereyns, 2012), which claim that perception involves internal mechanisms that present or represent the world as being a certain way. REC argues that such accounts either run afoul of the Hard Problem since they possess a robust notion of content or they weaken the notion of representation to the extent that their account does not present a challenge to the REC view.⁵²

An example of contentful behaviour is intelligent planning (Hutto and Myin, 2013, p40). Suppose I am sitting in my office and I wish to plan the best route from the train station to a hotel in a foreign city. I can do so, according to Hutto and Myin, because I have the necessary background knowledge and relevant know how. That is, I know how to read train timetables; I know how to read maps of cities etc. I also know that the train timetables, plane schedules and cities plans I am using are current and reasonably accurate and that if any these elements were to change, then I would have to adjust my plans accordingly. For instance, if the flight I had booked for that day were to be cancelled, then I would need to re-arrange my booking at the hotel etc. All of this background knowledge requires the exploitation and manipulation of “symbolic representations of the target domain” (ibid) and this ensures that I “can plan how to act within the domain without ever having to (or ever having had to) interact with it in a first hand manner” (ibid, p41).

On this proposal, intelligent planning is “scaffolded” by the sorts of shared and linguistically enabled practices that mark out contentful from non-contentful behaviour. REC’s key claim is that the domain of these sorts of scaffolded behaviours is much less extensive or wide reaching than previously assumed. This ensures that, “REC approaches [i.e. approaches that do not appeal to contentful, representational states can] make substantial inroads into explaining important forms of human

⁵² Roberts (2013) objects that such a view entails that, “the distinction between veridical and illusory experience is hard for the radical enactivist to draw...[On the REC picture, not] only are creatures with basic minds, who are without fully-formed conceptual abilities, thus unable to undergo perceptual illusions, it is difficult to see how to resist this conclusion even for adult human perceivers once perception is understood to be content-free across the board.” Addressing this objection in detail would require separate treatment. However, as Hutto and Myin (2013) put it, “if things look somehow abnormal to an individual then we can expect that individual to respond in inappropriate ways to certain stimuli. But there is no compelling reason to suppose that inappropriate responding of such kind involves errors of content attribution” (p126). In other words, REC does not understand perception in veridical and illusory terms but rather in terms of the sorts of considerations evident in the Embodiment and the Developmental-Explanatory theses (ibid, p5) i.e. in terms of embodied interactions with environments and histories of interactions. In which case, REC arguably avoids the problem Roberts describes since it rejects the distinction assumed by that problem.

cognition [since] representationally hungry tasks make up only a small portion of mental activity. Representationally based cognition might just be the tip of the cognitive iceberg” (ibid, p46).

REC thus denies the claim that ‘modest representations’ play a substantial role in basic behaviours like perceptual recognition and perceptually guided action (Clark and Toribio, 1994). It also challenges those approaches that seek to recognize the importance of embodied, dynamic goal-directed behaviour, while insisting that such behaviour requires what have been called Minimal Robust Representations (Clark and Grush, 1999). Such “action-oriented representations” confront the Hard Problem since, “believing in action-oriented representations minimally requires the acceptance of “the general idea of inner states that bear contents”” (Hutto and Myin, 2013, p55). That is, such approaches, according to REC, must face the uphill struggle of providing a naturalistically plausible account of informational content. One possible option here is to weaken the notion of representation such that there can be contentless representational states. However, Hutto (2013b) argues that this “risks making the debate between representationalists and their opponents insubstantial and scientifically uninteresting” (p23). If these considerations are correct, then contentful, representational states do not play the all the pervasive role in behaviour that cognitive science orthodoxy has previously assumed.

The distinction between, on the one hand, non-contentful behaviour, and on the other, contentful behaviour, seems to leave REC with what I earlier referred to as a cognitive gap question. If we are capable of both non-contentful and contentful behaviour, then how does the former give rise to, or allow for the emergence of, the latter? In the following section, I will explore how REC can respond to this question.

4 REC, Wittgenstein and the cognitive gap

In section 2, I described later Wittgenstein as identifying the different types of judgment we make about colour, objects, and human psychology and how these judgments depend on different types of evidence. In particular, judgments about human psychology, according to Wittgenstein, depend on what he calls “imponderable evidence” and this is due to the variability and complexity of human behaviour. I also claimed that Wittgenstein describes these different types of judgment, not in order to

explain, or theorise about our language-games, but rather in order to show or reveal the complexity of our form of life.

In this section, I intend to explore this point by examining Wittgenstein's notion of form of life (Lebensform). My aim here is not to develop a novel reading of this highly contested notion⁵³, but rather to show how readings available in McGinn (1997), Ter Hark (1990) and Hutto (2006) offer a way to link Wittgenstein and REC, and how by linking Wittgenstein and REC via this notion, this offers REC a means to avoid the claim that it confronts a cognitive gap question.

According to McGinn (1997), the notion of form of life plays a particular role in Wittgenstein's understanding of language. In the *Investigations*, argues McGinn, the notion "serves to bring into prominence the fact that language is embedded within a horizon of significant, non-linguistic behaviour... language and linguistic exchange are embedded in the significantly structured lives of groups of active human agents" (p51). Form of life thus refers to "a horizon of past training, manifest abilities and forms of responsiveness" (p93), the "indeterminate and unspoken horizon within which our language-game functions" (p96), and as what "constitutes 'the scene of the language-game'" (p103). On the McGinn reading then, Wittgenstein understands form of life as referring to, not only our language-games, but also the "unspoken horizon" of training, abilities, and responsiveness that sets the scene for these language-games.

Ter Hark (1990) points out that "the primacy of forms of life is the primacy of practice. Language-games, in the sense of rule-governed frameworks for more or less intellectual skills, can only develop if this practice is presupposed" (p57). The notion of form of life, with its emphasis on practice, thus offers a means to link (or, at the very least, draw a parallel between) enactivism and Wittgenstein since, as Hutto (2013a) argues, "the enactive approach... fundamentally agrees with the emphasis on primacy

⁵³ Richter (2010) notes that although the notion of a form of life has long been associated with Wittgenstein, the notion itself receives little treatment in the *Philosophical Investigations* or elsewhere and is never clearly defined by Wittgenstein. This perhaps explains why there is so much disagreement among commentators: "Some treat forms of life as synonymous with language-games. Others think of them as something like cultures. Others still treat them as biological life-forms, or at least as something of this sort, so that all humans beings share a form of life" (Richter, 2010, p75). As the text makes clear, I will be endorsing McGinn, Ter Hark and Hutto readings of this notion.

of action, forms of life, shared practices and customary ways of going on in Wittgenstein's philosophy of psychology" (p5). For example, Wittgenstein (as quoted in Ter Hark, 1990, p57) states:

"I want to say: it is characteristic of our language that it grows on the basis of stable forms of life, *regular ways of acting. Its function is above all determined by action*, of which it is the companion. We have a notion which forms of life are primitive and which forms have only originated from those. We believe that the most elementary plough was there before the complicated." (MS 119, pp148-149, emphasis added)

Form of life thus highlights how, for Wittgenstein, our language-games are embedded in our natural non-linguistic practices and activities. One way then to link Wittgenstein and REC is via the notion of form of life since this notion brings together (in some still to be worked out way) the sorts of basic and non-basic behaviours that REC regards as distinctive features of human mentality. Indeed, Hutto (2013a) makes this clear when he claims that, "Wittgenstein [characterizes] our form of life sometimes in terms of basic animal responses and at other times in terms of socio-culturally informed customs and practices. His notion of our 'form of life' encompasses both our more basic, non-linguistic, animal ways of being as well as our culturally and linguistically scaffolded ways of being" (p8).

However, form of life, according to certain readings, plays a very particular role in human mentality. Ter Hark (1990) remarks that, for Wittgenstein, "[f]orms of life and grammatical rules are 'foundations' in the sense that they constitute the meaning of our concepts in the first place and that if we were to change the rules, our concepts would have an entirely different meaning or no meaning at all" (p68). This is to assign a constitutive role to the notion of forms of life (and grammatical rules). On this reading, forms of life are what make our language-games possible; they refer to the conditions that need to be in place for our language-games to occur. As Wittgenstein (2001) puts it:

"I am not saying: if such-and-such facts of nature were different people would have different concepts (in the sense of a hypothesis). But: if anyone believes that certain concepts are absolutely the correct ones, and that having different ones would mean not realizing something that we realize – then let him

imagine certain very general facts of nature to be different from what we are used to, and the formation of concepts different from the usual ones will become intelligible to him” (p195).

The constitutive role played by form of life is revealed in a number of ways. First, according to Ter Hark, “no grounds can be produced for a form of life itself” (ibid, p57), and “[t]he foundation of the language-game is agreement in forms of life. The agreement cannot be explained” (ibid, p59). That is, one cannot articulate exactly what agreement in forms of life consists in since such agreement is presupposed in order to articulate anything at all. As Hutto (2006) puts it, “there is no understanding [of] forms of life from some theoretical hide *outside* the activities and practices that they ground. There is no getting behind, beneath or above a form of life for the philosophical purpose of providing an explanation or justification” (p111, emphasis in original). Form of life is what is needed for there be explanation and so cannot itself be given an explanation. Or, to put it another way, it does not explain our language-games but is instead the condition for there being any explanation in our language-games.

Second, “descriptions of forms of life are not empirical statements. The description of a form of life is a clarification of a practice, which we already ‘know’. The ‘knowledge’ this produces is not comparable with the information given by empirical statements, but is ‘knowledge’ in the sense of recollection or explication” (Ter Hark, 1990, p69). Thus, in clarifying or describing our form of life, this is not to offer an empirical account i.e. a hypothesis about what we do and say. Moyal-Sharrock (2007) notes that Wittgenstein’s “..concern with our form of life is not to be confused with, and indeed ought not to be, a concern with empiricism” (p84).

This entails that the notion of form of life has to be handled with particular care since, according to Hutto, “what is fundamental to our practices is something that can only make itself manifest in and through the practices and activities in which we engage and the way in which we are inaugurated into them. Thus to the extent that our instincts, training and customs do characterize what is basic to our form of life it is not possible to cleanly distinguish them” (Hutto, 2006, p112). Yet this need not preclude us from attempting to articulate or give expression to such instincts, training and customs. Moyal-Sharrock (2007) claims that we can distinguish between saying and speaking and argues that although grammatical rules can be spoken of, they cannot be said since what can be said is only what

plays a role within the language-game. Since grammatical rules are part of the “scaffolding” of our language-games and so are what make possible those language-games, then they can only be shown by the playing of those language-games. Such a distinction between saying and speaking means that although the instincts, training and customs that make up our form of life can be spoken of and even described, then they too cannot be said. Rather they can only be *shown* by what we do.

Recall that the cognitive gap is the gap between basic minds and non-basic minds, and the question was, how does the former give rise to, or allow for the emergence of, the latter? However, if REC were to endorse the readings of form of life considered above, then no such question looks pressing.

Take the following simple example. I pick up a cup and hoping that it will contain tea, raise it to my lips. However, after tasting the liquid, I am disappointed to find that it contains coffee. We have, according to REC, a confluence of non-contentful behaviour (perceiving the cup, reaching for the cup, grasping it, raising it to my lips) and contentful behaviour (thinking to myself, “I hope it contains tea”, being disappointed when I find it contains coffee). The cognitive gap is the worry that we need to explain how the former behaviour makes possible, or brings about, the latter behaviour. But on a constitutive reading of form of life, no such worry emerges. This is because the conditions that make possible non-contentful behaviour also include the conditions that make possible contentful behaviour. Form of life is a clarification, description or reminder of the conditions that make possible all aspects of human mentality. And although we can *speak* of such conditions (abilities like reaching, grasping; training in linguistic practices that lead to hoping, thinking etc), and although we can *describe* such conditions (and the mentality they make possible), these conditions can ultimately only be *shown*, *manifested* or *revealed* by our behaviour. If so, then there can be no pressing explanatory gap. That is to say, basic minds and non-basic minds are testament to the complexity of our form of life and are not problems in need of a solution.

A concern at this point might be that if the notion of form of life can encompass such a wide range of human behaviours, then has the notion not been extended to the point of meaninglessness? This worry is misplaced however since form of life, as we have seen, does not explain human mentality (since it is what is needed for there to be explanation) nor does it offer an empirical hypothesis about such

mentality. In Hutto's hands, it instead serves as a warning against trying to find "some theoretical hide *outside* [our] activities and practices" (2006, p111). That is, form of life roots us in our practices and activities. And once we refocus our attention on what we do and say, then it becomes apparent that there is no cognitive gap between our various behaviours.

5 Conclusion

The aim of this chapter was to explore a Wittgensteinian approach to cognitive gap question and to show how such an approach can enable REC to avoid this question. I claimed that the cognitive gap is an example of a philosophical myth and inclination. As such, it requires dissolution, not solution. I argued that the gap could be dissolved by showing, first, that Wittgenstein understood the differences between psychological judgments and other types of judgments, not as revealing an explanatory gap, but rather as revealing aspects of our form of life, and second, that once we understand the constitutive role that form of life plays in human mentality, then basic minds and non-basic minds are also revealed as aspects of our form of life. Hence, there is no cognitive gap since the conditions that make up our form of life are shown or revealed (and not explained or theorised about) in what we do and say. As noted in the introduction, the argument given in this chapter is predicated on one endorsing both REC and the sorts of notions that can be found in later Wittgenstein's philosophical writings. As such, the argument does not exclude other ways of conceiving of the cognitive gap issue. Nonetheless, the argument does show how on a Wittgensteinian approach, REC can avoid any possible cognitive gap.

Conclusion

In the introduction, I posed the following questions. Where is my mind? Is it located inside my head? Is it bound by the boundaries of skull and skin? Or could my mind extend? As pointed out, our common intuitions suggest that if the mind is anywhere, then it must be inside the head. All three approaches examined in this thesis – Extended Mind, Extended Conscious Mind and Enactivism – challenge such intuitions. This is because all three approaches support the view that in trying to understand mind and experience, the focus of any investigation should not simply be on the brain and its workings. Rather the focus needs to expand to include the body and objects and processes in the environment.

This thesis supports the claim that Extended Mind and Extended Conscious Mind cannot be reconciled with Enactivism. The principal reason for this is that Extended Mind and Extended Conscious Mind understand embodiment in very different terms from that endorsed by (a certain variety of) Enactivism. Specifically, Extended Mind and Extended Conscious Mind understand the role the body plays in mind and experience solely in functionalist, information processing terms whereas (Radical) Enactivism understands the role of the body in much broader terms including biology and context (and maybe even form of life).

The foregoing chapters then defended readings of all three approaches that display these disparate views on embodiment. Chapter 1 defended an extended functionalist view of Extended Mind. Chapter 2 linked this view of Extended Mind to that of Extended Conscious Mind. Chapter 3 challenged Rowlands' attempt to reconcile Embodied Mind with Extended Mind. Rowlands' failure to reconcile Embodied and Extended Mind, and his claim (which I endorse in chapter 4) that Enacted Mind is version of Embodied Mind, lends weight to the claim that there are problems with reconciling Enactivism and Extended Mind. Chapter 4 defended a Radical Enactive view of sensorimotor theory and chapter 5 showed how a Wittgensteinian approach to Radical Enactive (or Embodied) Mind or REC ensured that REC does not confront a cognitive gap question. If the arguments of these chapters are correct, then chapters 1 and 2 support an information processing view of embodiment and chapters 4 and 5 support a view of embodiment whereby a host of further considerations (like biology, context, form of life) are equally significant. Thus, on the readings of Extended Mind, Extended Conscious

Mind and Enactivism defended in this thesis, there can be no reconciliation between all three approaches.

As also noted in the introduction, although the arguments in chapters 1 and 2 do conflict with the arguments given in chapters 4 and 5, this should not be viewed as problematic. First, given that the thesis aims to show the irreconcilability of the three approaches, then it follows that the arguments of the various chapters must display this irreconcilability. Second, the arguments given in chapters 1 and 2 are built on the proviso that one accepts a functionalist, information-processing framework and the arguments given in chapters 4 and 5 are built on the proviso that one accepts the REC response to the Hard Problem. In which case, challenges to the functionalist framework (as given in chapters 4 and 5) will undermine chapters 1 and 2 and alternative responses to the Hard Problem would throw into doubt the arguments given in chapters 4 and 5 (and may allow one to endorse the arguments given in the earlier chapters). These maneuvers confirm the point that the three positions are irreconcilable.

Of course, alternative readings to Extended Mind, Extended Conscious Mind and Enactivism are available. For example, one need not understand Extended Mind in extended functionalist terms. Indeed, as made clear in chapter 1, Sutton (2010) advocates a complementarity or second wave approach to Extended Mind in order to distance himself from a parity-driven, functionalist view. One can also have a very different understanding of Extended Conscious Mind. For example, Ward (2012) conceptualizes Extended Conscious Mind, contrary to Clark, as a personal level claim about the interactive, relational nature of (visual and other forms of) experience that has sub-personal consequences. Such alternative readings might hold out the possibility of reconciliation. Ward's reading of Extended Conscious Mind looks to be compatible with the Cosmelli and Thompson (2010) view of Enactivism given that both use phenomenological considerations about experience in order to make claims about sub-personal mechanisms. And finally, not all Enactivists endorse REC. As showed in chapter 4, more conservative versions of Enactivism, such as the O'Regan and Noë (2001) reading of sensorimotor theory, are also available.

Nonetheless, if one wants to reconcile approaches like Extended Mind and Enactivism, then important conceptual readjustments are required (as noted by Rowlands (2010a) when he attempts to take

“functionalism out of the equation” (p105)). An interesting example of this comes from Menary (2006) who, working within the Extended Mind tradition, argues for what he calls Cognitive Integration - “the view that internal and external vehicles are integrated into a whole” (p329). This integration is made possible because “it is bodily manipulation of the external vehicles themselves where the cognitive work gets done” (Menary, 2010b, p240-241). For Menary, cognitive processes are hybrid processes that constitutively involve the bodily manipulation of external vehicles. Cognition then is an ability (or abilities) of an agent to manipulate their immediate environment. This view looks compatible with an Enactive approach like that of REC (see Hutto and Myin, 2013, pp145-149). Yet Menary, like Sutton, wishes to distance himself from the considerations that have traditionally motivated Extended Mind. This would seem to be an acknowledgment that if one wants to reconcile Extended Mind and Enactivism, then one needs something other than Extended Mind as traditionally conceived to do so. This supports the claim that there can be no straightforward meeting of minds between these two approaches.

Where does this leave our original question: could my mind extend? If you accept the readings of Extended Mind and Extended Conscious Mind outlined in this thesis, then your mind and your experience – that is, the vehicles or physical processes that realize your mental states and your conscious processes – are not confined to your head but rather can, on certain occasions and under particular circumstances, partially extend to include environmental objects and processes. However, the situation is more complicated when it comes to REC. For although REC certainly denies that your mind is confined to your skull, its rejection of the vehicle/content distinction for certain forms of human mentality ensures that it also rejects talk of extension. After all, if basic cognition does not involve contents, then it also does not involve vehicles since vehicles are the bearers of contents. But if so, then questions of extension i.e. the physical vehicles of your mind extending, are no longer applicable. Mental states and cognitive processes are, according to REC, first and foremost external capacities, and it is only a later development whereby such states and processes are then decoupled or decontextualised such that they can be exercised outside of their original context (or even in the

complete absence of their initial external supports). In which case, your mind does not *extend*. This is because your mind is already *extensive*.⁵⁴

We can now see how all three approaches challenge our intuitions about minds. But is this really that significant? After all, don't lots of our everyday intuitions turn out, on closer inspection, to be biased, inconsistent or even downright wrong? Moreover, why does it matter that Extended Mind, Extended Conscious Mind and Enactivism cannot be reconciled? Perhaps this is just a territorial dispute within philosophy, that is, a dispute over which view gets to become the house theory in philosophy of mind.

However, these questions, while understandable, considerably downplay what is at stake here. For although all three approaches shift the focus away from the brain towards interactions with the environment and objects and processes in that environment, one important consequence of this is that REC challenges orthodox understandings of the brain. Consider once again the Hard Problem of Content (Hutto and Myin, 2013). This problem challenges all approaches that seek to naturalise the mind via claims about informational content. REC's preferred response, as chapter 5 shows, is to restrict claims about content to scaffolded non-basic cognition. If REC is right, then there is no naturally occurring informational content in the world. As we have seen, this places considerable distance between REC and the sorts of information processing accounts that are assumed by the other approaches.

Crucially, it also distances REC from an information-processing model of the brain. In order to see why this is, consider Clark's (2009) claim that conscious experience is dependent on high speed (or high bandwidth) information processing. Such processing is brain-bound, argues Clark, because, first, the body acts a low pass filter and so slows down the transfer of information (Eliasmith, 2008), and second, conscious awareness depends on the synchronous activation of neural populations in the brain (Singer, 2003). If consciousness is dependent on such high-speed information transfer and, as a matter of contingent fact, this can only occur inside the brain, then the vehicles responsible for conscious

⁵⁴ It is worth noting that extensive mind does not exclude the possibility of an alternative, internalist view. What the extensive approach does do however is undermine one of the main motivations for such a view, namely an appeal to internal vehicles and their contents. If so, then (as we noted earlier – see chapter 4, footnote 47) although an internalist view remains possible, it is up to the internalist to now find further considerations to motivate such a view.

experience do not extend outside the skull. In chapter 2, I challenged this account on the grounds that the evidence Clark provides does not show that high-bandwidth neural synchronicity plays a necessary and sufficient role in conscious experience. Instead, I claimed that such synchronicity only plays a necessary role and this ensures that other factors, such as body-world coupling, could be equally significant. But notice that even if this attack on Clark is correct, it does not dispute an information processing view of the brain.

Yet this view is no longer workable if we endorse REC. For if there is no naturally occurring informational content in the world, then there are also no naturally occurring vehicles. This impacts on how we understand the brain since, “[t]o reject that all mentality involve content requires abandoning even the idea that embrained vehicles of content exist..If basic mentality isn’t essentially contentful, then there are no vehicles of basic mentality. No vehicles reside anywhere in the brain, the alleged seat of the mind” (Hutto and Myin, 2013, p20). In which case, neural synchronicity cannot be the vehicle for high-speed information transfer since there are no “embrained vehicles of content”. REC thus requires a radical rethink about how we understand the brain.

Thus, the lack of reconciliation between Extended Mind, Extended Conscious Mind and Enactivism ensures that we now have very different ways of understanding the role of the brain in mind and experience. This has implications beyond the confines of philosophy. For example, the brain-imaging technologies that neuroscience currently has its disposal give us wonderfully detailed and important accounts about the brain and what it is doing when we move, feel or think. However, the approaches we have considered entail very different understandings of such accounts. On the Extended Mind and Extended Conscious Mind approaches, such technologies reveal how different brain states and regions process and transfer information. But on a RECish approach, these technologies reveal information about covariances between certain brain states and regions and certain mental or bodily activities. They do not reveal the brain to be trading or trafficking in informational contents.

If we endorse this RECish approach, then we confront the following question: if the brain is not a natural information processor (since there are no such processors), then how are we to understand what the brain does? One possibility comes from Thompson and Varela (2001) who argue that brain

mechanisms are “a paradigmatic example of self-organisation” (p419). They understand neural synchrony, not in terms of the binding together of bodies of information, but rather as a self-organising, emergent feature of the brain. They then claim that emergence through self-organisation of brain processing ensures that neural, bodily and worldly elements can interact to produce emergent global organism-environment processes. This might be one way in which an alternative account of the brain could be developed.

Working out whether this view of the brain is ultimately plausible will require much further work. Nonetheless, these brief remarks indicate that lack of reconciliation between the three approaches considered reveals itself to be much more than simply a territorial dispute. REC, in challenging the claim that we need to appeal to internal, contentful, representational states to explain all aspects of human mentality, also challenges what is still the standard or orthodox information processing view of the brain. If REC is right, then a full reassessment of this orthodoxy is now needed.

In summation, although Extended Mind, Extended Conscious Mind and Enactivism all successfully unseat our common intuitions and thus pose fresh challenges for our understanding of mind and experience, I would suggest that it is Enactivism (of a radical kind) that constitutes the sharpest break with previous views in philosophy of mind and cognitive science.

Samenvatting

In dit proefschrift verdedig ik de stelling dat de “Extended Mind” (EM) these en de “Extended Consciousness” (EC) these niet verzoenbaar zijn met het enactivisme. De EM-these (Clark and Chalmers, 1998; Clark, 2008a, b)) stelt dat objecten, structuren en processen uit de omgeving, net zoals processen in het brein, in bepaalde omstandigheden het etiket “mentaal” of “cognitief” verdienen. In het bijzonder volgt hieruit dat mentale processen en toestanden niet noodzakelijk lokaliseerbaar zijn in het brein, maar onder bepaalde omstandigheden deels kunnen uitbreiden in de omgeving. De EC-these (Clark, 2009) stelt dat het materiële substraat van bewuste ervaringen niet beperkt is tot het brein, maar kan uitbreiden tot in de omgeving. Enactivisme (Thompson, Varela and Rosch, 1991) stelt dat cognitie en bewustzijn geconstitueerd worden door de interactie tussen subject en omgeving. Ik zal aantonen dat deze drie posities, ondanks hun prima facie verwantschap, niet kunnen worden verzoend. Er zal worden geargumenteed dat deze onverzoenbaarheid zijn oorsprong vindt in de verschillende manieren waarop belichaming wordt geconcipieerd binnen de EM- en EC-these enerzijds en het enactivisme anderzijds.

Dit verschil komt duidelijk naar voor wanneer we de rol van het lichaam in de standaardinterpretatie van de EM-these vergelijken met de rol van het lichaam in het enactivisme. De standaardinterpretaties van de EM-these passen volledig binnen het functionalistische paradigma dat dominant is binnen de hedendaagse Angelsaksische wijsgerige psychologie. Binnen het functionalisme wordt de constitutieve rol van brein, lichaam en omgeving voor mentale processen bepaald door de functie die brein, lichaam en omgeving bekleden binnen het groter geheel van de subject-omgeving interactie. Als dusdanig spelen de concrete details van de belichaming van een subject slechts een rol in de mate waarin deze concrete details het lichaam helpen om zijn functionele rol te vervullen. Deze visie op belichaming verwoordt Clark (2008b) als volgt: “the body as just one element in a kind of equal-partners dance between brain, body and world, with the nature of mind fixed by the overall balance achieved” (p25). In hoofdstuk 1 onderschrijf ik deze functionalistische interpretatie van de EM-these en in hoofdstuk 2 verbind ik ze met de EC-these.

Op basis van de resultaten uit Hoofdstuk 4 zal ik argumenteren dat het enactivisme het best kan worden gezien als een versie van de zogenaamde “Embodied Mind”-these. In tegenstelling tot de verdedigers van de EM-these, stellen voorstanders van de “Embodied Mind”-these dat de concrete fijnmazige details van de belichaming wel degelijk een rol spelen in het mentale leven van het subject. Voorstanders van de EM-these, zoals Clark en Toribio (2001), spreken in dit verband van sensorimotorisch chauvinisme of lichaams-centrisme dat ze als volgt karakteriseren: “principled body-centrism, according to which the presence of humanlike minds depends quite directly upon the possession of a humanlike body” (Clark, 2008b, p8). Het belang dat de “Embodied Mind”-these hecht aan de concrete details van de belichaming kan worden geïllustreerd aan de hand van diepte-zicht: “in processing visual-depth information, the brain deploys disparity information from two eyes. Were there more than two eyes or fewer, or if the distance between the eyes differed, the processes in the brain that compute depth from disparity would require significant revision” (Rowlands, 2010a, p53).

De “Embodied Mind” – these is, in tegenstelling tot het functionalisme dat kenmerkend is voor de EM-theorieën van de eerste golf, van meet af aan gevoelig voor de centrale rol van de concrete belichamingsdetails voor het mentale en cognitie. Als, zoals hier wordt betoogd, enactivisme best kan gezien worden als een variant van de “Embodied Mind”-these, dan legt het enactivisme van meet af aan veel meer de nadruk op de centrale rol van belichamingsdetails in de constitutie van het mentale. Hieruit volgt dan ook onmiddellijk dat de EM- en EC-these het lichaam op een wijze concipiëren die tegengesteld is aan de belichamingsopvatting vervat in het enactivisme.

In de literatuur wordt een onderscheid gemaakt tussen EM-theorieën van de eerste en de tweede golf. In het eerste hoofdstuk argumenteer ik dat enkel de ‘eerste-golf theorieën’, die een uitgebreid functionalisme verdedigen, houdbaar zijn. In tegenstelling tot eerste-golf EM-theorieën, zijn tweede-golf EM-theorieën (Sutton, 2010) zeer kwetsbaar omdat ze geen onderscheid kunnen maken tussen objecten of processen die een louter causale invloed uitoefenen op cognitieve vermogens enerzijds en objecten of processen die constitutief zijn voor cognitie (Adams and Aizawa, 2008, 2010) anderzijds. Verder verdedig ik de eerste-golf theorieën tegen de kritiek van Sprevak (2009). Deze laatste betoogt dat eerste-golf theorieën leiden tot een veel te liberale opvatting over welke processen en objecten cognitief zijn. Anders gezegd, volgens Sprevak zijn eerste-golf theorieën niet in staat om een

princiepelijk onderscheid te maken tussen cognitieve en niet-cognitieve processen waardoor elk object en elk proces deel kan uitmaken van het mentale. Als dat het geval is, zou de EM-these tot de absurde conclusie leiden dat het mentale zich uitbreidt over de volledige omgeving. Maar het argument van Sprevak veronderstelt dat het pariteitsprincipe op zich een voldoende argument is om te spreken van een uitgebreid cognitief systeem. Ik zal betogen dat om te kunnen spreken van een uitgebreid cognitief systeem ook de dynamische interactie tussen subject en omgeving een rol spelen, alsook de wijze waarop informatie wordt verwerkt. Het argument van Sprevak is, met andere woorden, gebaseerd op een foute interpretatie van de EM-these.

In het tweede hoofdstuk bespreek ik de EC-these. De EC-these stelt dat de materiële vehikels, die bewustzijn mogelijk maken, zich niet alleen in het brein bevinden, maar mogelijk ook andere lichamelijke of externe objecten en processen kunnen omspannen (Clark, 2009). Alhoewel Clark een verdediger is van de EM-these, argumenteert hij tegen de EC-these. Ik zal echter aantonen dat de argumenten, die Clark aandraagt om de EM-these te verdedigen, evenzeer kunnen dienen om de EC-these te verdedigen. Hiertoe zal ik beroep doen op Clarks (2001; 2003) voorbeeld van de kunstenaar en zijn schetsboek. Volgens Clark is de interactie tussen de kunstenaar en zijn schetsboek constitutief voor het cognitieve proces van de kunstenaar. Maar, zo zal ik betogen, dezelfde argumenten tonen aan dat deze interactie evenzeer constitutief is voor de bewuste ervaring van de kunstenaar. Anders gezegd, zowel de cognitie als het bewustzijn kunnen uitgebreid zijn. Clark ontwikkelt een aantal empirische gebaseerde argumenten die moeten aantonen dat, alhoewel uitgebreid bewustzijn in principe mogelijk is, het een contingent gegeven is dat bewustzijn niet uitgebreid is. Echter, zoals ik zal aantonen, zijn deze argumenten niet overtuigend.

In hoofdstuk 3 bespreek ik Rowlands' (2010a) visie op, en verdediging van een niet-Cartesiaanse cognitieve wetenschap. Rowlands betoogt, net zoals andere verdedigers van de EM-these, dat processen die zich buiten het brein afspelen een constitutief onderdeel kunnen uitmaken van het mentale en bewuste leven van een subject. Daartoe moeten deze processen echter cognitief zijn. Opdat een proces cognitief zou zijn, moet het, aldus Rowlands, voldoen aan een reeks voorwaarden. De redenering van Rowlands is in het kader van dit proefschrift opmerkelijk omdat hij, net zoals Clark (2008b) en mijzelf, betoogt dat enactivisme een variant is van de "embodied mind"-these en verder, in

tegenstelling tot wat in dit proefschrift wordt verdedigd, dat de Embodied Mind these en de EM-these met elkaar kunnen worden verzoend. Om te laten zien dat Embodied Mind en de EM-these elkaar niet hoeven uit te sluiten, maakt Rowlands gebruik van de notie van “eigendom”. Rowlands argumenteert dat wanneer subjecten door hun lichamelijke en interactionele processen zich bewust worden van hun omgeving, deze processen op één of andere manier eigendom zijn van het subject. Problematisch aan dit eigendomsargument van Rowlands is echter dat het leidt tot “cognitive bloot”: een groot aantal processen die moeilijk als cognitief kunnen beschouwd, worden onterecht als cognitief gecatalogeerd. De enige manier om dit te vermijden, zo zal ik argumenteren, is om het bereik van de redenering van Rowlands te beperken. Anders gezegd, ik zal aantonen dat het eigendomsargument enkel pleit voor de “Embodied Mind”-these maar niet voor de EM-these. Het gevolg is dat Rowlands niet langer kan claimen dat hij aangetoond heeft dat de “Embodied Mind”-these en de EM-these verzoenbaar zijn. Als mijn argument correct is, dan volgt onmiddellijk dat Rowlands’ verzoeningsproject mislukt. Het feit dat Rowlands’ verzoeningspoging faalt, kan gezien worden als verder bewijsmateriaal dat de centrale these van dit proefschrift – namelijk dat het enactivisme en de EM-these niet verzoenbaar zijn – ondersteunt.

In hoofdstuk 4 verdedig ik de sensorimotor theorie van perceptuele ervaring (O’Regan and Noë, 2001; Noë, 2004) vanuit het standpunt van het radicaal enactivisme (Hutto, 2005; Hutto and Myin, 2013). Volgens de sensorimotor theorie is wat een subject doet (en wat het subject weet wat hij kan doen) constitutief voor perceptuele ervaring. Centraal in deze theorie staat de opvatting dat perceptuele ervaring afhankelijk is van een speciaal soort van kennis. Ik zal de vermeende rol van die kennis kritisch belichten vanuit drie bezwaren die in de literatuur terug te vinden zijn: het bezwaar dat de theorie onverzoenbaar is met de beschikbare empirische gegevens; het bezwaar dat de theorie geen onderscheid maakt tussen de rol van sensorimotorische regelmatigheden in het leerproces enerzijds en de rol in de post-leerfase anderzijds; en tenslotte het bezwaar dat de theorie geen onderscheid maakt tussen causale factoren enerzijds en constitutieve factoren anderzijds. Ik zal aantonen dat de sensorimotor theorie de eerste twee tegenwerpingen kan weerleggen, maar dat de derde tegenwerping moeilijker te ontmijnen valt. De reden hiervoor is dat de theorie zichzelf kwetsbaar opstelt door het feit dat ze beroep doet op de notie van “know-how”. De enige mogelijkheid om deze tegenwerping te ontwijken, zo zal ik betogen, is de radicalisering van de sensorimotor theorie. Dergelijke radicalisering

houdt in dat know-how (en dus informatie) als verklarende factor wordt geëlimineerd en vervangen door patronen van lichamelijke interactie tussen subject en omgeving.

In het vijfde en laatste hoofdstuk onderzoek ik een aantal implicaties van het radicaal enactivisme (Hutto en Myin, 2013). Centraal in het radicaal enactivisme staat de claim dat elementaire cognitieve vermogens, zoals waarneming, niets anders zijn dan in ruimte en tijd uitgesmeerde patronen van interactie tussen subject en omgeving. Andere, meer gesofisticeerde cognitieve vermogens worden, aldus voorstanders van het radicaal enactivisme, best begrepen als vermogens die ingebed zijn in en steunen op sociale en talige praktijken. De vraag die zich stelt is dan of het radicaal enactivisme geen onoverbrugbare kloof introduceert tussen deze twee soorten cognitieve vermogens. Of anders gezegd, hoe kan het radicaal enactivisme duidelijk maken hoe de elementaire cognitieve vermogens de basis vormen voor de meer gesofisticeerde vermogens? Als het radicaal enactivisme hierop geen antwoord kan bieden, dan kan het moeilijk beschouwd worden als een volledige theorie van het mentale. Ik zal, op basis van het werk van de latere Wittgenstein, aantonen dat het radicaal enactivisme dit probleem kan oplossen. Meer bepaald laat ik zien dat er helemaal geen onoverbrugbare kloof bestaat tussen elementaire en gesofisticeerde vermogens, maar dat beide moeten worden gezien als verschillende uitingen van de complexe levensvorm van het subject.

Op basis van dit kort overzicht van de inhoud van dit proefschrift kan de vraag worden opgeworpen of de hoofdstukken wel een consistent geheel vormen. Immers, het lijkt er op dat de argumenten die in de eerste twee hoofdstukken gepresenteerd worden, in tegenspraak zijn met de argumenten uit de laatste twee hoofdstukken. In de eerste hoofdstukken argumenteer ik voor een functionalistische interpretatie van de EM-these, terwijl ik in de laatste hoofdstukken het radicaal enactivisme verdedig. Dit lijkt inderdaad een tegenstrijdigheid. Deze is echter intentioneel. Ze verduidelijkt de centrale these – nl. de onverzoenbaarheid van de EM-these en het radicaal enactivisme.

Dit laatste punt wordt nog duidelijker door te kijken naar de vooronderstellingen die de argumenten ten voordele van de EM-these enerzijds en het radicaal enactivisme anderzijds schragen. De argumenten die pleiten voor de EM-these zijn gebaseerd zijn op drie veronderstellingen: (1) een functionalistische opvatting over mentale toestanden en cognitieve processen, (2) een opvatting over belichaming als een

vorm van informatieverwerking, en (3) een duidelijk onderscheid tussen inhoudsdragende vehikels enerzijds en de inhoud van deze vehikels anderzijds. Iemand die vindt dat de argumenten uit de eerste hoofdstukken overtuigend aantonen dat de eerste-golf EM-theorieën correct zijn, moet deze drie veronderstellingen aannemen. Wie daarentegen veeleer overtuigd is door de argumenten van hoofdstuk 4 en hoofdstuk 5 moet deze vooronderstellingen verwerpen. Hierbij dient echter opgemerkt te worden dat de argumenten van deze laatste hoofdstukken veronderstellen dat de radicaal enactivistische respons op het “hard problem of content” overtuigend is. Indien men twijfels koestert bij dit radicaal enactivistisch antwoord of, indien men een andere oplossing voor het “hard problem of content” aanhangt, dan zullen de argumenten van hoofdstukken 4 en 5 niet overtuigen. Maar in dat laatste geval worden de argumenten van de eerste hoofdstukken opnieuw relevant. Dit alles illustreert nogmaals de centrale these van dit proefschrift, viz. de onverzoenbaarheid van de EM-these en het radicaal enactivisme.

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