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RICHARD CHARLES STRONG

Villanova University

charlie.strong@gmail.com

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# HABIT AND THE EXTENDED MIND: FLESHING OUT THE EXTENDED MIND THEORY WITH MERLEAU-PONTIAN PHENOMENOLOGY

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## abstract

*This short essay attempts to flesh out the extended mind thesis by showing the non-trivial role of the body in skilled epistemic action. This is attempted by bringing Merleau-Ponty's notion of the body schema together with Clark and Chalmers account of the extended mind. What the author hopes to show is that the incorporation of new habits into one's body schema can make a meaningful difference for extended cognition as it regards behavioral competence, systemic performance, endorsement of external components, and typical invocation of external components. Habitualization of one's body to environment and things in the environment is perhaps not a central part of the cognitive system - nor is it always necessary - but habit can and does make a meaningful difference in how well a coupled cognitive system might function and therefore ought to be taken into account. Moreover, habit highlights the extent to which enhanced cognitive performance relies on the body and its organs in conjunction with mind and thing. The essay proceeds by introducing Clark and Chalmers' version of the extended mind hypothesis from before turning to Merleau-Ponty's notion of the acquisition of habit qua modifications of the body-schema in conjunction with the extended mind.*

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## keywords

*Extended mind, Merleau-Ponty, habit, body-schema, skilled action, embodied cognition*

This essay takes as its object the extended mind theory as expressed in Clark and Chalmers essay “The Extended Mind” in conjunction with Merleau-Ponty’s account of the functioning of habit from the *Phenomenology of Perception*.<sup>1</sup> The thesis I want to put forward is that Merleau-Ponty’s phenomenological account of habit (which leans heavily on his notion of the body schema) provides a non-intellektualist, temporally sensitive, and more fully embodied account with which to flesh out Clark and Chalmers basic extended framework; this augmentation can enable us to better account not only for Otto and his notebook or Tetris mavens, but also applies to the wider domain of extended cognition which may be present in cases of language, tool use, and socially distributed cognition. More specifically, Merleau-Ponty’s understanding of the workings of habit can provide a more robust account regarding the fulfillment of key conditions for extended cognition such as increased or equal behavioral competence, endorsement, and typical invocation. The acquisition of habit in the service of epistemic action may not itself be properly cognitive but, as I hope to show, it does make a significant difference overall cognitive performance.<sup>2</sup> Moreover, Merleau-Ponty’s account of habit begins, so to speak from motor functioning and builds up to “higher level” operations thus foregrounding the important role of the body as the starting point or anchor of many cognitive process. We are not born cyborgs, we become them – and we do so in part through the subtle, often imperceptible, workings of habit. A problem, as I see it, with Clark and Chalmers “The Extended Mind” is that they fail to provide an full account of how a coupled system comes to be as well as the role of mastery over external elements in coupled systems and how performance might differ based on the acquisition of habits.<sup>3</sup>

1 This is not the first attempt to bring phenomenology and the extended cognition together. Other important works dealing with the intersections between phenomenology and the extended mind include Richard Menary’s *Cognitive Integration: Mind and Cognition Unbounded* (2007), Michael Wheeler’s *Reconfiguring The Cognitive World: The Next Step* (2006), Robert Wilson’s *Boundaries of the Mind: The Individual in the Fragile Sciences – Cognition*(2004), and Mark Rowland’s *The New Science of the Mind: From Extended Mind to Embodied Phenomenology*(2010).

2 Following Kirsh and Maglio, Clark and Chalmers take epistemic actions to be those actions that alter the world to “aid or augment cognitive processes.” Pragmatic actions, by contrast, alter the world because some physical change is desired for its own sake (1998).

3 This is a problem with the extended mind. One could say the problem of the extended mind surrounds the challenges to the hypothesis advanced most notably by Adams and Aizawa. Adams and Aizawa claim that Clark and Chalmers, among others, commit a coupling-constitution fallacy whereby things outside the biological mind may be causally related to the mind (i.e., as inputs) but it would be a fallacy to claim that external elements are constitutive of mind (2001).

Additionally, it seems that if certain cognitive processes are not taking place entirely within the limit of the skull or skin then a skilled body is playing at least some role – to a greater or lesser degree – in said processes. Clark and Chalmers advocate an *active* externalism and yet if one wants to make sense of how a here-and-now coupled system not merely works, but works well such that behavioral competence is equal to or is markedly higher than standard cases of skull-contained biological cognition, then bodily conditions and processes need to be fleshed out in order to tell the whole story, so to speak. A possible solution, as I see it, to this problematically quasi-Cartesian omission would be to recuperate Merleau-Ponty’s theory of habit – which begins in motoricity and perception and extends to “higher level” behavior and instrument use – to provide a temporally sensitive ontogeny and non-intellectualist foundation to the extended mind theory and instances of extended mind.<sup>4</sup>

If the extended mind is as a pervasive phenomenon as Clark and Chalmers seem to imply, and if it concerns questions not only of cognition and mind but also of self, identity, morality, and ethicality, then a Merleau-Pontian account of habit as the mortar between the intracranial mind, consciousness, the body, language, other people, and things in the world with which coupled systems might obtain could be a helpful orientation for future research. More specifically, it may provide an orientation that places more emphasis on the role of the skilled body in certain epistemic actions. I will begin with a sketch of key elements from the “The Extended Mind” essay paying special attention to the criteria for coupled systems constitutive of extended cognition such as behavioral competence. I will then turn my attention to Merleau-Ponty’s theory of habit from Part One of *The Phenomenology of Perception* in order to highlight how that theory can and should be used to improve upon the work of Clark and Chalmers.

1. **The Extended Mind** Clark and Chalmers distinguish their own project from similar externalization hypotheses from the 70s by claiming that those earlier forays into a sort of extended mind or meaning hypotheses only considered passive extension whereas they believe that their contribution takes the hypothesis a step further towards *active* extended cognition (Burge, 1979; Putnam 1975). This active externalism is opposed to other earlier stripes of externalism, which for the sake of simplicity, can be considered passive, distal, and diachronic or historical. The active/passive dichotomy lends

<sup>4</sup> To my mind, the other key thinkers on the subject habit in the late 19<sup>th</sup> and 20<sup>th</sup> century worth seriously revisiting are Marcel Proust, William James, John Dewy, Pierre Bourdieu, Edmund Husserl, Felix Ravaisson, Paul Ricoeur, Gilbert Ryle, and Samuel Butler.

intelligibility the specific way in which “The Extended Mind” essay differs from earlier projects. Clark and Chalmers are concerned with epistemic actions involving some elements outside of the head. These external elements matter not at some prior point in time but *hic et nunc*. If epistemic actions sometimes involve extra metabolic elements then the epistemic credit should be spread among those external elements as well. Clark and Chalmers insist that their active externalism is, in some instances and for certain durations, not a description of a mere aid to cognition. Rather the claim is that extra-metabolic elements can be partially *constitutive* of certain cognitive processes. In their own words, “In these cases, the human organism is linked with an external entity in a two-way interaction, creating a coupled system that can be seen as a cognitive system in its own right” (1998). These systems may be, and often are, temporary, but for that reason the external components are no less partially constitutive of cognition. Again, to be clear, the hypothesis of extended cognition does not put forth the idea that mind extends into things and environment all the time or that it must do so by necessity. Rather the claim is that there are some instances in which mind does extend out into the world in ways such that those cognitive processes cannot be fully accounted for by limiting the object of one’s investigation to what goes on in one’s head. Moreover, if one only looked at the skin-bound human mind, or even more concretely at only the brain, then the argument is that one would obtain only a partial, and therefore possibly misleading picture of some types of cognition. With this in mind let’s now turn to more concrete examples of extended cognition. Clark and Chalmers give us three Tetris driven problem-solving examples in order to first highlight the unjustified assumption that the skull is the boundary and limit of all cognition. In the first case we are asked to imagine a sort of *ersatz* Tetris in which a user will not be able to rotate the blocks on the screen but must rotate them mentally in order to determine if they will fit in to various sockets. The second case is more or less a straightforward Tetris in which the blocks can be rotated on the screen by using a rotation button to help determine the fit of blocks with sockets. The third case is a sort of cyborg mash-up of the first two: Imagine one has a neural computer implant that can perform the rotation that would happen on the screen from the second example but now it is happening inside the head or one can opt for the old-fashioned mental rotation from the first example. In other words, the in the third case both possible types of rotation – outsourced and mental - occur in the head and yet the neural implant option is on par with the traditional externalized rotation-button example from the second case. Comparing these three examples is meant to

highlight the similarities in all three cases and the inadequacy of the skin or skull as a boundary for cognition when faced with the third option.<sup>5</sup> This is a declaration of what Douglas Robinson has referred to as a border-war (2013). Let us look now more closely at the paradigmatic example Clark and Chalmers hazard in favor of their position; Otto and his notebook. Arguably, the core of the “Extended Mind” essay is a thought experiment involving two people who find themselves in New York City and want to go to the MoMA. Their names are Otto and Inga. Inga has normally functioning declarative memory and needs no external tools recall that MoMA is on 53<sup>rd</sup> Street. Otto suffers from Alzheimer’s disease and so rather than being able to use biological memory he uses a notebook for all sorts of things he would like to be able to recall. In this thought experiment, Otto’s notebook contains, among other things, the address of MoMA. Thus Otto can use the notebook in lieu of biological memory with no problems or decrease in behavioral competence. Otto’s use of the notebook in this example illustrates a plausible case of a coupled cognitive system as discussed above. Clark and Chalmers also give us an additional list of criteria that must all be met in order for something to count as extended qua cognition in the case of Otto’s notebook. They write:

1. That the resource be reliably available and typically invoked.
2. That any information thus retrieved be more or less automatically endorsed. [...] It should be deemed about as trustworthy as something retrieved clearly from biological memory
3. That information contained in the resource should be easily accessible as and when required.
4. That the information in the notebook has been consciously endorsed at some point in the past and indeed is there as a consequence of this endorsement (1998).

The “resource” in the case of Otto is his notebook but surely a smartphone or other high-tech tool could do the job as well or better. Moreover, the resource needs to be trusted. True a notebook or smartphone could be tampered with or mistrusted but biological memory is no less immune to gaslighting or doubt. Accessibility when needed is also not sufficiently

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5 Based on research by David Kirsh and Paul Maglio (1994), the conclusion was drawn that the rotation of these shapes was used not just to position the blocks but also and often to determine their fit within the sockets. The rotation of blocks was thus perhaps an epistemic and not merely pragmatic action. Moreover, this determination of blocks fitting into sockets was achieved far more quickly when one could rotate the block on the screen as in the second case than when had to carry out the same rotation in one’s head.

different in cases of biological as opposed to external memory resources. The naked brain is subject to sleep, intoxication, and emotional overload just as much as the notebook is susceptible to worldly inaccessibility. Clark and Chalmers back away from the force or necessity of the fourth condition because it may suggest that a history is partly constitutive of belief and because endorsement might not always need to be conscious. What Clark and Chalmers argue is that the process of memory retrieval in the case of Otto highlights the parity principle in favor of the hypothesis of extended cognition. The parity principle states that

If, as we confront some task, a part of the world functions as a process which, were it to go on in the head, we would have no hesitation in accepting as part of the cognitive process, then that part of the world is (for that time) part of the cognitive process (1998).

In other words, if something external to the body or brain functions in the same way as something internal then it is in a strong sense part of the cognitive process for as long as that process takes place. When is Otto's mind extended into the notebook? Only for the brief period of time that he is coupled with it in the act of retrieving the address of MoMA. In investigating the myriad types of human cognition (an incredibly broad and contentious term) we would do well, Clark and Chalmers tell us, to operative with what is called a "veil of metabolic ignorance (2011)."

Using this veil of metabolic ignorance one would not make proper sense of the process of Otto's recall by limiting the scope of one's analysis to Otto's biological memory and indeed the notebook would seem to be constitutive element of a couple cognitive system. Coupled systems, of which Otto coupled with his notebook is one example, have a number of conditions that need to be met in order for the extended element to be considered constitutive of a cognitive process or system. Clark and Chalmers identify the following four features:

1. All the components in the system play an active causal role.
2. They jointly govern behavior in the same sort of way that cognition usually does.
3. If we remove the external component, the system's behavioral competence will drop, just as it would if we removed part of its brain.
4. This sort of coupled process counts equally well as a cognitive process, whether or not it is wholly in the head (1998).

These general conditions are clearly tailored for cases such as Otto's whereby parity of internal and external components is key. Of central importance is the condition that if the external component is removed then behavioral competence will drop. A drop in behavioral competence stemming from the removal of the external component of a cognitive system can be seen in the Kirsh and Maglio's study of the performance of determining a block fitting a socket in Tetris (1994). If the competent performance of a cognitive behavior or action is needed for parity then perhaps an additional explanation is needed to explain behavioral competence with an extended component over time, which is to say with the addition of habitual knowledge of how to use a given external component without having to deliberate how - not just use it - but to use it well.

Moreover, It may be that complementarity is just as important as parity in terms of performance, competence, and governing of behavior. There are many people with Alzheimer's or similar conditions who might require or greatly benefit from cognitive scaffolds that replace some biological component that has failed then. However, cases of extended cognition in which the biological has not failed but rather can be improved upon with some external help may be equally worth investigating

In Clark's solo effort, *Supersizing the Mind*, he moves beyond just parity to examine complementarity. In that work, it seems that it is probably the case that in taking seriously the hypothesis of the extended mind we should still maintain the parity principle, but that it is equally promising to think beyond the parity and instead look at cases of complementarity. In other words, the equally fruitful, interesting, and perhaps more pervasive cases of extended mind will not be processes that mirror "skin-bag" memory, as in the case of Otto's notebook. Rather attention should also be paid to those cases which, as Clark writes, show the ways in which "it is the brain's great plasticity and thirst for cheap, outsourced labor that drives the distributed engines of sociotechnological adaptation and change (2011)." He states further that the forward-going agenda of his project is

[...] to understand the larger systemic webs that, spun around the common core shared with so many other animals, help to give human cognition its *distinctive* power, character, and charm. (Ibid.)

With both parity and complementarity in mind one can perhaps see that if there is this perhaps pervasive systemic web spun around the *sine qua non* that is the biological mind then making sense of the kind of behavioral competence or improvement, typical invocation, and endorsement may in some cases require the acquisition of habitual knowledge of the use of external components in an extended cognitive system. Let us now turn to Merleau-Ponty in order further

the possible role of habit in cases of extended cognition.

2. Merleau-Ponty on Habit from the Phenomenology of Perception: or, Actions, Epistemic and Pragmatic, are Anchored in the Habitual Lived Body

Habit, *chez* Merleau-Ponty, is a broad notion that functions as an umbrella term denoting the practices by which quasi-stable dispositions, capacities and fields of meaning emerge in a number of analytically distinct yet conceptually blended regimes running from “higher level” operations of consciousness and non-conscious discursive practices through “lower level” functions like perception and motricity. Habit is the process which denotes the production of second natures (quasi-stable dispositions, capacities, and affordances), and frameworks (or fields) of meaning and action both epistemic and pragmatic. In many of these cases habit can only be understood if we extend the scope of the analysis beyond the skin of the organism. Indeed, habit functions at the fundamental antepredicative, preobjective, prepersonal, and nonreflective level of familiarity with the world.<sup>6</sup> This does not mean that habit for Merleau-Ponty is not squarely bodily and biological but it is the case that starting from what is given to us by nature, our body and organs, habits can and do emerge which incorporate ‘external’ interments (2012[1945]). Habit, for Merleau-Ponty, should not be understood as mere mechanism or under the guise of Skinnarian behaviorism because, at the very least, his explanations exceed observable behavior. Habit concerns the body and begins with the body for Merleau-Ponty, to be sure, but a clear picture of habit cannot be sketched via embodiment alone; body, mind, environment, language, and artifacts need to be given consideration in the constellation of habit. Moreover, distinctions or oppositions such as mind and body are shown to be the result of leaning too far towards opposing poles of false dilemmas, or rather real dilemmas that can be deflated by pursuing a middle path: lived phenomenology. Merleau-Ponty’s analysis attempts to avoid the Scylla of something like pure mind and the Charybdis of brute body by starting from phenomenal lived experience; an intentionally ambiguous middle ground that is neither the objective or actual body nor the free floating Cartesian cogito.<sup>7</sup> To be sure, the skin is not the outer limit of habit.

Merleau-Ponty will often use the word “l’habitude” but, as mentioned, its

6 On the distinction between the ‘inside’ and ‘outside,’ or one could say ‘internal’ and ‘external’ or ‘self’ and ‘world’, Merleau-Ponty writes: “Inside and outside are wholly inseparable. The world is wholly inside and I am wholly outside myself (2012[1945]).”

7 Merleau-Ponty’s work almost always attempts to show that seemingly intractable binary oppositions such as mind and body, subject and object, self and world, idealism and materialism, etc., can be deflated and shown to be a mistake of emphasis or orientation. It varies by case, but it often he proceeds by showing the interdependence of the two terms, the actual truth to each term, and the mistake of privileging one above the other or falling too far on one side or the other of such an opposition which is usually a result of starting from the “antepredicative unity of life and our world” (2012[1945]).

sense will vary. Habit seems to be an 'operative concept' which is employed but neither simply defined nor consistently used.<sup>8</sup> In this essay I will focus my attention to Merleau-Ponty's remarks on habit in relation to the body schema. Habit is also aligned with or crucially related to language, concepts, discursive thought processes, sedimentation and operative intentionality (2012[1945]). However, it is in his discussion of habit and the body schema that Merleau-Ponty deals explicitly with extending one's capacities by incorporating external instruments into ones repertoire of possible actions and therefore a fruitful way to bring Merleau-Ponty's account of habit to flesh out behavioral competence as it might concern the extended mind. This essay thus takes a narrow perspective on what is admittedly a larger role of habit in the work of Merleau-Ponty.<sup>9</sup>

There are many who have worked on variations of this issue before, albeit with different aims in mind and not always conjunction with the extended mind theory. Namely, Sean Gallager in his work on the difference between the body schema and the body image (1986;2005). Ed Casey, in a number of excellent essays, has worked extensively on habit and the body schema (1984;1987). What is more, Dermont Moran has an essay in which he lucidly undertakes the difficult task of disambiguating the notion of habit in the work of Edmund Husserl (with reference to Merleau-Ponty; although he draws a conservative conclusion regarding the importance and scope of habit for Merleau-Ponty)(2011). Additionally, Martina Reuter has done excellent work on Merleau-Ponty's conception of pre-reflective intentionality, a notion that I see as a key part of the larger picture of the role habit as constitutive element of selves, groups, things, worlds, as well as the relation between those categories, critically understood (1999).

The body schema is the notion that Merleau-Ponty perhaps most closely aligns with habit. The body schema is the pre-conceptual, pre-personal, non-explicit, non-representational command of the body's current and futurally open location, organization, situation, and capacities in relation to itself, to things, to language, and to world. It is founded in motricity. Although the body scheme begins in basic biological motricity, a more developed body schema can and does run the gamut of actions and

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8 I take this notion of 'operative concept' from Eugen Fink via Dermot Moran. Fink used the notion of "operative concept" to describe Husserl's account of habit. Habit - being somewhat unwieldy - suffers a similar fate in the work of Merleau-Ponty.

9 It is difficult to isolate terms or concepts that Merleau-Ponty uses without some distortion because of the how closely any given term or concept is thoroughly integrated with almost all the others. A fuller picture of Merleau-Ponty's notion of habit would have to take into account the relation of habit in and to his notions of the intentional arc, operative intentionality, bodily intentionality, sedimentation, language, freedom, space, time, the cogito, and style. Such an account is simply beyond the scope of this essay.

capacities from basic bodily skills and tacit *savoir-faire* that blend into and are indissociable from faculties such as perception.<sup>10</sup> The acquisition of habits modifies one's body schema allowing one to perform highly developed cultural-technological practices that incorporate external components such as playing an instrument, driving a car, or blind person using a cane to navigate through space.<sup>11</sup> The acquisition of habits begins with testing or trying-out, not usually nor necessarily with prior deliberation, representation, and objectification.<sup>12</sup> The body schema is not a static relation between self and world, it undergoes change and this change is produced by the acquisition of habits.<sup>13</sup>

When the acquisition of a habit incorporates an instrument into one's repertoire of actions by modifying and augmenting the body schema, it becomes the case that, according to Merleau-Ponty, the cognitive load of performing that action – in terms of attention, consciousness, deliberation, and representation – is lightened. The well-known example of the blind person's cane can be illustrative here. He writes,

But habit does not *consist* in interpreting the pressure of the cane on the hand like signs of certain positions of the cane, and then these positions as signs of an external object – for habit *relieves us* of this very task (2012[1945]).

This example – which so clearly shows that perception and motricity can be nontrivially co-constituted by a non-biological external thing – also shows that once a habit is fully incorporated into one's body schema, conscious interpretation is no longer needed and presumably competence or command of the external component has been mastered.<sup>14</sup>

I want to highlight two more important aspects of habit acquisition and

<sup>10</sup> Merleau-Ponty writes, “In fact, every habit is simultaneously motor and perceptual because it resides, as we have said, between explicit perception and actual movement, in that fundamental function that simultaneously delimits our field of vision and our field of action (2012[1945]).”

<sup>11</sup> On the incorporation of external components into one's body schema via habit, Merleau-Ponty writes: “To habituate oneself to a hat, an automobile, or a cane is to take up residence in them, or inversely to make them participate within the volumosity of one's own body. Habit expresses the power we have of dilating our being in the world or of altering our existence though incorporating new instruments (2012[1945]).”

<sup>12</sup> To acquire the habit of using a cane to navigate space Merleau-Ponty states that “If I want to become habituated to a cane, I try it out, I touch some objects and, after some time, I have it “in hand”: I see which objects are “within reach” or out of reach of my cane (2012[1945]).”

<sup>13</sup> The acquisition of habits is the acquisition, moreover, of a type of knowledge. Merleau-Ponty writes, “This is what I express by saying that I perceive with my body or with my senses, my body and my senses being precisely this habitual knowledge of the world, this implicit or sedimented science (2012[1945]).”

<sup>14</sup> On the extension of the perception of the world through the cane, Merleau-Ponty writes “When the cane becomes a familiar instrument, the world of tactile objects expands, it no longer begins at the skin of the hand, but at the tip of the cane (2012[1945]).”

mastery of certain behaviors. First, habits are transparent. Once a habit is incorporated into the body schema then that habit is not conspicuous, these habits are something we live, act epistemically, and act pragmatically *through*. Moreover, according to Merleau-Ponty, the actions we have habitually mastered, if known at all, can only be known after the fact, known in breakdown, in the removal or misplacement of instruments in cases of extension, or they can be known in reflection subsequent to mastery. Second, habits exhibit temporal and functional dynamism for Merleau-Ponty. Habits are a sort of knowing familiarity, not a pure and self-same mechanistic response.<sup>15</sup> What exactly I mean by this is that we find as a general rule that habits are not something one acquires once and for all and that even those which appear quasi-stable are themselves undergoing change by reinforcement or slight and unnoticed modification upon each fresh application. This is similar to the way that current psychological research shows that episodic memory is not held in storage in the brain and then called up the way that things might be stored in a warehouse and then easily accessed when needed, rather episodic memories are born anew and modified with each recollection.

With Merleau-Ponty's account of the acquisition and mature function of a habit in mind, especially in cases where the habit modifies the body schema in ways that go beyond the limits of the skin such as in the use of familiar instruments in a mode that is highly skilled, transparent to consciousness, dynamic, prepersonal, preobjective, nonrepresentational, and effortless it may be possible to use this theory to underpin and flesh out Clark and Chalmers theory of extended cognition.

An instrument or tool of epistemic action, bracketing cyberpunk neural implants for the moment, is by necessity beyond the limits of the skin or head. Therefore the use of such an instrument will, *by varying degrees*, rely in some way on motoricity and perception in order to be used.<sup>16</sup> To not merely use such a tool or instrument, but to use it *well*, that is to say with mastery

15 Merleau-Ponty explains this familiar by recourse to an example of an organist playing on an unfamiliar organ. An experienced organist, having a body schema that has mastery over the playing of organs, can modify and adjust their body schema to a new organ in the course of a few minutes of practice. Memory of the objective location of pedals, etc., or predicative knowledge of the new organ's unique layout prove to be inadequate and misleading explanations of this sort of plasticity for Merleau-Ponty (2012[1945]).

16 The habitual command of one's hands in arranging tiles in a game of Scrabble or similar search and recognition actions will be presumably easier to habitually acquire and will be acquired at a much younger age than the more complicated and specialized tasks, for example those that Hutchens identifies in *Cognition in the Wild* (1995). We often assume that, for example, the skillful motor-perceptual use of a smartphone or computer is automatically intuitive when it *fact* is only appears to be intuitive if we already have a habitual command of touchscreen graphical user interfaces. This example will not hold for longer very long, however, think of the use of computers by older individuals that did not grow up as 'digital-natives,' so to speak.

or a high level of behavioral competence that exceeds the novice or first time user. It is likely the case that in such instances the habit of using such an instrument has been incorporated into the body schema of the subject in question. The habit is not thereby constitutive of cognition but it makes a difference concerning performance and competence. Moreover, if such a habit is acquired then it is likely the case that in performing certain types of epistemic actions, the reliable instrument will be typically invoked as well and endorsed (in the past or present) in a non-explicit, non-deliberative manner. The importance of the role of habit will depend on specific type of epistemic action in question, therefore let us now look at some examples. Recall the Tetris examples from Clark and Chalmers. In the case which allows for an individual to rotate the blocks on the screen in front of them thereby allowing the individual to outperform the epistemic action of fit determination over and above instances mere mental rotation, the individual in question is using a video game controller to rotate the blocks in conjunction with perceiving rotating block on the screen. It is likely that given time, an individual would acquire the habitual command of this motor-perceptual skill in a modest modification of said individual's body schema. Once a habitual command of this skill was acquired then presumably the behavioral competence and performance of that individual at this task would increase. Thus the acquired habit in question would not be part of the cognitive coupled system rather it would subtend that system and would do so in a way that makes a difference in the efficacy and overall performance of that process. Indeed performance would increase as the habit becomes more fully integrated into the individual's body schema. The case of Otto's notebook presents some difficulties for my thesis is so far as it is unclear if Otto's Alzheimer's makes it unable for him to develop new habits understood as modifications and enrichments of the body schema. Assuming Otto can acquire new habits then it is likely the case that his command of his notebook as an external cognitive resource would be improved with and motor-perceptual familiarity which is the acquisition of a habit via the incorporation of that habit in the body schema. Even for those of us that do not have any cognitive impairments, familiarity with the motor perceptual demands of an external memory resource (a phone book, an encyclopedia, a map, a smartphone, a laptop computer) and unknowingly responding to those demands with the acquisition of the needed habit would presumably improve speed and performance of epistemic actions over time. What I have hoped to have shown is that in the acquisition of habits, as accounted for by Merleau-Ponty, it is the case that the motor-perceptual modification of the body schema can make a meaningful difference

for extended cognition as it regards behavioral competence, systemic performance, endorsement of external components, and typical invocation of external components. Habit is perhaps not a part of the cognitive system, but habit makes a difference in how well such coupled cognitive system might function. Moreover, habit highlights the extent to which this enhanced cognitive performance relies on the body and its organs in conjunction with mind and thing. Habit makes a difference for extended cognition and Merleau-Ponty's theory of habit helps to flesh out or show the role of embodiment, more specifically the body schema, in this regard.

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