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Queering Cognition: Extended Minds and Sociotechnologically Hybridized Gender

by

Michele Merritt

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
Department of Philosophy
College of Arts and Sciences
University of South Florida

Co-Major Professor: Rebecca Kukla, Ph.D.
Co-Major Professor: Shaun Gallagher, Ph.D.
Alex Levine, Ph.D.
Thomas Williams, Ph.D.
Andy Clark, Ph.D.

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Dedication

I dedicate this dissertation to Ellen Wagner, my mentor and friend, who continues to show me what it means to persevere in the face of adversity. Thank you for believing in me all those many years ago and for remaining one of my biggest fans.

I would also like to thank my committee members, both for their academic and emotional support. Without all of your insights, criticism, and most importantly, your belief in my project, I could never have accomplished this. In addition to those in academia for whom I am grateful, I would also like to thank my family. There is no way on earth I would have had the courage and strength to undertake all of this work without your love, and on many occasions, your financial support. And to all of my friends – a.k.a. my "extended family" – it has meant so much to me to have you in my life. I never have and never will underestimate the value of "down time." If one must procrastinate and goof off from time to time, I can think of no other people with whom I'd rather engage in such silliness. Last, I want to thank anyone who did not believe in me. Without you, I would have no one to prove wrong.

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Abstract

In the last forty years, significant developments in neuroscience, psychology, and robotic technology have been cause for major trend changes in the philosophy of mind. One such shift has been the reallocation of focus from entirely brain-centered theories of mind to more embodied, embedded, and even extended answers to the questions, *what are cognitive processes* and *where do we find such phenomena?* Given that hypotheses such as Clark and Chalmers' (1998) *Extended Mind* or Hutto's (2006) *Radical Enactivism,* systematically undermine the organism-bound, internal, and static pictures of minds and allow instead for the distribution of cognitive processes among brains, bodies, and worlds, a worry that arises is that the very subject of cognitive science, the 'cognizer' will be hopelessly opaque, its mind leaking out into the world all over the place, thereby making it impossible to rein in and properly study.

A seemingly unrelated and yet parallel trend has also taken place in feminist theorizing about the body over the last forty years. Whereas feminism of the 1970s and early 1980s tended to view 'the body' as the site and matter of biological sex, while gender was a more fluid and socially constituted mode of existence, more recent feminist theory has questioned the givenness of bodies themselves. In other words, rather than seeing gender categories as manifestations of the already given sexed body, thinkers such as Butler (2000) and Lorber (1992) argue that the very notion of a body is often a product of scientific inquiry, which is itself a product of the power structures aiming to maintain a rigid binary between feminine and masculine gender roles. If the world at large plays

such a constitutive role in determining *who we are*, then this implies that the tools we use, the language we speak, and the power relationships in which we are enmeshed are components of what it means to be embodied in any genuine sense. For thinkers like Haraway (1988) the image of the cyborg is most fitting for this new understanding of embodied subjects, as the cyborg is a coupling of machine and human. Gender and even biological sex will always be a technologically hybridized 'monster' consisting of matter, machine, and mind.

The overall aim of my project is thus to bring the two concurrent developments in theorizing about embodied subjects into discourse. As the cyborg features largely in recent feminist thought about embodiment, so too has it been a prominent metaphor in philosophy of mind, ever since Clark (2003) claimed that we ought to think of our 'selves' more appropriately as *Natural-Born Cyborgs*. I therefore focus on this imagery as I go on to make the argument that this distributed account of cognition as well as of sexual identity is more fruitful for making progress in understanding 'the human' more generally. Likewise, I argue that bringing the discussion of sex and gender into the arena of an otherwise asexual philosophy of mind, will shed light on some important facets of embodiment that have been overlooked but that ought to be addressed if we are to have an adequate account of 'the proper subject of cognitive science.'

My chapters include 1) a survey of the discourse between science and philosophy of mind leading to these embodied and extended approaches, 2) a first attempt at defending the extended mind thesis, 3) a discussion of how even the supposed resolution to the objections raised against extended cognition fails to properly take into account just how problematic subjectivity is, regardless of its being defined entirely organismic or not,

as organisms themselves are highly malleable and socially constituted, 4) an explanation concerning how the same problematization of embodied subjectivity is ongoing in feminist theory, especially considering the phenomenology of transgendered embodiment, intersex, and technologically mediated bodies, 5) further elaboration on technologically enhanced bodies, exposing what I see as a continuum between bodies modified by 'hard' technologies, such as implants, prostheses or surgeries, and those modified by 'soft' technologies, such as gender norms, the social gaze, and technologically mediated metacognition, and last, 6) an argument for the image of the cyborg to replace 'organism' in cognitive science, along with the corollary argument that cyborgs ought to represent not just embodied minds, but should also be the metaphor in attempting to understand 'embodiment' more generally, which must, at its roots, be underpinned by gender and sexual identity. I argue that the imagery is fitting for the proper study of cognitive subjects as well as sexed and gendered bodies, but moreover, that just as the cyborg suggests a blending and hybridizing of seemingly unrelated elements, so too should the two areas of inquiry, philosophy of mind and feminist theory, pay heed to one another's use of this imagery and themselves begin to be more integrative in their approaches.

Introduction

"I am optimistic that we will soon see the end of those over-used, and mostly ad hoc appeals to the 'natural'" – Andy Clark

"The cyborg is a kind of disassembled and reassembled, postmodern collective and personal self. This is the self feminists must code." – Donna Haraway

In a short but now infamously contentious paper entitled *The Extended Mind* (1998) Andy Clark and David Chalmers begin by posing a rather simple question: *Where does the mind stop and the rest of the world begin?* Their question, although seemingly uncomplicated, in fact marks the beginning of over a decade of debates, publications, and conferences devoted to suitably answering the supposedly straightforward query regarding the location of cognition. The thesis they put forth, *Extended Cognition,* is itself a radical shift in the philosophy of mind and cognitive science. In particular, the last fifty years have witnessed the gradual reallocation of focus from entirely brain-centered theories of mind to more embodied, embedded, and eventually extended approaches to studying the mind. Hypotheses such as the ones Clark and Chalmers suggest, or similarly, Dan Hutto's (2006) *Radical Enactivism,* systematically undermine the organism-bound, internal, and static pictures of cognition and allow instead for the distribution of cognitive processes among brains, bodies, and worlds. Worries arise, however, concerning precisely what the subject of cognitive science will turn out to look like; namely, as Robert Rupert (2004) has complained, the 'cognizer' will be hopelessly opaque, its mind leaking out into the world all over the place, thereby making it impossible to rein in and properly study. In response to these objections, Clark (2003) for example, has argued that

despite apparent difficulties associated with studying such a subject, it really is more reasonable to think of 'the human' as a motley crew of biological organism, non-biological tools, and language. In other words, when answering the question concerning *where* we are, 'we' ought not be limited to biology; likewise, in answering the question concerning *what* we are, Clark suggests, the best way to conceive of ourselves is as blending of organism and artifact – or more precisely, as *cyborgs.*

Around the same time *The Extended Mind* was published, in the opposite corner of the academic universe, we find the feminist theorist, Donna Haraway (1991), asking: *Why should our bodies end at the skin, or include at best other beings encapsulated by skin?* Just as Clark and Chalmers' paper marks an important change in philosophy of mind, Haraway's *Cyborg Manifesto* differs importantly from previous feminist theory insofar as it stands as a point upon which the myriad of preceding 'feminisms' triangulate. Whereas feminist theory of the 1970s and early 1980s tended to view 'the body' as the site and matter of biological sex, while gender was a more fluid and socially constituted mode of existence, more recent feminist theory has questioned the givenness of bodies themselves. Thinkers such as Haraway and Judith Butler (1992) argue that the very notion of a body is often a product of scientific inquiry, which is itself a product of the power structures aiming to maintain a rigid binary between feminine and masculine gender roles. If the world at large plays such a constitutive role in determining *who we are,* then this implies that the tools we use, the language we speak, and the power relationships in which we are enmeshed are components of what it means to be embodied in any genuine sense. For thinkers like Haraway (1988) the image of the cyborg is most fitting for this new understanding of embodied subjects, as the cyborg is a coupling of

machine and human. Gender and even biological sex will always be a technologically hybridized 'monster' consisting of matter, machine, and mind.

Given these similar although unrelated reevaluations of *who we are,* concurrent in philosophy of mind and feminist theory, it is my aim in this project to bring the two developments in theorizing about embodied subjects into discourse. As the cyborg features largely in recent feminist thought about embodiment, so too has it been a prominent metaphor in philosophy of mind, ever since Clark claimed that we ought to think of our 'selves' more appropriately as *Natural-Born Cyborgs*. I therefore focus on this imagery as I go on to make the argument that this distributed account of cognition as well as of sexual identity is more fruitful for making progress in understanding 'the human' more generally. Likewise, I argue that bringing the discussion of sex and gender into the arena of an otherwise asexual philosophy of mind, will shed light on some important facets of embodiment that have been overlooked but that ought to be addressed if we are to have an adequate account of 'the proper subject of cognitive science.'

The first chapter surveys the last nearly fifty years in philosophy of mind and cognitive science. My aim in this opening chapter, however, is not purely exegetical. Instead, the discussion is tailored toward exposing an oversight made by nearly all theories of mind to date – namely, how *body* and *situation* shape and perhaps even constitute cognition. Specifically, I point out the flaws typically associated with *behaviorism, type physicalism,* and *token physicalism.* Although each is problematic in its own unique way – behaviorism runs the risk of too liberally ascribing cognition to otherwise non-cognitive entities, and type physicalism is often accused of what Ned Block (1980) has referred to as "species chauvinism," while token physicalism or

functionalism can actually be guilty of *both* of these charges – all three of these attempts to explain *what* cognition is and *how* it arises take for granted a crucial third element. By looking at recent developments in Artificial Intelligence (AI), for instance, it becomes apparent that *where* cognition is occurring is assumed at the outset to be solely internal to the organism, or the robot as the case may be in AI research. It is this supposition – that the mind is simply 'in the head' or 'internal to the body' – that plagues philosophers, psychologists, and roboticists in trying to come up with a suitable understanding of how cognition works and how we might come to duplicate it in a non-human machine.

It is not until theories of *embodied cognition* (cf. Varela, Thompson & Rosch, 1991) begin to be taken seriously that we find proper attention not just to the body itself, but to *embodiment*, or how the body is situated in its environment, how the world shows up through the body, and how the body actually shapes how we think. It was Gibson and his theory of "affordances" (1979; 1977; 1966; 1954) that provided the psychological antecedent to this philosophical movement, in addition to the phenomenologists of the early to mid-twentieth century, in particular, Merleau-Ponty (1962). These accounts of cognition set the stage for one of the most radical, yet, as I argue, most plausible hypotheses regarding precisely *where* we ought to locate the mind. Pushing what it means to characterize the mind as *embodied, situated,* and *enacted* (cf. Noë, 2004) to its logical conclusion, it becomes less and less clear where the mind stops and the external world begins. In other words, by examining how the environment can and most often does shape the way we think, a case can be made that certain parts of that world – in particular, tools that we employ to help ourselves think – should be considered as parts of our minds.

In chapter 2, therefore, I spend a great deal of time fleshing out the hypothesis of Extended Cognition (HEC) and I rehearse some of the difficulties with accepting the view that cognition is a distributed process spanning biological organism and non-biological circuitry (cf. Clark, 2008, 2003; Clark and Chalmers, 1998). The chief aim of this chapter is to highlight the strengths of the HEC while attempting to adequately reply to some of the more challenging objections, namely, that cognition is driven by non-derived content and so must be internal to the 'system,' (Adams & Aizawa, 2010; 2008; 2001) and that 'the mind' is a natural kind, which disallows for its being constituted by an unruly and motley crew of processes, the mergers and couplings of which could never be the proper subjects of cognitive science (cf. Rupert, 2004). While I further Clark's (2010; 2008) replies to these objections to some extent, I also argue that his most recent 'retreat' – the hypothesis of organism-centered cognition (HOC) – is too large a concession. For one, I argue, giving up the notion that the body and the world are 'equal partners' in cognition seems to be giving up the original thesis altogether. Furthermore, by problematizing what Rupert has claimed must be the proper subject of cognitive science – the subject itself – it is clear that even centering cognition on a organism is dubious because that biological entity is only one component of a much larger and much more complicated story about embodied subjectivity.

Developing an account of embodiment and cognitive subjectivity is the focus of the third chapter. First, by adopting Shaun Gallagher's (2005) distinction between the *body image* and the *body schema*, we are able to account more phenomenologically for the way the body shows up in experience. In particular, my body can be a reflective object of my perception and thought – that is, I can imagine it – or, it can be lived

through, pre-reflectively, via a motor program executed below the level of explicit awareness. Likewise, in non-pathological embodiment, I typically maintain a *sense of ownership* and a *sense of agency*, not simply over 'the body' itself, but over my embodied intentions for action and execution of that action. But just as I am able to dissociate from the tools and 'cognitive aides' I use – a potentiality for detachment that the intracranialists argue 'marks' these objects as non-cognitive – I am also able to dissociate from my own body. To see how this is possible, I look at several cases of "body pathologies," ranging from Phantom Limbs to Möbius Syndrome. What we glean from these 'abnormal' cases is that cognition occurs on a multitude of levels and can be captured by a variety of phenomenological descriptions; it can be constituted reflectively and pre-reflectively and can involve robust ownership and agency, only one of these dimensions, or potentially neither of them. This multifarious phenomenology of embodiment is, I argue, not limited to pathological cases. Indeed, it 'marks' embodied subjectivity generally – the ability to lose agency or ownership over, or to feel 'not-at-home-with' one's body, albeit less extreme in non-pathological embodiment, is a constantly present feature of cognition.

At the end of chapter three, I suggest comparing the body to other tools we use, in particular, regarding cases of breakdown. Just as I can dissociate from my body if I have, say *somatoparaphrenia*, so too can I take a hammer to be wholly *other-to* me, whereas, in pre-reflective, non-pathological, body schematic action, the hammer, much like the rest of my body is not *present-at-hand*. It is rather an incorporated and integral component to the larger system of hammering; and similarly, when I perform actions with my body, so long as I am not experiencing any dysphoria with any parts of it, I do not explicitly

represent it as an object to be manipulated. Indeed, I + my body are one system. So too, I argue, should we count me + my prosthetic limb, a blind man + his cane, and Otto + his notebook. That is, when the coupled system, at the pre-reflective level, does not show up as two or more disparate objects, but rather, as one unified subject performing an action, the whole system should count as cognitive.

This claim concerning embodied subjectivity – that it is constituted at the pre-reflective and reflective levels, both as a unified and as a hybrid system – is carried over into chapter 4, where I suggest that we ought to consider the ways in which sex, gender, and sexuality figure into embodied cognition and subjectivity more generally. For one, this facet of 'the mind' has been relatively ignored in philosophy of mind and cognitive science. Likewise, as I argue, if we are to achieve a comprehensive account of cognitive subjectivity, it makes little sense to leave out a discussion of one of the very few necessary elements in experiencing myself as a 'thinking being.' That is, 'I' am always a sexed and gendered person, although of course, the specifics of these identifications can and do change. The argument I defend in this chapter begins with the premise that sexual identity, although much more tied to biological anatomy than something like gender roles or sexual orientation, remains highly contingent upon *embodied practices* rather than strictly on body parts. In other words, it is only through the lens of sexual reproduction, for example, that certain parts of my body show up as 'feminine,' which is itself based on a narrative of sexual reproduction.

Furthermore, by examining what Merleau-Ponty (1968) has to say regarding the "The Body in its Sexual Being," I argue that a case can be made to see sexual identity as 1) just as malleable and socially informed as the body in its gendered identity and thus, 2)

not always a 'that-through-which' I act at the pre-reflective body schematic level of awareness. Instead, by looking at examples provided by feminist phenomenologists such as Iris Young (2005) and Elizabeth Grosz (1994), we see that very little about female *bodies* translates into hardwired facts about female *embodiment*. Despite arguments made by psychologists such as Straus (1966) concerning the anatomy of female bodies as precluding certain actions and confidence, the case is stronger, I claim, on the side of the feminist phenomenologists, who, like Gallagher (2005), recognize the role of body image in shaping how we come to represent 'ourselves' in embodied practice. What people like Grosz, for example, add to Gallagher's discussion, is the notion that one's projected gender identity – in the form of a body image – can and does alter one's 'postural schema,' or the pre-reflective body-in-action. In this way, 'thinking like a girl,' for one, achieves meaning only insofar as we can juxtapose this mode of cognition to some 'other' – i.e. boy thinking – but also, by altering one's imagined gender, the 'sexed schema' – if we want to say there is such a thing – also alters. In short, the claim that there is anything inherently true and necessary of female embodiment based solely on facts about the biological organism is weak to say the least.

However, as chapter 5 will explore, it is not so easy to simply dismiss all notions of 'hardwired sex' or inherent gender identity. In particular, by looking at Gender Identity Disorder, Intersex Embodiment, and Transgender Embodiment, there are reasons to consider how an innately 'sexed self' might at least appear to be the most suitable phenomenological description. The chapter begins with the proposal that the dysphoria experienced by persons who feel trapped in the wrong body can be likened to the phenomenology of the bodily pathologies discussed in chapter 3 – in other words, we

might say that in cases of Gender Identity Disorder, for example, a person's body image is misaligned with his or her body schema, or that there has been a disruption in the sense of agency, ownership, or both. Examining narratives from transgendered persons is one way to affirm that this intuition might provide an accurate explanation, but the problem remains that among the narratives, as well as the medical and scientific discourse surrounding these phenomena, there is a persistent Cartesian idea that one's sexed or gendered identity is somehow independent from the reality of the flesh itself. The problem is made worse when we consider that the proposed 'solution' to these various modes of dissociative embodiment is often surgery – i.e. altering a body that was presupposed to have nothing to do with one's 'true self' in the first place.

In order to address these concerns, I turn from purely phenomenological descriptions to the theoretical underpinnings of what has now come to be known as Transgender Studies. To this end, a detailed account of Queer Theory and its treatment of transgender as a motif for the subversion of traditional conceptions of sex and gender provide the best framework. By utilizing Butler's (1990; 1992; 2004) argument that the figure of transgender serves to illuminate the performative nature of all gender, we can come to think of the supposed binaries characterizing sex and gender as fluid, figurative, and eminently transgressable, much like I argue, in previous chapters, we ought to think of 'the human' more generally. With Queer Theory as a point of reference, I return to the proposal made earlier in the chapter and suggest that within the field of Transgender Studies, there is evidence that trans-theorists would support the notion that a misalignment of body images is the best way to characterize the overarching phenomenology of having a 'true self trapped in the wrong body.' Jay Prosser's (1998)

rendering of Queer Theory is particularly useful here, as it 1) allows for a conception of gender identity disorder that resists an unpalatable Cartesianism, 2) helps to further refine and clarify the discussion of body image and body schema as they are proposed by philosophers such as Gallagher (2005) in order to weave sex and gender into an otherwise 'sexless' philosophy of mind, and 3) sheds light on *all* embodied subjectivity and how it is constituted in terms of sex and gender. It is this last point upon which I close chapter 5, suggesting that we return to 'the human' more generally in order to determine to what extent this necessary yet eminently malleable facet of embodiment augments what we mean by 'the mind.'

The final chapter begins by drawing an analogy; namely, just as the natural/unnatural divide serves as a myth to juxtapose non-transsexual with transsexual, so too does it work to 'artificially' differentiate between human and machine. This division between 'us' and our machines, I claim, conceals the fundamentally hybridized, eminently dissociable, and yet always already technological nature of cognitive subjectivity. To defend this claim, I argue that we ought to conceive of gender as a form of technology. If we do, then it is clear from chapters 4 and 5 that we are always already coupled to this 'tool,' although it can and often does become an*other* to us; or, in Heideggerean terms, gender might show up as present-at-hand, a *that from which I dissociate.* To see why we ought to consider gender to be a technology, I further differentiate between what Nikki Sullivan (2001) calls 'hard' and 'soft' technologies, in order to show that certain "sociotechnical systems of use" (cf. Kline, 1985) are best conceived as technological in nature – that is, they add to, aide, and augment human cognition. Based on this much more liberal notion of what counts as technology, together

with the idea that gender is a form of technology we are always already coupled with, there is yet more evidence to adopt Clark's (2003) insights discussed in chapter 2, that 'we' are best thought of as cyborgs – human-machine symbionts – language, and now gender, as two of the chief 'machines' constantly interwoven with our biological organism. This idea is argued by Donna Haraway (1991), whose 'cyborg feminism' seeks to blend not only human and machine, but is also a call for the blending of theories and practices surrounding feminist theory, which itself should be thought of as a hybrid. Most importantly, Haraway adds to the discussion so far, something I claim is missing even in Clark's radical 'Tools-R-Us' account of human cognition, namely, the idea that genuine decoupling from our technology is not possible, as it wrongly assumes that there were original, non-technological wholes prior to this coupling. Because gender is one of the tools with which we are always already conjoined, Haraway's case for the cyborg to stand in for 'the human' allows for a conception of human cognition that is not only a *biotechnological*, but a sociotechnological hybridization as well.

Chapter 1

From Encapsulated to Extended: Situating Cognition over the Last Fifty Years

This is Descartes' error: the abyssal separation between body and mind, between the sizable, dimensioned, mechanically operated, infinitely divisible body stuff, on the one hand, and the unsizable, undimensioned, un-pushpullable, nondivisible mind stuff; the suggestion that reasoning, and moral judgment, and the suffering that comes from physical pain or emotional upheaval might exist separately from the body. – Antonio Damasio, Descartes' Error

1.1 Introduction

Shaun Gallagher (2008) has recently provided a rich account of the historical underpinnings of situated cognition in the hopes of *situating*, as it were, the current trend in philosophy of mind and cognitive science, which has shifted its focus from brains and encapsulated egos to organism-environment systems. His approach is not purely historical, as he makes clear at the outset: "My intention, however, is not to provide a simple historical guide but to suggest that there are still some untapped resources in these past philosophers that may serve to enrich current accounts of situated cognition" (35). In the same spirit as Gallagher, this chapter is intended to provide an account of recent trends in philosophy of mind, a field that now finds itself at a strange impasse. My aim in doing so is not just to illustrate the historical progression of ideas; indeed, such a project could conceivably tell several distinct stories about many protracted battles: eliminativists vs. reductionists, non-reductive vs. reductive physicalists, and of course, the myriad of debates over the possibility of artificial intelligence, and these are just to name a few. Instead, the story I want to tell focuses on a specific facet of this historical trajectory,

namely, the way in which a suitable theory of embodiment has been systematically overlooked and avoided, at least until the very recent past few years. Examining this oversight will make clear why the particular impasse I have in mind – that between the internalist and the externalist – is a culminating point, one upon which many of the other disagreements just mentioned eventually converge.

In the wake of anti-Cartesian metaphysics, militant physicalism, and the neuroscientific revolution, one might expect that in the place of immaterial minds and free wills would be instead detailed accounts of bodies. What we tend to find however, is either some form of behaviorism or 'brain-mania.' The rest of the body, however, remains on the sidelines; it is assumed to be a necessary component of cognition, but this is typically all the thought given to human embodiment. It is taken for granted, in other words, that human minds have human bodies. This contemporary neglect of the body is not unlike the way Descartes[1] treated it so long ago. Despite his weak proof that bodies actually exist, even he was well aware of their intimate connection with minds; he simply failed to explain that connection properly. I want to suggest that this failure is not specific to Descartes, but is endemic to much of contemporary cognitive science, insofar as it affirms the importance of embodiment and yet fails to account for its role in cognition. Again, nearly everyone[2] agrees that the body is integral to cognition; it's the lack of explanation of how and to what extent this is the case that is the real source of disparity. And although I think the so-called mind-body problem has changed very little in this way since Descartes, I do intend to argue that the focus has shifted from a debate regarding

[1] See in particular, Mediation VI, Ariew and Cress, ed.
[2] Certain forms of cognition, in particular, *social* cognition, might however, turn out to have little to no dependence on the body itself per se, but more on embodied interaction. (cf. Goldman & de Vignemont, 2009)

what minds are – what they are made of, what sorts of things they do, and so forth – to a debate concerning *where* we should expect to find minds 'in the world,' and in particular, if we are willing to count parts of an otherwise external world as proper parts of the mind.

1.2 Something on the State of the *Parts*

When Ryle (1945) exposed what he saw as a 'category mistake' both in Cartesian Dualism *and* in strict mind-brain identity, philosophy of mind was split into two factions of materialist monism. Some chose, as Ryle did, to maintain some version of behaviorism, Ryle's particular brand being a 'dispositional behaviorism,' while thinkers immediately in Ryle's wake (cf. Place, 1956, 1988; Smart, 1959; Feigl, 1967; Armstrong 1968) chose to refine and defend mind-brain identity in the name of parsimony. To be sure, these two options are not exhaustive, but their complementary strengths, weaknesses, and ultimate failures, along with the concurrent advances in computing, provide a space from which functionalism as an alternative explanation of cognition can easily make advances. The purpose of this project is not merely historical however, and functionalism's roots and development are surely common knowledge among my readers. Thus, I will gloss over many of the details of this history, highlighting instead what I take to be significant for the purpose of ultimately exposing a flaw not just common to behaviorism and mind-brain identity, but to functionalism itself as well.

As Fodor (1981) notes, one facet of logical behaviorism that makes it particularly appealing is its ability to explain mental causation. Appealing to material monism of any sort sidesteps the intractable problem of interaction between material and immaterial substances, but more importantly, explaining mentality in terms of observable behavior

allows for a genuine 'science' of mind, with quantifiable, predictable, and observable data. Skinner's (1953, 1957) original notion that we can accurately predict a person's behavior given sufficient historical information about their reactions to environmental stimuli is similar to what we find in Ryle's (1949) argument that the tendency to behave in one given way or another depends on certain dispositions, which are themselves products of environmental history. Skinnerian and Ryleian behaviorism alike avoid the pitfalls of the causal nexuses between immaterial and material as well as between inner and outer. For example, under Ryle's account, if I get up from my chair and go to the fridge to obtain a beverage, this behavior (the observable physical effect) is said to be caused by a dispositional state, namely, *that when I desire a drink and the fridge is in close proximity to me, I will be disposed to walk over to it and procure a beverage.* The etiology is captured quite simply by ordinary language, language which, as the positivists would have it, is freed from metaphysical obscurity. Mental states cause physical states by dint of 1) their both being physical phenomena and 2) the antecedent mental states themselves being behavioral dispositions which tend to bring about the corresponding outward behavior.

One concern with behaviorism is the perhaps insuperable difficulty it faces in providing comprehensive dispositional laws for all observable behavior. As Chomsky's (1959) painting example compellingly illustrates, the human mind seems eminently capable of 'surprising' us. In his response to Skinner's (1957) operant conditioning as an explanatory model for human behavior, Chomsky highlights that while we might be able to develop systematic principles for understanding a person's behavior based on their prior history, there is nothing in that personal history which entails a *specific* verbal

behavior in response to a painting. Taking linguistic behavior as a specific mode in which predictability is limited provides this insight: given universal structures of all human language, such as infinite generativity and recursivity,[3] it can be said that language *itself* is unpredictable and hence, human employment of it will depend not solely on prior use, or even simply on some dispositional state, but also on the specifics of the situation. As the painting example illustrates, we can at best approximate a general list of typical responses for each person who views the painting, based on their prior reactions to art or their current dispositional state. However, if person A is viewing Painting X under a variety of different circumstances, e.g., at one museum versus another, with a large group of artists or with a gaggle of schoolchildren, or if person A is trying to impress person B who is also viewing the painting, the set of responses grows in complexity. Chomsky argues that it would be impossible to predict responses with 100% accuracy. Furthermore, if we consider, beyond Chomsky's syntactic point, concerns about pragmatics and sociolinguistic markers, the issue is further complicated by considerations such as what would make a response useful for each possible scenario, what would be polite or impolite in each context, and moreover, what sorts of responses might be generated based on seemingly irrelevant background information, such as the reaction 'I wonder if I remembered to turn off the coffee maker.' Moreover, and this is a point I shall highlight in later chapters, Chomsky's rejection of behaviorism on linguistic grounds points to a unique status that language holds in terms of behavior. Language is not just outwardly observable behavior, such as the lifting of a glass to one's lips or walking purposefully towards the door as Chomsky (1957) successfully demonstrates ,

[3] Cf. Chomsky, 1965, in particular, Chapter Three: *Deep Structures and Grammatical Transformations*.

our to ability utilize and understand a language involves an often tacit awareness of structures that underlie the surface structures we encounter. For example, when I begin stringing together clauses and phrases with conjunctions whilst recounting a story to a friend, I have an implicit understanding that this process could go on indefinitely. Indeed, the longest sentence in any language is impossible to conceive, hence, a universal principle governing all languages, namely, that they are infinitely generative. Nevertheless, we never actually 'observe' this infinite generation because it is quite literally unobservable, and yet, structures and principles such as these must certainly be part of the overall story of how we come to be competent users of a language. To put it briefly, language manifests itself as more than mere behavior. In other words, if Chomsky is right, then behaviorism misconstrues language on two grounds: first, while some aspects of language are behavioral, it is wrong to claim that language *just is* another behavior. Second, if linguistic rules are the means by which linguistic behavior as well as other observable behaviors are often generated, and these linguistic rules, while being universal and finite at the deep level, allow for an infinite and unpredictable set of surface constructions, then the further claim that *all* behavior should be predictable given enough 'dispositional information,' fails miserably. Hence, a major problem for behaviorists after Chomsky is the demotion from a theory that can explain *all* observable behavior to one that at best, can explain some of it some of the time.

Yet, another worry for behaviorism that has arguably been successfully solved by alternative theories is its inability to account for causation between mental states. While focusing all of their attention on how dispositions are causal antecedents for observable behavior, behaviorists overlook the possibility of unobservable behavior, as well as the

point that ‘inner’ thoughts often cause other thoughts. The assumption that *all* behavior is manifest through external bodily movement or speech is a hasty move at best, but perhaps the most damning feature of logical behaviorism is that the brain and central nervous system (CNS) are effectively left out of the discussion. To be sure, behaviorists are not interested in the nervous system, or they at least think it is of little use in understanding behavior; as Skinner argues, regarding a discrete behavioral response:

> We shall know the precise neurological conditions which immediately precede, say, the response, ‘No thank you.’ These events in turn will be found to be preceded by other neurological events, and these in turn by others. This series will lead us back to events outside the nervous system and, eventually, outside the organism…The causes to be sought in the nervous system are, therefore, of limited usefulness in the prediction and control of specific behavior [1953; 38].

Thus, the appeal to overt behavior assumes that all antecedents of outward behavior are eventually traceable back to other outwardly observable behavior – the CNS causes, if they count as causes at all, are intermediate and unimportant. Even more unfounded is the assumption that all behavior must be of the global, outwardly recongnizable, external variety. On a very coarse grained analysis, it might be true that one behavior can cause another, but then there is nothing to prevent us from refining our understanding of behavior to include things like the behaviors of neurons, somatosensory systems, and so forth, all of which are partially responsible for causing the more easily recognized outer behaviors of the whole organism. Later, we will see why perhaps delimiting the brain’s importance is a productive strategy, but for now, at this point in the historical progression, the denial on the behaviorists’ part that internally caused thoughts can cause other thoughts or even outward behavior is tantamount to claiming that it matters not what is going on inside, so long as what we observe counts as ‘mindful.’ Experimental

paradigms such as Heider and Simmel's (1944), in which mindless shapes move about a screen and people viewing these otherwise mindless objects readily attribute mentality to them simply by virtue of their observable 'behavior,' reveals this particular problem with behaviorism. Figure 1 is an image of one frame from the original video, in which the circle and triangles have been tracing a wild pattern around the large rectangular shape, which itself remains relatively still, except for one of its sides which swings back and forth at a 45 degree angle. The shapes' movements however, mimic embodied human movement; for example, upon seeing two shapes move together, one preceding the other until eventually stopping behind the rectangle, subjects claim that these two shapes are 'hiding' from the other shape. Indeed, the box, if it is supposed to be an occluding object of some sort, would prevent a normal embodied human, at certain angles, from seeing what is behind it. This is precisely what happens in the experiment; before long, the whole scenario is explained in terms of one shape 'hiding' from another, the other 'growing angry,' and even an 'argument' among the shapes ensuing. If we completely disregard the inner causes of behavior, the logical consequence of behaviorism as an explanatory mechanism is to allow anything whose outward behavior is characteristically 'human enough' to count as having mentality just like a human.

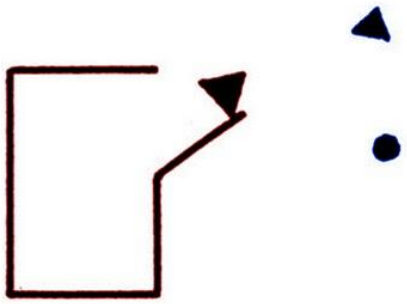

Figure 1.1: Depiction of Heider and Simmel Experiment. Visual representation of the short video played for experimental participants. The shapes move about the screen, going in and out of the large box and according to most reports, 'one shape is angry at another,' or some similar emotional state and corresponding behavior is attributed. One of my students, upon viewing this video, went so far as to conjecture that a love affair was ongoing with two of the shapes and in this scene, the third has found them out and then goes into a manic rage, finally breaking down the 'house' (the box gets shattered in the end). From: Heider, F. and Simmel, M. (1944). An experimental study of apparent behaviour. *American Journal of Psychology*, 57, 243–259.

In contrast with traditional behaviorism, *central state identity theory* allows for internally caused mental states by simply identifying them with brain states or processes. In the name of parsimony, Smart (1959) for example, advocates a strict mind-brain identity whereby any mental process or sensation *just is* a brain process. This identity is argued to be a metaphysical claim about the nature of the mind and not necessarily a semantic one. In other words, if Jones is hungry, this does not *mean* the same thing as Jones is having this or that brain process, even if the two events described are in fact one and the same. By addressing this point, Smart is able to respond to objections that stem from the rather crucial observation that I might have a lack of epistemic access to my own brain processes but have perfectly transparent access to my beliefs, desires, and motivations.

While mind-brain identity appears to explain what behaviorism could not, it is not without its own set of problems. For one, the role of the brain is moved not just back onto center stage, but is now the only relevant player in the entire story. We might question, for example, whether the rest of the sensorimotor system plays any role in cognition, or if mind-brain identity can be forced into an untenable scenario in which thought – the very same kind of activity that embodied agents engage in – is possible for beings without bodies, the proverbial 'brain in a vat' scenario. I will address this worry more fully in the next section, but there is a corollary concern, which is evident if we consider just how difficult it is to perform metaphysical reductions without simultaneously performing intertheoretic one. As Fodor (1981) notes, because *Smith is in pain* does not mean the same thing as *Smith has X brain state,* identity theory allows us to talk about psychological types generally, at a level of abstraction from brain states. In other words, while minds and brains might *just be* the same entities, both psychology and neurobiology remain vital and necessary sciences, as they concern themselves with two very distinct theoretical stances towards a single entity. And yet, the very element of mind-brain identity that its proponents praise it for, its parsimony, would seem to suggest that if we can have one unified theory of mind, then this would be even simpler than the dual-theoretical identity originally proffered by Smart and other central state identity theorists.

In other words, mind-brain identity runs up against this dilemma: either take parsimony so seriously that the end goal really is one unified theory of mind – call it neurobiology – or carve up mental states in such a way that a single brain process could very rarely if ever be identified strictly with the more global mental process. Although I

face many objections, perhaps even from Fodor himself, my reaction to this 'carving problem', which he mentions in *Something on the State of the Art,* is that it forces mind-bran identity into either an eliminative materialist or an entirely non-reductive physicalist position. Thus, if one wants to avoid internal inconsistencies of Churchland-style (cf. 1986, 1981) intertheoretic elimination as well as avoid being forced into some sort of epiphenomenalism or property dualism (cf. Chalmers, 1996), then it would seem that one ought to steer clear of mind-brain identity. On the one hand, as I mentioned earlier, the simplest theory of mind would seem to be the one that explains the most with as little work as possible. If it turns out to be true that neuroscience can actually tell us everything we need to know about minds, to the point that *all mentality can be understood in terms of brain processes,* then I see no reason to take issue with Churchland's elimination thesis. Much like other once poorly understood phenomena (the theory of phlogiston being eliminated by the theory of combustion, e.g.), when we learn that there is a better theory, we don't simply try to allow the old explanatory framework to coexist along with the newer, actually true one. We simply eliminate our previous framework, as it has been deemed false. I happen to think that neuroscience is not a complete science of cognition, and I will defend this position throughout this project. While eliminative materialism might in fact allow for a complete science of *the brain*, assuming that this is all there is to 'the mind' is no better than behaviorism's assumption that brains are of little importance. In other words, while behaviorists suffer from brain-neglect, eliminativists seem to suffer from the inverse mania, brain-obsession.

On the other hand, if we take seriously the idea that global psychological states, such as pain, might be realized in various ways that are not always entirely captured by

simple identification of an exact brain process, then we face even more worries. What is strict identity then if Smith can be in pain and Jones can be in pain, but the two of them have different types of brain processes occurring? The typical reaction to type identity is actually that it does not allow for other life forms or other species to share in the same global mental types if they do not have the requisite brain processes, but I think the problem runs even deeper than this. Even intra-species wise, if you and I don't share the exact same types of brain processes, then either we cannot be having the same type of mental process, or we do and strict identity does not hold. If we are not having the same sensation, pain, by virtue of our different brain processes, then if I claim to be 'in pain,' and you assert the same feeling, then one of us is simply wrong about in what we are experiencing. This is problematic for identity theses, but even more vexing would be accepting the other disjunct, that perhaps type identity just does not hold of many global mental states. The identity theorist is ultimately therefore confronted with either rejecting the occurrence a vast array of mental phenomena that resist strict identification with specific brain processes, or worse, she must reject strict mind-brain identity altogether, favoring the phenomenology of non-reductive mental states, whilst giving up the core of the original theory. Of course, the dilemma might be avoided if our constraints on identity are not so strong, namely, if it remains the case that mental types *are always identical* to some physical types of process, but they need not always map isomorphically onto brain 'types.' In other words, if we adopt a token physicalist view, which would mean that every mental event is some physical event, but that these physical events onto which mental events must always be mapped are not necessarily type-specific, then perhaps there is a third option for identity theory.

1.3 The Virtues (and Vices) of Token Physicalism

The sort of physicalism put forth by central state identity theorists, is most properly thought of as *type physicalism,* or the thesis that every mental type is a physical type. Another way to put it would be to say that since the world is wholly physical, then minds must be physical as well, but more specifically, that all mental processes are identical to natural kinds, which are themselves physical objects or processes. For example, microsaccades of the eye might constitute a natural kind of eye movement.[4] Thus, when you and I both look at an object, our eye movements are two distinct tokens of that one physical *type* of eye movement. In terms of minds then, this is a highly restrictive notion of what gets to count as this or that mental process. If pain is defined as the firing of C-fibers, then any creature, machine, or entity that does not have the requisite physical process, will *ipso facto* not be in the mental state of pain.

On the other hand, *token physicalism* makes a weaker claim insofar as it holds that each mental token is identical to a physical token. This does not necessarily imply that there are no longer natural kinds under a token physicalist picture, but if there are, they will most likely be redefined in terms of their functional roles. For instance, a heart might in fact constitute a natural kind of organ, but only insofar as its function is to pump blood through the body. Hence, if we invent an artificial heart, *even if* it is not type-identical to many other versions of hearts in the world, the token physicalist will have no qualms with calling it a heart. Likewise, mental types might indeed turn out to be realized by various sorts of physical types, but every instance of 'pain' will always be identical to exactly one physical token, which means that C-fiber firing might be a strong indicator of

[4] For a detailed discussion of these eye movements and their necessary involvement in perception, hence, an argument that they constitute natural 'kinds' of processes that are themselves constitutive of cognition, see Martinez-Conde, et al, 2009; Martinez-Conde, 2009; Tronosco, et al, 2008.

pain, but it might be 1) that other physical mechanisms can realize pain – hence the brain processes are not always necessary for the specified mental processes – and 2) there might be instances of C-fiber firing without an experience of pain – thus, C-fiber firing is not always sufficient for experiencing pain.

All seems well for token physicalism, except upon closer examination, it really is just a dressed-up version of the very general material monist claim that all things in the universe, including minds, are material. If we all agree that the world is comprised only of physical things then the real goal of philosophy of mind and cognitive science is not to determine *what* a mind is—this has been answered by the unanimous rejection of Cartesianism—but instead, we are seeking to provide an explanation of *how* mentality is constituted, what sorts of physical things, collections of things, or processes ought to be called cognitive. Given this much more specific aim then, token physicalism is about as informative as claiming that all matter is material. If however, we can come up with specific functional specifications for the sorts of physical processes that are supposed to be counted as 'cognitive,' then the position is no longer bankrupt. Indeed, this is precisely one of the virtues of token physicalism – it allows for the possibility of cognition being explained more in terms of *function* rather than physicality. This is because unlike type physicalism, which usually entails that mental types and physical types are both *natural kinds* of 'things' found in the world, token physicalism retains the intuitive appeal of relegating all phenomena to the natural world, but does not insist that the feeling of hunger is so specific as to warrant it only being realized by brain state *X*. The benefit of this more liberal physicalism is that it invites us to seriously consider 'the mind' as an open and dynamic system rather than as the encapsulated, skull-ensconced brain, the

latter of which is so often portrayed as a reified entity rather than as a 'process of processes.' Indeed, the terms 'mental state' and 'brain state' invoke stasis, and as Smart (1959), Armstrong (1968), Hill (2001), and other strict mind-brain identity theorists have argued, unambiguously, to be in a particular mental state *just is* to be in a particular brain state. To be fair, however, even the strict mind-brain identity theorists will clumsily refer to both brain 'states' and brain 'processes'.[5] Hence, it stands to reason that they recognize that the brain is full of processes – C-fiber firing being one paradigm case of such an event. Nevertheless, the brain itself is portrayed a closed system. Once again, the charitable interpretation would be to say that this is precisely how mind-brain identity is defined, and hence, the possibility, for example, that mental processes might be constituted by the interaction between brains, bodies, and environments, or that mental processes might be realized in a variety of physical mechanisms, some of which might not even involve a biological brain, is a non-issue, given the established explanatory framework. Put another way, most would agree that the rest of the body contributes to the brain's overall processing and in turn, that the external environment provides the body and brain with input. Where theorists differ is in the setting of boundaries. To the question of *just how much of the external world ought we count as part of the cognitive process*, the mind-brain identity theorist can answer, ex hypothesi, "none." The problem is that in answering *why* this must be so, the best answer afforded is parsimony. We know that brains are *really* important for cognition, so to make things simple, says the identity theorist, let's just say they are the *only* important element in cognition. This gives us a discrete and finite object – the brain – that can be scrutinized, studied, and mastered,

[5] The title of Smart's inaugural piece, "Sensations and Brain Processes" is a good example, as he goes on throughout the article to refer both to brain states and to brain processes.

thereby allowing mastery of cognition. While parsimony is generally a strong inductive move to make in favor of one theory over another, to claim that it would be really nice and simple if the brain were the only thing in the world that realizes cognition and therefore *it is* the only thing that realizes cognition, is nothing more than wishful thinking. A virtue of the competing version of physicalism – token physicalism – is therefore that it leaves this possibility open, rather than assuming from the start that simplicity is the best option. It may turn out to be the case that only biological brains can constitute cognition, but if we can find other physical tokenings of functionally equivalent systems, then we should be ready to call these processes cognitive just the same. Thus, token physicalism is most likely paired with a *functionalist* interpretation of cognition, and functionalism, as we shall see, not only provides a framework for thinking about the mind in terms of dynamic and open processing, but it also avoids the major pitfalls of logical behaviorism and central state identity theory.

It was Putnam's (1960, 1975) 'machine functionalism' that first provided a rich philosophical argument as to why the defining feature of mentality is not its neurology, but rather its *computationality.* By redirecting the discussion of PAIN from being merely a brain state, to being a *functional state of the entire organism,* pain is not limited to identification with some brain state, which is the strict reading of type-physicalism, nor must it even be identified with a biological body-state, a more liberal notion of type-physicalism. And, unlike behaviorism, pain is more than just wincing and groaning. The "Total State" of a probabilistic automaton involves its physical constitution, its dispositions to act in one way or another given certain inputs, *and* its actual behavior given those inputs (Putnam calls these "outputs"). As Putnam claims, however,

“knowing the Total State of a system relative to a Description involves knowing a good deal about how the system is likely to “behave” given various combinations of sensory input” (323). Thus, a lot of functionalist literature since Putnam retains a sort of behaviorist tendency, as computers themselves, which are “discrete state machines,” to use Turing’s (1950) original phrase, are not too dissimilar from dispositionally governed humans. In fact, part of Putnam’s argument is precisely to claim that “all organisms capable of feeling pain are Probabilistic Automata” (1975; 433). The difference between machine functionalism and logical behaviorism is the further move of claiming that all organisms that feel pain have a corresponding ‘machine-table description’ – in other words, their mentality can be described and indeed *must* be at least partially understood by reference to inner processes. This essentially means that the functional organization of an organism, so long as it counts as typically productive of pain-like behavior *and* sensations, will count as ‘being in pain;’ thus pain does not necessarily have to produce pain behavior, which thereby allows for pain to simply be an internal state of the system.

Where behaviorism and identity theory fall short, functionalism appears to pick up the slack. Not only does it allow for internally caused mental processes, but most functionalists are amenable to some sort of *multiple realizability* thesis, which absolves them of the worries associated with strict type-identity. If mental processes can be realized in various sorts of ways, from slightly different neural processes to physical substrates of entirely alternate ‘type’, such as artificial neural networks for example, then the concerns about an overly restrictive and unrealistic metaphysics of mind seem irrelevant. A caveat about functionalism is perhaps in order however: while functionalist interpretations usually favor a token physicalism, this is not a necessary entailment of

adopting such interpretive strategy. Polger (2006) for instance, maintains that type-physicalism is possible, indeed a *likely* outcome of functionalism, given that we will eventually have to specify, with some constraints, what sorts of physical mechanisms can constitute the functional organization necessary for cognition and hence, only certain 'types' will fit this bill. Furthermore, as we shall see in later sections, there are disputes as to whether or not functionalism implies extended cognition – a debate which centers around the 'where' of cognitive processes more so than the 'what.'

These disputes tend to suggest that functionalism alone is not intended to provide a comprehensive ontology of mentality, but is rather an interpretation of *how* mentality works, which in turn is supposed to guide research in the philosophy of mind and cognitive science in a particular way – namely, to treat the mind not necessarily as a unified object or 'brain-thing,' but as a dynamic processing 'machine' or computational mechanism, which may – and usually does – involve a brain, and can include a wide variety of other physical processes. On this read however, the nature of *what* this physical system might be is vague. In this sense therefore, functionalism and token physicalism are not robust metaphysical theories, but are rather, as Putnam and others originally claimed they ought to be: ways to conceive of *how* minds work. The details of *what* and *where* minds are in the world remain open questions.

Why then adopt a functionalist framework? As stated above, thinking of the mind as a machine places emphasis on *what minds do*, such that the task of answering what they are can be reformulated so as to be better asked as such: what sorts of physical things out there are in fact constitutive of cognitive processes so understood? Such a reformulation does not begin with Putnam of course, as we can see the transition quite

clearly by examining the birth of Artificial Intelligence (AI). Even in its infancy, Turing's 'Imitation Game' forced philosophers to reconsider the conditions for the possibility of 'having thought.' The backlash against 'strong AI' (cf. Searle, 1980) and the minutia of the debate is of little concern to me, but what is important to consider is the way in which functionalism and AI research are the first frameworks in which the boundaries delimiting *where* or 'in what' cognition can take place begin to be confused. No sooner had the 'neuroscientific revolution' which ushered in the hay day of type-physicalism occurred, than it is seemingly undermined by functionalism, computationalism, robotics, and cybernetics, which suggest that the grey squishy matter between our ears might not be the only cognitive player in town. If mental states can be realized by a wide variety of physical processes, then the brain-mania brought about by neuroscience should be short lived, with functionalism quickly taking its place.

Rather than wholeheartedly endorse functionalism however, I want to be more cautious. Based on the failures of type-physicalism and behaviorism in providing a realistic and comprehensive account of *how* the mind works, it is reasonable to claim that neither of the two *alone* should be conceived of as the best story we have about the mind. Functionalism, on the other hand, as it aligns itself with a thesis of *multiple realizability*, at least prima facie, appeals intuitively to our common sense understanding of cognition. If I am to believe that Jones and I can have the same type of thought-behavior schema, e.g. we both think that pizza would taste really good and believe that there is pizza in the fridge, and thus, we get up to retrieve a slice, from whence does this belief that we are both in the same mental state of HUNGER arise? The behaviorist will claim that it is only by virtue of observed behavior that we make such an inference, but then this could mean

that my friend Jones has nothing in between his ears and is a behavioral zombie as it were. There is nothing to prevent maintaining this as a logical possibility under the behaviorist framework. However, if I were to answer the question from a type-physicalist standpoint, my answer would be something to the effect of 'as long as the two of us are in identical brain-states.' This answer is unpalatable because it rules out the possibility of Jones having a slightly different neural schema at time *t* than I do and yet still being hungry just as I am. It also rules out the possibility that my dog is hungry, that other beings with type-distinct brain states can be hungry, and so forth, unless of course, HUNGER as a global state of the whole brain or better, the whole organism, is allowed to be realized by a motley of physical systems, in which case, we aren't talking strict mind-brain identity anymore. Based on simple verification procedures, many of which involve observing behavior, verbal reporting, etc, it seems counter-intuitive to claim that something like PAIN is not being experienced both by me when I stub my toe and by my dog when he misses his Frisbee and instead crashes into the fence, *even if* I learn that my dog's 'brain-pain' looks nothing like mine.

Unlike a strictly behavioral interpretation, a machine functionalist interpretation has as a virtue, a further specification that there must be a possible machine table description for the cognitive state in question, such that not any old collection of materials will suffice for the sensation HUNGER. In this way, functionalism shares with behaviorism that they both allow for natural, typically effortless attribution of mental states to others via behavior, but functionalism also allows that internal mental states are causally efficacious. To put it another way, functionalism appeals to the intuitive idea that if someone or something is behaving enough like myself when I am in mental state

A, and if I believe that this creature is capable of experiencing the world similarly to me due to an implicit belief I have about their physical composition as being also similar enough to my own, then I will naturally endorse the idea that there are two distinct physical realizations of one mental type.

For all its virtues, functionalism still carries around a lot of theoretical baggage. Chief among this baggage is the grain size problem concerning multiple realizability. As discussed above, agreeing that two distinct physical systems are in the same mental state depends on what we mean by mental states such as HUNGER or PAIN –whether we are talking about general food-seeking behavior, specific cravings, sharp pain, dull pain, localized pain, and so forth – in other words, the *specificity* with which we are characterizing the mental process. As Bechtel and Mundale (1999) note, the irresistible urge to claim that psychological states are multiply realizable stems from the typical philosophical usage of psychological measures to map the brain. More specifically, the inconsistency with which these correlative mappings are made might hint at a case against MR. Typically, researchers have used a coarse grain to classify mental states as "the same" across individuals and species, while a finer grain is used to differentiate among brain states. However, as Bechtel and Mundale note, if we keep the grain consistent for both the psychological and the neural classifications, the case for MR does not fair so well. A more fine grained mental classification would allow for differentiating mental states among individuals or even within the same individual over time. For example, rather than the coarse mental type PAIN, we might have PAIN-1, PAIN-2, and so forth, to denote varying degrees and even kinds of pain, such as burning, sharp, or pulsating. Utilizing this same fine grain to analyze the brain, we might be able then to

map these nuanced versions of PAIN onto brain processes that reflect these subtle differences. It is usually the case that in apparent instances of different brain activity failing to produce apparent differences in mental states, one has usually just not used a fine enough grain to analyze mental states (177-8). Bechtel and Mundale go on to argue that given a fine enough grain, it will rarely, if ever turn out to be the case that genuine multiple realizability is occurring. However, using a coarse enough grain, claims about multiple realizability are too easily and too loosely made. The thesis of MR is appealing for precisely this reason however; it is intuitive to claim that I, my dog, and even the blood sucking mosquito annoying the both of us can all be hungry. However, depending on the context in which the comparison is being made, this might turn out not to be true.

Lack of context, Bechtel and Mundale claim, makes it easy to assume that MR is a viable thesis about cognition. It might be that Lisa and her pet octopus have the same mental states, realized by different neural structures, for example; if they are both hungry and this hunger is associated with some general food-seeking behavior. However, regarding other factors, such as how the food is sought, what food is sought, under what conditions, etc, then the food-seeking behavior and its corresponding mental state are different. As Bechtel and Mundale rightly point out, asking whether two things are the same or different only makes sense with respect to some third thing. Stating for example, Lisa and her pet octopus have the same PAIN, would mean that each of their individual realizations of pain share something in common, such that Lisa's pain (PAIN-L) and her Octopus's pain (PAIN-O) are identical just in case they are both instances of PAIN more generally. So, PAIN as the third thing could be specified differently for Lisa and her octopus; we might say that PAIN can be realized by C-fiber firing in human brains, but it

is realized by O-fiber firing in octopi brains. Hence, if we use different 'third things,' it is reasonable to assume that Lisa and her octopus have the same mental states, but if we consider the context and keep it fixed while doing comparative analysis, both psychologically and neurally, then the case for multiple realizability appears rather dubious. If the environment has any role to play in an organism's realization of PAIN, then matters become even worse. It is highly unlikely that, for example, Lisa and her pet octopus are actually in the same total state, given the largely different embodied and environmental contexts in which they are situated (202-3). In other words, if context must be the same in order for two organisms to be realizing the exact same PAIN, then MR is a rare occurrence indeed.

The example above is just one among many. Lawrence Shapiro (2000), for instance, makes a similar argument, focusing his attack on Block and Fodor's (1972) argument that a psychological entity is often associated with several distinct neurological states (238). He claims that in an attempt to forge an existence proof for multiple realizability by neural plasticity, the reality of the neurobiological evidence is overlooked. The rewiring experiments actually show that the rewired rodents do *not* see exactly the same as normal rodents-i.e. their visual acuity for recognizing light gradations is largely impoverished. Furthermore, the auditory cortex of a rewired rodent comes to look identical to the visual cortex possessed by its unwired friend. Thus, he argues, we have neither a case in which the *same* function is realized in two different ways – the rodents with the *different* – the rewired – neurology actually don't have the same mental states, nor a case in which the same function is realized in two *different* ways - the two physical systems realizing the mental state don't differ enough such that the difference

matters. In other words, if one brain system or component comes to resemble another such that they are indistinguishable, then the claim that the two brains can both realize the same mental state is uninteresting (2000; 648-9). Surely, there are more objections to MR lurking in the literature, but it is sufficient to note here that accepting MR without scrutiny is problematic.

Perhaps the most important consequence of the grain-size problem is the unfavorable bottom lines functionalism can be reduced to depending on how far and in which direction we push it. As Block (1980) characterizes it, one can either be forced into an unfair chauvinism or an unpalatable liberalism concerning the nature of mental processes. That is, if Bechtel, Mundale, and Shapiro are right, then we must either insist that only organisms with precisely the correct 'human brain functionality' can have human cognition *or* we allow that *anything*, so long as it has the proper input-output sequencing characteristic of human thought, to be a 'thinking thing.' In other words, pushed to one end of the extreme, functionalism entails that *only* physical systems that resemble closely enough the ones that we have established are capable of thinking – which just so happens to be humans – can be characterized as properly 'cognitive,' and thus, we are back to an undesirable strict mind-brain identity, or as Block calls it, a species chauvinism. Pushed in the other direction however, functionalism might force us to accept that Heider and Simmel's (1944) shapes actually do have minds because they act as though they do and furthermore, because the program underwriting them looks sufficiently like the machine table description of a human mind. As we move on through later chapters, I intend to argue that this latter option is a bit of a straw man version of functionalism and hence, the dilemma is falsely constructed, but for now, it suffices to

note that if we are not careful in how we specify what sorts of physical processes might be capable of functionally organizing in such a way that constitutes thinking, either too few or too many entities seem to walk away from this story with minds.

Once again, it is helpful to consider that functionalism is not inherently metaphysical in its overall claims. By shifting the focus from *what* a mind is to *how* it is realized, all that is being insisted upon is a change of emphasis. As the above discussion illustrates, the big metaphysical questions concerning just what sorts of functions constitute cognitive ones and the criteria for delimiting exactly 'in what' these functions can be realized remain thorny issues. If we want to avoid slipping back into logical behaviorism or type identity theory, these questions demand answers. Rather than continuing on with armchair *a priori* engineering by purebred philosophers, I think examining some of the more interdisciplinary approaches to cognition is in order. Not only will the intersection of psychology, neuroscience, robotics, and phenomenology provide insightful and potentially more realistic ways to approach the problem, but by engaging with what has come to be known as 'cognitive science' most generally, it quickly becomes evident that when seeking the elusive where of cognition, we have been looking in all the wrong places.

1.4 Embodiment, Cognition, and Artificial Intelligence

Before turning to the more recent trends in philosophy of mind and cognitive science that take the body much more seriously than their predecessors, I want to first consider the project of Artificial Intelligence (AI). My aim here is not to provide an historical overview and it is most certainly not in any way an attempt to settle the dispute

between the believers and non-believers. Instead, I want to focus on the fact that despite serious advances, the type of AI imagined by Kubrick[6] and others has not occurred as far as anyone can tell. This simple point, whether you take it as a signal that the achievement shall never happen or believe contrarily, that it is just around the corner, is an example of a real-world attempt at applying the functionalist paradigm in order to achieve a particular scientific end. The fact that for the last fifty years or so AI has continued to come up short in terms of creating sufficiently human-like thinking machines highlights the same idea I mentioned in closing the last section. By looking for the mind among abstract and highly disembodied machine tables, AI proponents aren't just looking in the wrong places; they are not looking any*where* for the mind. This question of how cognition works, as we have seen, carries with it some notion of *in what* this functioning is taking place, and yet, functionalist-driven cognitive roboticists have systematically neglected the body and its role to play in the executing of said table. Hence, we find, as I shall discuss, robot after robot that blows itself up, runs into walls, and is unconvincing at the Turing Test. Relying mainly on Hubert Dreyfus as well as several roboticists at MIT who seem to be exceptions to this general rule of body-neglect, I shall attempt to illustrate how and why I think the turn to embodied approaches in cognitive science is a reaction to the intractable identity-theory vs. behaviorism debate, but also, a response to some of the failures in AI.

In *What Computers [Still]Can't Do,*[7] Hubert Dreyfus sketches several of the major attempts in AI, along with the assumptions about cognition generally that subtend each. I shall not attempt to discuss his account in detail; I think we can glean the relevant

[6] For example, in the Movie, "AI."
[7] Originally published in 1972. The revised edition, "What Computers Still Can't Do," is from where I shall be citing exact page numbers.

details quite simply by a move Dreyfus makes late in the book, in a section titled "The Role of the Body in Intelligent Behavior." This move is a turn back to some of the original phenomenologists – Husserl and Merleau-Ponty in particular – as well as the Gestalt psychologists, to show that what has yet to be replicated in any machine is the ability to properly understand the *situation* involved in this or that cognitive action. Husserl (1931) referred to this situation as a 'horizon,' and he differentiated between 'inner' and 'outer' horizons in order to explain the way we are able to recognize objects as whole, even when we don't experience them as such. For example, in *The Idea of Phenomenology* (1964), Husserl expounds upon the ways we perceive a cube; we can only ever see a particular *side* of it, which is dependent upon the *angle* at which we are positioned with relation to it, both of which are manifest by a particular *profile* of the cube – namely, its position in time and space relative to our own positions, and so forth. To put it more simply, we always experience a presence in absence. Things appear to us as partial and yet whole at the same time, those parts that are absent visually are nonetheless present all at once. How is this possible? In *Ideas I*, Husserl claims we must have background information about the 'scene' such that we can comprehend the whole of the encounter with the object as well as understand our own relation to the object, spatially and temporally. Hence, we have an outer and inner horizon in which experience is made possible. We don't just play chess or use language via some internal code written into us, nor do we seem to participate in these activities entirely via trial and error. To quote Dreyfus on Husserl's "horizons:"

> In chess and in recognizing sentences, we find the same phenomenon playing a crucial role. Our sense of the whole situation, outer horizon, and our past experience with the specific object or pattern in question, inner horizon, give us a sense of the whole and guide us in filling in the details [1992; 242].

What has truly been left uncaptured by roboticists is not the higher-level rational functions often assumed to be uniquely human, such as logical reasoning or ideal language production and comprehension. Instead, as Dreyfus notes, the part of intelligence that we share with animals – pattern recognition – has resisted simulation. As well, natural language comprehension and use remains to be perfectly simulated, as even the best chatbots such as Suzette – best new bot of 2009[8] – or A.L.I.C.E[9] – three-time winner of the Loebner prize – eventually expose themselves as 'non-native' speakers of the 'human' language.

Dreyfus thinks that the Husserlian 'horizons' with which we approach each perceptual and cognitive experience are what computers systematically fail to come equipped with, and this is in part because such knowledge, he claims, must be *embodied*, a point Merleau-Ponty (1962) makes explicit in *Phenomenology of Perception.* The problem with the AI project thus far, as Dreyfus sees it, is that researchers continue to insist that this embodied 'know how' can be duplicated via explicit and formalized rules. In order for a computer or robot to achieve what Piaget (1966) termed the "Perceptual Constancy" with which we can perceive whole objects in each sense modality and interact meaningfully with them, there would have to be an internal model of every object encountered in every possible sense modality, along with a set of comparative principles for each object in each modality. Encountering an object visually and tactilely; therefore, it would need to pass through this analysis before the robot could interact properly with it. As an example, consider the ease with which a typical human can reach into the

[8] Chatterbot Challenge award recipient. See online at: http://www.chatbots.org/chatterbot/suzette/
[9] 2001, 2002, 2004

refrigerator and obtain an egg. Grasping the egg without breaking or dropping it requires a complex set of physical rules governing force, grip, and so forth, as well as the interaction of this tactile modality with the visual system's information about the size and shape of the egg. Most of us never even think about what goes into a simple task like this and when asked to explain *how we do it*, it is likely that our explanations do not even approximate the complexity with which the action is actually performed. As I will discuss in Chapter 3, when a person's nervous system is damaged in a particular way and this seamlessness of action is lost, regaining the proper motor functions to complete even the most basic tasks can prove difficult, if not impossible.[10] Instead, for most of us, we are able to, as Dreyfus states, "bypass this formal analysis" (249). His doubt that artificially intelligent systems could ever achieve this seamlessness of action is due in part to the failures in doing so to date, but moreover, by ignoring the way our "wet engineering" can and does play a vital role in encoding this information that is to a large extent, below the level of conscious awareness, roboticists, he conjectures, will consistently and continually fail in their endeavors.

There are, however, some roboticists – Rodney Brooks and Cynthia Breazeal, for instance – who have taken this phenomenological lesson seriously. Both of these MIT roboticists have taken cues from Marvin Minsky, whose robotic arm[11] was one of the first to be capable not only of picking up objects, but navigating around obstacles to obtain the objects and use them meaningfully. Rodney Brooks' most famous robot, Cog, is a continually evolving project that began as just a head, torso, and arms, with nowhere near

[10] In particular, deafferented patients suffer from this problem. One patient I will be most interested in discussing is Ian Waterman, who is in fact able to recover a large part of his motor functioning.
[11] 1968, "The Tentacle," MIT AI Lab

the degrees of freedom that a human possesses, but now, according to Cog's website,[12] "the major degrees of motor freedom in the trunk, head, and arms are all there. Sight exists, in the form of video cameras. Hearing and touch are on the drawing board. Proprioception in the form of joint position and torque is already in place; a vestibular system is on the way. Hands are being built as you read this, and a system for vocalization is also in the works." Below is a picture of Cog in his earliest days with Brooks and to the right of that is photograph of the hands Cog will eventually have.

Figure 1.2 Rodney Brooks and Cog

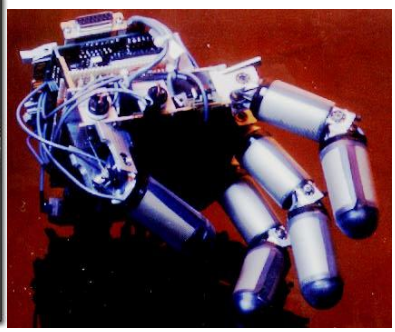

Figure 1.3 Cog's Hand Prototype

Cynthia Breazeal has been following in Minsky's footsteps but has focused her attention more on the ways in which humans perceive and express emotions. Originally part of the Cog project, Breazeal's unique project, Kismet, is an even more limited robot, insofar as it is only a head, but the detail with which the facial features have been constructed is beyond comparison with any other project in AI to date. The robot is

[12] http://www.ai.mit.edu/projects/humanoid-robotics-group/cog/cog.html. It is interesting to point out that the face portion of Cog currently underway (Edsinger, O'Reilly, Scasselatti, Scarpino, and Breazeal) has its own research team and name – 'Lazlo'- as does a currently underway biochemical subsystem (Adams), named 'Meso.' In a sense therefore, 'Cog' is slowly being replaced, component by component, by sub-mechanisms that more genuinely reflect and respond to some of the concerns regarding embodiment we have discussed thus far.

pictured below and to get an idea of how intricate Kismet's construction is, I quote from Breazeal's website:[13]

> Our hardware and software control architectures have been designed to meet the challenge of real-time processing of visual signals (approaching 30 Hz) and auditory signals (8 kHz sample rate and frame windows of 10 ms) with minimal latencies (less than 500 ms). The high-level perception system, the motivation system, the behavior system, the motor skill system, and the face motor system execute on four Motorola 68332 microprocessors running L, a multi-threaded Lisp developed in our lab. Vision processing, visual attention and eye/neck control is performed by nine networked 400 MHz PCs running QNX (a real-time Unix operating system). Expressive speech synthesis and vocal affective intent recognition runs on a dual 450 MHz PC running NT, and the speech recognition system runs on a 500 MHz PC running Linux.

All of this allows Kismet to express a full array of emotions as well as to respond to other humans who express those emotions. In this sense therefore, Breazeal is responding to the recent trend in philosophy and cognitive science to view the emotions as fundamental to consciousness (cf. Damasio, 2005; 2000) and as constitutive of our embodied social cognition (cf. Gallese, et al 2004). The thinking behind Kismet has helped Brezeal launch her most recent project, *Leonardo* (pictured next to Kismet), a fully embodied emotional robot, that can learn from instruction, including voice tone and facial expressions.

While Brooks and Breazeal challenge Dreyfus' claim that roboticists simply are not taking embodiment seriously, his point concerning formal rules remains. Because Cog and Kismet still operate with a set of formal rules, all of which must be analyzed and utilized for each action, the goal of possessing a set of seamless embodied motor skills has not yet been achieved. Indeed, neither of these robots can pick up an egg, let alone engage in a game of table tennis, activities that humans perform in real time quicker than any robot could ever hope to, according to Dreyfus, because of the implausibility that it could ever run through all the rule sets quickly enough.

[13] http://www.ai.mit.edu/projects/humanoid-robotics-group/kismet/kismet.html

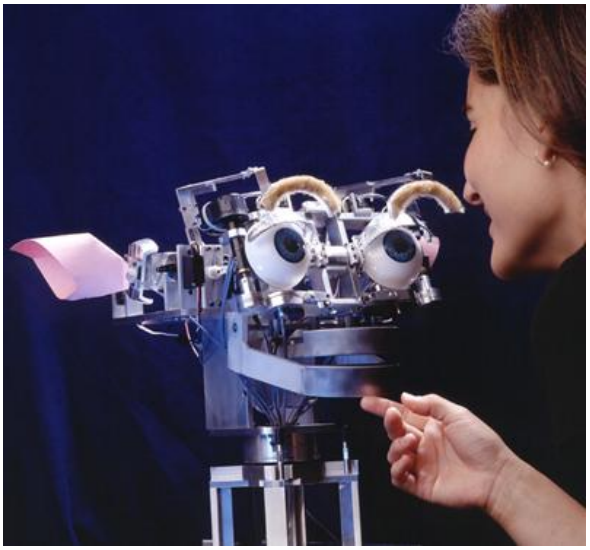

Figure 1.4: Kismet

Figure 1.5: Leonardo. Pictured here, Leonardo is learning via behavioral feedback – including facial expressions and tonal differences in the voice of his teacher – how to turn on one button versus “all the buttons at once.”

A simple rejoinder to Dreyfus' argument is to say that speed of processing is not sufficient to count or discount a system as cognitive. Just because it takes person A five minutes to complete a logic proof but it takes person B twenty minutes to complete that same proof, we do not conclude that the former is a thinking human while the latter is not. Moreover, these sorts of tasks – logic, mathematics, abstract reasoning – interestingly enough, are what most artificially intelligent systems *are* capable of, more so than most humans it turns out. However, the so-called 'easy' component of cognition that allows for the continual updating and integrating of the sensory modalities in response to input is what has not been properly duplicated, at least not in terms of timing. We can see, given the relatively brief history of the AI project, it appears more reasonable to conclude that the progress towards replicating the motor skills and embodied abilities of humans, regardless of timing, is making serious strides. Consider, for example, Boston Dynamic's Big Dog[14] robot, which is currently being tested as a prototype for the U.S. Army ground forces. The 'dog' (pictured below) is able to traverse any terrain a human (or dog for that matter) can; it can react to changes, can overcome obstacles, and can even respond to challenges not immediately present to its onboard 'visual' system. For example, in the video provided online, we can see it navigate over slippery ice as well as recover from being kicked by a human opponent who has snuck up from behind.

[14] http://www.bostondynamics.com/robot_bigdog.html

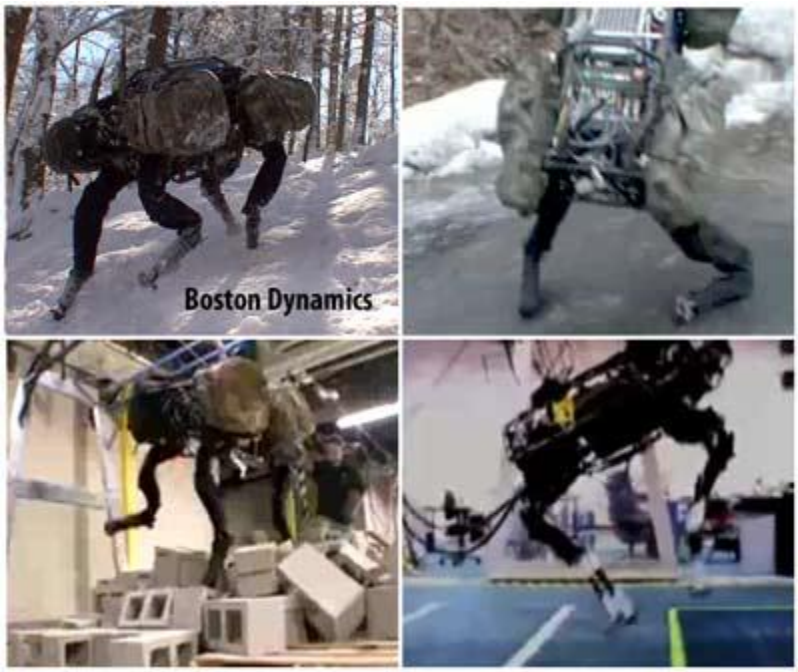

Figure 1.6: Boston Dynamics "Big Dog." Show here in four different test modes – walking uphill in snow, slipping and recovering balance on an icy surface, climbing an unstable incline, and jumping over and obstacle.

All of this is not of course to suggest that Big Dog, or Kismet or Cog for that matter, have fully replicated human cognition in all its complexity. Big Dog, for instance, is specifically designed to help carry ammunition and supplies over rugged terrain and as such, is not endowed with the full array of higher cognitive tasks found in a chatbot such as A.L.I.C.E. Moreover, it is not my intention to settle the debate once and for all between Dreyfus and proponents of AI; I think settling this dispute involves an empirical question that can only be answered in due course. Nevertheless, I have highlighted these extremely unique examples in AI in contrast with Dreyfus' skepticism for two reasons: first, to show how our understanding of our own 'situatedness' has revolutionized the study and creation of artificially intelligent systems, but also, to suggest that these changes that have taken place in AI have equally contributed to the phenomenology of

embodied experience. The more seriously the 'horizon' of experience is taken, the more the environment itself begins to take less of a backseat. Indeed, the final iteration of the situated theories of cognition – extended cognition – puts the environment in center stage. So much of the recent work in AI has influenced philosophers and cognitive scientists, but also performance artists such as Stelarc, whose robotic arm and implanted ear challenge the idea that the utilization and near seamless integration of tool and tool user cannot be replicated. It is to these theories of cognition which find themselves in the middle of this awakening in AI that I now turn, as I will be at pains to argue throughout this project that it is not just that we see ourselves more and more *reflected in* our machines, but that we see ourselves more and more as *a reflection of* those same machines.

Despite optimism concerning the progress of AI thus far, it remains to be seen whether a robot possesses all that a human does in terms of embodied cognitive abilities. In short, my robot friend is inferior to my human friend when it comes to being able to hike along a mountain path, cross streams, dodge tree branches, and duck under rock outcroppings, all while taking in the breathtaking views and engaging in a hearty debate about Spinoza's theory of Substance. The special trick of *human* cognition, therefore, that roboticists have not fully captured in artificial systems is the ability to absorb external information, filter it for relevancy, and operate upon such representations of the world in meaningful ways, without having to explicitly, at the same time, represent the rules for doing all of these things. The same puzzlement vexes philosophers when they confront the question of just how the physical brain can represent the very external things that are supposed to be causally efficacious in bringing about experience in the first place. In

other words, that the body and mind are open systems is not denied; we take in food, light, minerals, perceive and learn from the environment. We allow the external world to penetrate our minds, but for the most part in the history and theories of philosophy of mind and cognitive science, it has never worked the other way around; our minds do not penetrate the world because our minds remain stuck in our heads. To be sure, the brain is *active*, insofar as it is constantly in motion, sending signals to this or that bodily system, even working while we sleep to create fanciful dreams or file away the day's experiences. Nevertheless, these processes take place solely behind closed curtains, *within* or inside the confines of our skulls, and hence, a dual-world of process arises from this picture. In other words, the received view has been that mental representations of the world go on in the brain and thus, internally, while the processes or objects that these mental processes *represent* take place in the external world.

The trouble with this view of representation as taking place *in a head* is that it treats the brain ultimately as a passive receptor of information and effectively ignores its active contribution to the world beyond its skin and skull boundary. This is problematic because it is difficult to explain how a closed neural system such as the brain can actually 'picture' the external world. The 'magic' of representation begins to lose its mystical nature however, when we take the mind itself as a dynamic and open perceptual system and allow it to reach beyond its biological brain-barrier to actively create and change the world it inhabits. Gibson (1977, 1979) spoke of ecological "affordances" in just this way. Perception of the world involves, he argues, potentials for action. We see not simply a world of inert objects, but rather, action-ready situations and hence, our minds actually constitute the world in terms of what is action-ready and what is not. His theory has

helped usher in a new wave of cognitive studies, which involve understanding cognitive processes as embedded (Haugeland, 1998), enacted (cf. Noë 2004, 2009; Hutto, 2005; Menary, 2006b), and even extended (cf. Clark and Chalmers, 1998; Clark, 1998, 2003, 2008; Rowlands, 2003) in the world.

1.5 Conclusion: On the Path to Extended Minds

In order to explain how representation is demystified by adopting these views of mind which emphasize its embodied, embedded, enacted, and extended character, it is helpful to look at the ways representation is de-located under these accounts. Furthermore, if each of these four characteristics of cognition, which result from the Gibsonian and Putnamian traditions are placed on a continuum ranging from minor to radical de-location of representation, then it becomes easy to see the gradual relinquishing of the 'hard problem' pertaining to dual phenomena in a physicalist world. In its stead are left the problems of explaining action, situatedness, and coupling – much less 'magical,' indeed. In fact, as we progress along the continuum, the very existence of representations themselves will be called into question, or at least will need to be drastically reconfigured if we are to keep with what I consider to be a more sensible view of consciousness, namely, that it 'ain't all happening in the head.'

The location of cognitive processes is fairly clear, or at least can be more easily posited, as being somewhere in the body if boundaries are set at the skin and skull. In other words, *embodied cognition* (cf. Varela, Thompson, and Rosch, 1991; Thelen & Smith, 1994; Thelen, 2004; 2001) is a theory that could support a minimal mind-brain identity, or at least a mind-body identity; namely, the mind is embodied in the physical

workings of the brain. If the brain barrier seems too strict, then the mind can be expanded to encompass other bodily processes, but nevertheless, 'the mind' is still comfortably 'situated' in a biological 'body' incased by skin. Haugeland (1998) asserts that "everyone agrees that the mind is embodied" (211), and hence, to understand why the same people who claim to be defending a version of embodied cognition nonetheless argue as to whether or not this means the mind functionally decomposes to biological systems, it is necessary to examine precisely what embodiment entails. For Fred Adams or Ken Aizawa (cf. 2001; 2008; 2010), having a body means having a precisely defined boundary between 'the cognitive' and the world of non-cognitive objects. More specifically, having a brain is necessary for cognition and hence, "the mark of the cognitive" is not exemplified by computers or animals with brains too dissimilar from human brains. For Haugeland, however, since embodiment is essential to cognition, and embodiment is not just about the biological brain, and not even just about the biological body, it cannot be reduced to either of these constituents.

An embodied account of cognition need not locate the mind entirely within the brain and as we move along the continuum of locality, a more *embedded* mind emerges. Namely, while Haugeland is certain that bodily situatedness is necessary for conscious experience, he also thinks that 'the body' as a clearly defined system that subsequently marks off one mind from another is misguided. While Haugeland assents to the idea of 'bodies' – i.e. physical systems that persist in the world and do indeed shape our conscious experience – he nonetheless thinks that this taken-for-granted assumption often "misleadingly enhances the apparent significance of bodily surfaces as relevant interfaces for the understanding of other phenomena, such as intelligence" (214). What he means by

this is that cognitive processes are not necessarily reducible to those processes readily differentiated by biological function, surface discontinuity, or spatiality.

A mind "embodied *and* embedded,"[15] is one that is *intimately* tied to the environment in which it is situated. Rather than assume that the "low-bandwidth" interfaces of the perceptual organs like the eyes and ears are where the world can sneak into the mind, Haugeland argues that representational beings such as humans are in a "high-bandwidth," interactive and intimate relationship with the world. Thus, the mind, brain, body, and world are not necessarily distinct components that interpenetrate one another along narrowly defined interfaces; rather, in coming to represent something, or to have an experience more generally, there is a "slicing" across of these layers. This multidimensional, non-reducible, and integrative characterization of representation de-centers the brain and places much more significance on the embedded element of cognition.

For Haugeland, representations might better be termed "presentations," as Dreyfus (1972; 1992) and Manzotti (2003), for instance, have suggested. Rather than the internal copies of perceived objects, there is simply the manner in which the object is given coupled with the perceiver who intends[16] it in this or that manner. While the intracranialist would have it that a representation is the result of internal symbol manipulations and transduction between and among sub-systems in the brain, Haugeland sees the ability to represent the world as the result of *collaborative* efforts among these various levels of interaction. The very word he uses to describe cognition, *interactive*,

[15] The title of chapter 9 in Haugeland (1998).
[16] 'Intend' here, of course, referring to taking an intentional stance towards an object and could thus be as simple as seeing the chair *as a chair*, e.g.

points to another departure from the rigid localization of mind in a physical body, by calling into question the *passivity* of the mechanism (whatever it is supposed to be on the internalist's account) responsible for receiving inputs. Instead of setting up yet another dichotomy between perception and action, the former of which merely *sits there* and inceives sensory data, it is better, Haugeland argues, to view perception and action as a unit, a commingled occurrence happening in real time.[17] Since it is reasonable to suppose that perception is a large part of representational ability, then a more *enacted* story about perception means a more 'active' story about representations. In fact, given our discussion so far, as one moves along the enactive continuum, the story tends to become more and more anti-representationalist. Indeed, as Manzotti's insight suggests, perception results in *presentations* – active constitutions of our world – but never do we genuinely re – present. What we typically think of as representations are therefore simply new presentations.

Indeed, the *enacted* account of perception that Haugeland alludes to is taken up by many (cf. Varela, Thompson, & Rosch, 1991; Noë, 2004; Noë & O'Regan, 2001), and as I see it, is yet another small move along the line of gradual de-localization of consciousness. Arguing that perception amounts to 'knowing how to act,' Noë (2004) clearly takes up the Gibsonian tradition of the environmental 'affordances' playing a key role in our abilities to represent the world. Representations just are, on this view, action-potentials, gleaned from a dynamic web of collaboration among the mind, body, and world. It is not simply that the outer environment is actively penetrating our sensory inputs whenever we have a perception, but 'we' are just as active in contributing to the

[17] 1998, 221.

meaning-making that constitutes rendering the objects of perception as action-ready in the first place. It is much less clear where to draw the line therefore, between 'us' and the world, when the very constituting element of our cognition, *interaction*, results from a commingled, active, and intimately collaborative slice of many levels, such that teasing them apart, studying each one in isolation, or speaking of one causing the other in a necessarily linear fashion is not as straightforwardly plausible as the intracranialist would like us to believe.

We find a view similar and yet more radical than Haugeland's (1998) embedded mind and Putnam's (1975) externalized meaning in the thesis of *active* externalism (cf. Clark and Chalmers, 1998). Not only do the environment and the tools we use *aid* in cognition, but in the type of high-bandwidth enacted coupling that occurs when a person uses an 'artificial' memory device such as a PDA for example, that tool is said to actually participate in the cognitive process. The classic example of active externalism comes from Clark and Chalmers (1998), who argue that not just meaning, but *beliefs* extend out into the world. Not able to recall important information due to Alzheimer's, Otto must consult his notebook, which contains every memory he has stored for the past several years, including directions to the museum at which he is scheduled to meet his friend, Inga. The simple moral of the story is that when asked to draw a distinction between Otto's remembering where the museum is located, and Inga's remembering, no principled difference can be given. To be sure, Inga's brain alone retrieves the information, while Otto uses an external notebook, but in the larger context of *what sort of action is being performed* – namely, desire to get to the museum, belief that it is on 53rd Street, and acting in ways that will fulfill this desire – these are functionally

indistinguishable. Furthermore, all of the standard objections one might raise about Otto's fallibility, the notebook's possibly being lost, etc, are easily remedied by reminding the reader that these same dysfunction potentials are equally applicable to the internal brain and hence, it is unfair to leave Otto's notebook out of the description of Otto's cognitive processes. Therefore the mind, as Clark and Chalmers claim, "ain't entirely in the head."

Chapter 2

A Decade of Dissent: Defending and Re-Defending The Extended Mind

The idea of environment is a necessity to the idea of organism, and with the conception of environment comes the impossibility of considering psychical life as an individual, isolated thingdeveloping in a vacuum. – John Dewey, The New Psychology

2.1 Introduction

As the first chapter has shown, the failure to properly account for the 'situatedness' of cognition has resulted not only in unrealistic models of the mind and inadequate AI engineering. It has also led to a schism between those who *do* take the embodied, embedded, and enacted aspects of cognition seriously – thereby choosing to 'extend' mentality out into the world – and those who claim that these elements are indeed important but can nonetheless be explained via a framework of intracranialism. In other words, given the undeniable claim that the environment and one's bodily comportment play a role in cognition, one can either take a *radical* position concerning the degree to which these non-brain factors actually constitute cognition, or, one can maintain a *conservative* view, allowing that embodiment and situation *contribute* to the overall cognitive experience, but are not proper parts of it. There are intermediate positions to be sure, but in this chapter, I want to to follow the debate, as it has raged on now for a little over a decade, between the so-called EXTENDED (cf. Clark, 2008) proponents and the intracranialists (cf. Adams and Aizawa, 2008). In so doing, I intend to provide support for the externalist side, but I will also highlight some inconsistencies and oversights with this position. The aim is to develop an even more radical view, one that

sticks more closely to the original 1998 thesis, as I think this argument remains the best we have so far in explaining cognition.

In a recent critique of the Extended Mind (EM) hypothesis, Adams and Aizawa (2010) accuse Clark and Chalmers (1998) of committing "coupling-constitution fallacy." That a notebook or any other object or process might be *coupled* to a cognitive agent and thereby *aid* in her cognitive processing, they claim, has been conflated with the idea that such coupling implies that the object or process is actually a constitutive part of the agent's cognition. To illustrate the point, they cite this example:

> Question: Why did the pencil think that 2 + 2 = 4
> Clark's Answer: Because it was coupled to the mathematician. [Adams & Aizawa, 2010; 67].

This misunderstanding, Adams and Aizawa argue, highlights what is wrong with pretty much all accounts of extended or distributed cognition (cf. Haugeland, 1998; Clark, 2001; 2005), as such arguments mistakenly attribute cognition to objects or processes simply by virtue of their being *tools used* by a cognitive agent. What makes a process cognitive, they assert, is not what sorts of external objects are employed, but rather, cognition is marked by what is going on 'in the head' of the agent.

Adams and Aizawa go on to clarify that "the mark of the cognitive" or "what makes something a cognitive agent" must be understood in terms of specific underlying causal processes and the type of content produced by them. They argue that "cognition is constituted by certain sorts of causal process that involve non-derived content" (69). As Clark (2008) notes, there are two elements to this argument; on the one hand, the claim about *content* says that in order for a process to count as cognitive, the representations, concepts or information employed must be non-derived, non-extrinsic, and internal to the

system doing the processing. On the other hand, the claim about *causality* says that only specific kinds of processes are sufficient for bringing about such non-derived content.

I will examine this particular criticism of the hypothesis of Extended Cognition (HEC) as well as the responses Clark (2008; 2010) and others have offered to counter it. Rather than proceed simply by way of recasting the debate and further buttressing the externalist arguments, I will instead reconstruct Adams and Aizawa's objection in such a way that the accusatory finger they have pointed might be better turned back on their own argument concerning "the mark of the cognitive." Essentially, they have indicted Clark's account of extended cognition on two charges: first, they claim, extended cognition unnecessarily imbues discrete parts of coupled systems with cognition. As their critique suggests, in a system such as a blind man using a cane to navigate his way through town, extended cognition would have us believe that the cane itself actually 'knows' where to go, what obstacles to avoid, and so forth. In other words, Adams and Aizawa have set up the argument such that if extended cognition is true, then this entails implausible and undesirable consequences. Second, they have charged Clark with overlooking the special sorts of processes that subtend cognition, namely, that it involves trading in non-derived content and that this ability is caused by nomological regularities which happen to be, as far as we can tell, specific to human neurobiology. This second accusation can also be reformulated as a denial of an undesirable consequent; if extended cognition is true, then the 'received view' of what cognition is and where it is found will need to be revised.

In this chapter, I intend to show that neither of the two conditionals regarding HEC hold. For the first, the idea that HEC implies that cognition can quite literally be found in any object, so long as it is coupled to a human is based on a misunderstanding of

what distributed accounts of cognition are supposed to offer. In the end, I will suggest changing the metaphors slightly, such that the often misleading label, 'extended' might better be understood as 'distributed' or 'networked.' But more importantly, Adams and Aizawa fail to recognize the reductio behind their own accusation. As Clark (2008) notes, if we ask of a V4 neuron, how does it *know* that the museum is on 53rd street, and answer, because it is coupled to the human agent, the absurdity of the original objection is glaring. "Talk of an object's being or failing to be 'cognitive' seems almost unintelligible when applied to some putative *part or aspect* of a cognitive agent or system" (87). If what you are calling a cognitive process is for example, a person engaged in a recall task, then the whole *person* is the cognitive system, not each of his or her arms, legs, or neurons. And *even if* it turns out that only human brains can realize genuinely cognitive states, this in no way implies that a brain cannot be or is not already a coupled system. As we shall see, many genuinely cognitive systems, which include at their core, a human brain, remain largely coupled either to brain implant technology, or to external tools, all of which can arguably be said to constitute this or that particular cognitive process.

The second conditional is a bit trickier to dismantle, as it involves arguing that the received view of human cognition is flawed. Nevertheless, it is my contention that a large part of the internalist-externalist debate is not just about *where* cognition is to be found, but is also about *what* sorts of processes we want to call cognitive. Examining Clark's responses to the *content* and *cause* components of Adams and Aizawa's objections will highlight the ways in trading in non-derived content is neither necessary nor sufficient for a system to be marked as cognitive. Second, in order to address the

worry that coupled systems will fail to allow for a genuine 'science' of mind due to the improbability of locating the specific causes underlying cognition given an externalist picture, I will look further at the ways in which Rupert (2004) pushes against the HEC, but will argue that the objection from "cognitive bloat" does not rule out the idea that a cognitive system can be caused by the coupling of human organisms and artifacts. It will not be sufficient however to simply re-defend extended cognition (HEC) via Clark's latest concession of Organism-Centered Cognition (HOC). Although his response provides a way to stave off some of the worries raised by Rupert and Weiskopf, it is also an overhasty retreat. Thus, in order to disprove this second condition of Adams and Aizawa's I will ultimately return to and defend a claim implicit in the original HEC, namely, that the received view of what cognition is and where we can expect to find it might need serious revision.

2.2 Non-Derived Content

In order to expose the problematic nature of "cognition" as defined by Adams and Aizawa, Clark examines each component of their definition in turn. The first necessary characteristic of cognitive processes, according to Adams and Aizawa, is their being comprised of non-derived content. Paradigm cases of items bearing non-derived content are they say, "thoughts, experiences, and perceptions," while items that bear *derived* content would be things like "traffic lights, gas gauges, and flags" (2005; 662). As an immediate response, one might demand that Adams and Aizawa provide a way out of such viciously circular stipulations. Indeed, if the question at hand is *what makes something count as thinking,* and you answer, *if it bears non-derived content,* to which I

reasonably ask, *what then, is non-derived content*, and you reply, *thinking*, then I will hardly have learned anything interesting about 'the mark of the cognitive' other than that it is, well, cognitive.

The explanation Adams and Aizawa provide regarding how and why non-derived content actually constitutes thought spans a large amount of text (1992; 2001; 2005; 2008; 2010; Dennett, 1990) and a full discussion of the debate concerning it is too time-consuming and not entirely relevant for our purposes here. The way they defend non-derived content can be summarized as thus: mental content arises from very different sorts of processes than non-mental content; in other words, mental content is said to be non-derived just insofar as it is intrinsic to a cognitive agent and are therefore not dependent or at least are only partially dependent on external objects or processes. To further illustrate, they cite an example from Clark (2005) in which he seeks to defend the idea that derived content can genuinely be said to characterize cognitive processing in a case such as thinking about set theory by way of representing Euler circles to oneself. Clark argues that the meaning of the Euler circles, even *in our heads* must still be *derived* from social convention, but nevertheless, the circles feature as part of our thought process. Adams and Aizawa respond first by charging Clark with overlooking a crucial difference:

> Intersecting Euler circles on paper getting their meaning is one thing; intersecting Euler circles in mental images getting their meaning is another. Clark apparently overlooks this difference, hence does not bother to provide a reason to think that Euler circles in mental images get their meaning via social convention [2010; 72].

So, according to Adams and Aizawa, there is a principled difference in the way mental items become *meaningful* and the way external objects do. Nevertheless, they can be accused of precisely what they charge Clark with; namely, they never provide a

compelling reason to believe that such a principled distinction exists. What they do go on to argue is that mental items are *constituted* by different sorts of processes than non-mental items. To quote them at length:

> It is like this. The dependence of meaning of the mental image of intersecting Euler circles on the social contrivance regarding the intersection of Euler circles is just like the dependence of the meaning of a mental representation of a car on the contrivance of a car. Had the car not been invented, there would not have been mental images of cars. Had the usage of Euler circles not been invented, there would not have been mental images of Euler circles for set-theoretic purposes. This sort of historical truth, if it is a truth, does not show what Clark might want it to show, namely, that the content of certain mental items derives (in the relevant sense) from a social convention [2010; 74].

Here we see the idea that non-derived content might be partially dependent upon external objects – without the invention of cars, we would not have the relevant mental images – but this, they argue, does not entail that the mental image we have of a car is derived from social convention. Another way to put it: mental content most certainly depends, at least in a large part, upon our having perceptions of external objects, but in order for it to be considered *derived*, mental content must be said to arise solely via socio-linguistic convention.

However, Clark is not concerned with showing that the actual content is not itself intrinsic; rather, that the *meaning* of the intersection of the Euler circles must be extrinsically derived. In this sense therefore, Clark's point is quite simply a harkening back to classical semantic externalism. The *content* of a mental state, such as the wetness of water or its drinkability, can be non-derived, but its *meaning*, namely, that it is H20, is a product of linguistic convention and social agreement that the term 'water' in fact picks out the stuff that is composed of hydrogen and oxygen molecules. We might think of it in this way as well: clearly, thoughts, perceptions, and the like usually depend on some

external objects in order to be contentful. Indeed, every thought and every perception are thoughts and perceptions *of something.* This is one level or type of mental content, while *meanings* are often much more complex and often do derive entirely from social convention. The idea that one of the Euler circles functions as a representation of a particular set, whose members are in some way related to other sets of entities represented by other Euler circles, is all part of the larger social contrivance known as set theory. While the truths of set theory might indeed be human-independent or perhaps even Fodorian innate concepts (in which case they would be entirely non-derived), set theory as a practice, the way we come to know these truths and understand them, is an external, social practice, from which mental meanings involving set theoretic principles are entirely derived. In this sense therefore, we can think of the relationships among pieces of mental content as the sorts of cognitive content that Clark wants to claim can be derived and hence, something can be extrinsic and still count as genuinely cognitive. Adams and Aizawa foresee this objection, as they claim:

> Insofar as there must be a social convention regarding the intersections of Euler circles in order to have a mental representation regarding the intersections of Euler circles, this is not a fact about the constitution of the content of a mental image of the intersections of Euler circles. [2010; 73].

Again, the idea is not that the images are what Clark is claiming to be derived, but precisely the "mental representation *regarding* the intersections of the Euler circles. Clearly, information about what those intersections *mean, imply, denote,* and so forth, should count as cognitive and yet, even as Adams and Aizawa claim, these representations are *constituted* by social convention.

Adams and Aizawa go on to argue therefore that the original thought experiment in which Otto consults his notebook in order to remember the location of MOMA (Clark and Chalmers, 1998) involves nothing more than a coupling in which an external object, the content of which is derived, *aids* in Otto's ability to get to the museum. Whatever cognition we want to attribute to Otto must still be going on within his head, most likely in the form of a standing belief that his notebook is a reliable source of information that supplements his imperfect memory. The ability to execute actions based on these beliefs arises solely internal to Otto's organism, and more specifically, it is caused by certain neural patterns of activation which produce their content intrinsically.

In response, Clark (2008) claims that Otto and his notebook is not *ipso facto* a story about extrinsic content. Based on Clark and Chalmers' (1998) original Parity Principle, if we can imagine that a process which is otherwise external to a system were going on inside of it, and then would have no qualms about calling that external-turned-internal process cognitive, then the divide between internal and external is not in itself sufficient for marking off cognitive processes from non-cognitive ones. Neither is location of processing a sufficient marker for derived versus non-derived content. As he suggests, the words in Otto's notebook might in fact require interpretation and convention to be utilized, but "that need not rule out the possibility that they have also come to satisfy the demands on being, in virtue of their role within the larger system, among the physical vehicles of various forms of intrinsic content" (90). In fact, Adams and Aizawa (2005) endorse this very idea when they provide an exposition of their view on non-derived content by way of machine intelligence. If, as they suggest, we were to design a thinking machine modeled on human thought, there must be symbols or

representations that *mean* something to the machine solely by virtue of their being internal to the machine's processing. To be sure, the cause of such meanings might be originally engineered by the machine's designers, but that symbols mean something *to the machine*, cannot be derived. And yet, Adams and Aizawa concede that it might turn out that "the symbols in the machine 'X,' 'Y,' and 'Z' could mean X, Y, and Z in virtue of satisfying conditions for both derived and non-derived content" (665). Thus, within the larger system of Otto + Notebook, it is conceivable at least that the entailment conditions for something being both derived and non-derived are indistinguishable.

Even if we must admit that the notebook encodings are entirely derived, the demand that absolutely no part of a cognitive system can trade in conventional representations, argues Clark (2008, 2005) is too stringent. Suppose there were Martians, he suggests (2005), who had an extra-biological mechanism responsible for storing bitmapped images of blocks of text, such that they could later recall and use the images, much in the same way Otto utilizes his notebook. Surely, Clark argues, we would grant that the images stored even prior to retrieval count as part of our Martian friend's cognitive processing, and if we can accept that some skin-and-skull bound processes trade in extrinsic representations, then it makes no sense to claim that only those processes involving derived content that occur in the head count as cognitive. Thus, if other forms of memory are going to count as memory at all, then, as the Parity Principle holds, it would be overly presumptuous to exclude synonymous cases of memory based solely on the fact that the confines of the brain have been breached.

Based on the functional similarity of memory retrieval in these various cases, Clark (2008) concludes that every truly cognitive system need not operate entirely with

intrinsic representations, nor must every proper part of a cognitive system operate with such representations. Interestingly, Adams and Aizawa (2008) claim to have never made such demands in the first place: "it is unclear to what extent each cognitive state of each cognitive process must involve non-derived content" (2001; 50). In one sense, it could be said that Clark has misrepresented their position and that their actual argument runs something like this: for something to count as truly cognitive, it must trade in non-derived representations at least *some of the time*. But then, if this is the case, what good does such a specification do if we are trying to define and delimit the mark of the cognitive? If the answer is simply that some of the system's content must be non-derived, then Otto and his notebook can easily be smuggled back into the picture, as quite clearly, some of Otto's mental content is intrinsic. Furthermore, if this is truly the position Adams and Aizawa want to maintain, then they are not at odds with Clark's original claim that cognition might be characterized by one or the other or *both* kinds of representational processes. At the end of the day, nevertheless, Adams and Aizawa stubbornly resist the idea that certain sorts of extrinsic content, *especially* that content which is externally derived, could ever feature as a proper part of a genuinely cognitive system. In order to understand why they keep returning to this intracranialism as an explanatory marker for cognition, we must now turn to the other of their two conditions, namely that genuinely cognitive processes arise from specific types of causes, none of which could be external to the system or agent in question.

2.3 Kinds of Causes

The motivation for claiming that specific causes of cognitive processes are necessary for determining the 'mark' of cognition in general seems to be twofold. First, we find in Adams and Aizawa a continuation of the claim that what makes human thought special is that it involves non-derived content and this kind of content can only be caused by specific processes. Second, and closely related to Adams and Aizawa's concerns, Rupert (2004) echoes the notion that if cognitive science is to remain a meaningful enterprise whatsoever, it should proceed like any other unified science, by attempting to discover causal regularities or nomological features of the human mind. In fact, we should expect that cognition should be explicable in terms of as few laws as possible, if we are to believe that there is a 'science' of mind and that this science, like any other, should strive to be elegant and simple.

I have explained above why it is at least dubious that the mark of the cognitive will be made solely on the basis of finding systems that trade in non-derived representations, but even if we accept that this is what truly characterizes cognition, intracranialism is hardly a quick inference to be made. Adams and Aizawa seem to help themselves to the assumption that non-derived content must be internally produced, without explaining precisely what the mechanism is that is responsible for such production. They are not foolish enough to claim strict mind-brain identity, as Clark (2008) notes, and yet, it is "a matter of contingent historical *fact*" that such representations are manufactured by human brains (Adams and Aizawa, 2001, my emphasis). Is it really a *fact* that the brain is the only means of intrinsic content production? Or is this the very debate we are trying to settle?

There are several problems with the ‘special kinds of causes’ argument as it is so far construed. First, I have only been hypothetically granting Adams and Aizawa the original claim that cognition is marked by non-derived content, and so, if this turns out not to be the case, , looking for special kinds of causes solely for non-derived content is rendered pointless. However, if their argument were to work, it would still not follow that what goes on inside the head is the only place to look for the cause of non-derived content. On the one hand, perhaps the entire organism plays an essential causal role in producing these representations; in fact, one need not stop with the organism itself, but could conceivably argue that many environmental factors actually *cause* intrinsic content. This might seem to countervail the very definition of intrinsic as being entirely generated from within, but it need not. The very question on the table is what exactly do we mean by a cognitive system and so, if our answer rests on the notion that it must internally produce content, then the next step must be to determine what counts as the ‘inside’ of the system and what counts as the ‘outside.’ Indeed, if it turns out that Otto+notebook=one entire cognitive system, then surely, the notebook can produce non-derived content. Nevertheless, Adams and Aizawa do not find this crucial piece of the puzzle compelling enough to discuss. They simply assume that the whole of cognition is captured by a technological virgin human body, and in their more extreme moments, a naked brain.

But let’s suppose that we grant them the weaker claim, namely, that cognitive processes must involve at least some operations whose content is intrinsic. It becomes immediately clear that this only hurts their case, as we no longer know precisely how much of the system must trade in these non-derived representations, how often, and to

what extent. Determining the law-like causal nature of a system we don't fully understand seems a rather arduous task. Besides, if we open the door to allow that some derived or even socially constructed content might actually constitute certain cognitive processes, then intracranialism is not only a difficult inference to make, but a foolish one. Perhaps Otto and his notebook constitute a cognitive system and to be sure, Otto has some intrinsic content, such as the standing belief that the notebook is trustworthy, that if he desires to go somewhere, he ought to consult it, etc. But then the *occurent belief*, that the museum is at such and such location, which is content that surely features as a proper part of the cognitive process, is a matter of socially contrived symbols and scribbles in notebook. So, Adams and Aizawa are faced with the dilemma of either having to stick to their original guns, thereby begging the entire question concerning the *what* and *where* of cognition, or they retract and then must deal with the consequences of allowing that cognition is hybridized and often causally dependant on extrinsic content.

Suppose Adams and Aizawa did concede the second horn of this dilemma and accepted that at least some of the time, cognition is constituted by more than mere neural activity and can include coupled systems such as Otto and his notebook. The worry remains for them and for Rupert (2004) however, that there would be no end to the odd couplings we might consider to be cognitive and hence the laws governing such systems will grow increasingly complex and unwieldy. In the name of parsimony therefore, we should assume that cognition is bound to the human organism, or maintain a hypothesis of Human Embedded Cognition (HEMC). While coupled systems might in fact facilitate cognitive processes, the actual cognitive process itself remains embedded within the organism, such that cognitive science remains holistic and intact, its subject matter

simply being the human brain or perhaps the entire human organism.

While it should be granted that a science of mind should have a unified set of processes it studies, this demand in no way proves that the causes subtending such processes are entirely within the organism. For one thing, by insisting that we look for specific kinds of causes for cognitive processes, Rupert tacitly sneaks in the notion that the *effects*, the cognitive processes themselves, have been comprehensively catalogued and comprise a unified set. To be sure, we have some very coarse-grained mental types—MEMORY, BELIEF, HUNGER, etc., but these cognitive kinds 1) are not the only types of cognitive processes that make up 'cognition' generally, and 2) many of them were not at all discovered by examining brains or even entire organisms for that matter. Surely, memory, belief and hunger were psychological phenomena long before we had any idea that the brain even played a role whatsoever in any of these events. Take depression, for example. While we can identify dopamine levels as indicative of emotional states, this is at once only a recent discovery and furthermore, as any critical philosopher of science will attest, brain chemistry is at best strongly correlated with more complex psychological states. So how did we go about determining that persons can be in a cognitive state of sadness over long periods of time before we had neuroscience? It seems that *observable behavior* – lack of eating, sleeping, loss of interest, and quite simply, verbal reporting – is a large part of how we come to understand that there is a type of mental state called depression. To be sure, behavior is belongs to an organism, but often, it is generated by organism-environment interactions, which extend well beyond the scope of processes internal to our brains or bodies. If we are using such broad descriptors to define the suitable types of processes to be studied by cognitive science, then, as Clark

(2008) asks, what principled reason do we have for rejecting the idea that the 'science of mind' will eventually concern itself with a "motley crew of mechanisms"? The flaw of the argument for scientific kinds, he claims, resides in "its assessment of the potential for some form of higher level unification despite mechanistic differences" (96). So, on the one hand, our coarse-grained psychological types are hardly unified or agreed upon in the first place and thus, it is a bit hasty to go looking for their causes, meanwhile delimiting those causes to the skin and skull barrier; on the other hand, even if we do have a common sense understanding of what sorts of processes are to count as types of cognition, such understanding is so often on the human + her tools, the human + her environment, or the human + her culture, and not the isolated and encapsulated brain.

Another worry that is implicit in Clark's responses, but one he perhaps does not spend enough time discussing, is that by insisting that 1) cognitive science should study only natural kinds, we must also accept the corollary argument which is 2) that only natural kinds can have causal regularities. This further suggests 3) an assumption that we have some principled way to distinguish between natural and non-natural types of processes. In turn, this often leads one to suppose that 4) 'the mind' will eventually be shown to be a natural kind. Regarding 1), this is an assumption made by nearly all natural science, hence the term *natural* modifying science, and yet, why should we believe that cognitive science is necessarily a natural science? As Gallagher and Zahavi (2008) define it, cognitive science is already an assortment of other sciences: neuroscience, psychology, linguistics, and even philosophy, the last of which could hardly be said to only study naturally occurring kinds of processes. If cognitive science is itself not entirely concerned with natural kinds, then perhaps part of its reaches go beyond law-like regularities. Even

if the case were made successfully that cognitive science, like any other science, must proceed by discovering causal regularities, nowhere in any of this reasoning is the further entailment that what we might call a non-natural process could not have law-like regularity of which we could easily discover and record. A paradigm case of a non-natural kind would be computers, as they are prototypical human artifacts. Nevertheless, such artifacts – technological memory-enhancements, calculating devices, and word processors – are surely describable in terms of causal regularity, hence we have 'computer science.' What we are interested in describing in computer science is computation, and is generally *not* whether that computation takes place in a Mac or a PC. In other words, the causal regularities studied in science are often *functional roles* and have little to do with the *realizers* of those processes.

So, on the one hand, we might think that the distinction between natural and non-natural kinds is of no use insofar as both natural and non-natural kinds of stuff can still realize the same processes of which we are interested in studying in natural science. The very simple point Kim (1992) makes concerning the non-naturalness of Jade applies here. Jade can be said to be a composite, itself not being a natural kind, but instead composed of two naturally occurring kinds of minerals, jadeite and nephrite. Nevertheless, we treat jade as one jewel, much like we treat a cake as one object, and one 'natural' object at that. To be sure, cakes are composed of other ingredients, but we don't typically say that a cake is unnatural simply because it is made of flour, milk, eggs, and so forth. Furthermore, cakes have specific causal regularities governing them. They burn if baked at too high of a temperature, they grow mold if left out for too long, and they have certain saturation thresholds. Thus, what we typically assume to be naturally occurring 'wholes,'

including the human organism or the brain for that matter, arguably decompose into parts, some of which are not entirely biological themselves. A brain has no meaning or function if not to control a body and hence, many people now speak of the brain *and* the central nervous system as one thing. Likewise, we typically mark off bodies by virtue of referring to the skin barrier that seems to provide a boundary from environmental outsiders, and yet, the body remains constantly penetrated by these external factors, especially in the case of technologically enhanced bodies transformed by prostheses and implants. Nevertheless, we would like to think that 'humans' represent one *kind* of specie, regardless of their penetrative and alterative qualities. Hence, the lesson to be learned from these 'cyborgs' as Clark (2003) calls us, is that the biological matter of which we are composed is not what makes us natural kinds. If we are natural kinds at all, it is only by our being consistently 'non-natural' – plugged in, wired up, and technologically modified – that we achieve our status as human kinds. Hence, Clark's peculiar verbiage, "natural-born cyborgs."

Another point to consider regarding natural kinds and causality is that even if we were forced to admit that causal regularities are the means by which we discover natural kinds, it does not follow that cognition is itself a natural kind. Indeed, as the previous discussion indicates, we have plenty of reasons for thinking that cognitive processes are caused by a whole array of phenomena, from biological to technological and hence, law-like regularity regarding such a diverse set of causes seems dubious at best. As Levy (2007) suggests, "if it is true that causal regularities pick out natural kinds, then the mind is not a natural kind. It is a compound entity comprised of at least two (and probably many) natural kinds" (51).

We can summarize the implications of the discussion above as follows: Science deals in kinds. If it only deals in *natural* kinds then if cognition is a natural kind, we should expect causal regularities governing it that we can pick out and study. It is possible that these nomic structures exist even if cognition does not occur entirely within the organism. Hence, the claim that EC violates the 'natural kinds' principle of science fails. On the other hand, if science simply deals in 'kinds' then if cognition turns out to be a non-natural kind, it still can be the subject of cognitive science. In other words, something can have law-like regularity and still not be considered natural, such as an extended mind. The larger point here seems to me to be that it is arbitrary whether we call something natural or non-natural in science. What matters is whether sufficient law-like regularity is present so as to study the entity or process in question. Extended cognition, be it natural or not, passes this litmus test, despite Rupert's protests.

So much for relying on natural kinds of causal processes as a means for marking off cognitive from non-cognitive phenomena; nevertheless, a worry remains, namely that without causal regularities we cannot identify with any regularity, the cognitive *agent*, which is of course, the real subject of cog sci. To be sure, there is a sense in which accepting HEC entails some difficulty in setting boundaries on what the phrase 'cognitive agent' denotes. Is this a worry specific to HEC however? It would hardly seem so and here is why. The problem as I see it, according to Rupert, Adams and Aizawa, et al, is that without the ability to reference regularly occurring causal kinds, there will be no way to effectively decide what is the proper subject of cognitive science and what is not. Traditionally, they claim, the human mind, or more broadly, the human, is the what cognitive science studies and if we begin extending what it means to have a mind or to be

a cognitive agent too far, we will thereby relinquish the entire science that concerns itself with otherwise regularly occurring natural phenomena. While I concede that humans are regularly occurring phenomena, this by no means suggests that limiting the study of their cognition to what goes on inside their heads will magically make clear what it means to be cognitive agent. If Rupert is so worried about the loss of unified personhood in the wake of HEC, he might do well to consider that this problem is not specific to HEC. Indeed, as far back at least as Hume we are forced to realize that defining a person is treacherous business, and this lineage continues with Parfit (1971), Perry (1975) and others, who remind us that even referring to a body as the bounds of personhood will never be a sufficient criterion for marking of one agent from another, nor will memories, personality traits, or phenomenological descriptions. Thus, pointing the finger at HEC and charging it with dissipating the subject of cognitive science merely distracts one from recognizing the same inherent difficulty of HEMC or any other theory in which 'the cognitive agent' is the central focus of discussion.

It would seem therefore that Rupert (2004) conflates two worries that he thinks are endemic to HEC: 1) the *dissipation* of the cognitive agent and thus, the subject matter of cognitive science and 2) the *over-saturation* of the mental into an otherwise endless purview of coupled systems, or what he terms "cognitive bloat." As to 1), this problem is better left to another project altogether. As we have seen, the issue arises with or without extended cognition and furthermore, it is a separate concern that we need to define and delimit cognitive agents as opposed to cognitive processes. Regarding 2), this appears to be the chief concern underpinning all criticism levied against HEC. Thus, Clark (2007, 2008, in press) has recently presented a more modest view, *Organism-Centered*

Cognition (HOC), in an effort to assuage some of the paranoia which accompanies envisaging a world bloated by cognition.

2.4 HOC: Moderate Resolution or Hasty Retreat?

The only real danger of HEC, Clark (2008) argues, "is that it may blind us to the genuine extent to which human cognition, though not organism bound, remains importantly organism centered" (138-9). The hypothesis is that at times, cognitive processes might in fact reach beyond the skin and skull barrier of the human organism; nevertheless, the organism and in particular the brain/central nervous system, remain the core constituents of human cognition. Thus, Organism-Centered Cognition (HOC) represents somewhat of a withdrawal from the original thesis of HEC, as it places the human organism in the role of a "senior partner" in constituting cognition. Although Clark (2008) still thinks HEC can be maintained and hence, HOC is merely a modification of it, in some sense, HOC places constraints, sets boundaries as it were, on an otherwise unruly HEC. The worry expressed by Adams and Aizawa's (2010) mathematician+pencil coupling, for example, seems to center on HEC as providing no such bounds and hence allowing more for an "equal partner" thesis,[18] such that the human and the pencil both share to the same extent in the cognitive process. Clark's reformulation ameliorates this concern by reminding us that the brain, although not the only component involved in cognitive processes, remains the chief executor of them.

Has the worry entirely subsided? The HOC still suffers from the inability to specifically mark cognitive processes from non-cognitive ones, insofar as the only claim

[18] The senior partner/equal partner description is borrowed from Dan Hutto, personal communication.

being made is that the human organism is a *necessary* component of cognition. Surely, having a human body or brain will not suffice for cognition all by itself. Furthermore, EXTENDED, as Clark (2008) now calls it, still governs the overall picture we should have of minds; namely, that while organism-centered, mental processes are not always bound to the organism. Thus, the question remains, just how far do they reach? Is it possible, as Clark and Chalmers (1998) suggest that a belief about what time a meeting is to be held can be constituted by a coupled system involving two organisms, one of whom is an absent-minded business person, the other being her secretary? Clark's (2008) appeal to what Braddon-Mitchell and Jackson (2007) term 'common-sense functionalism,' or the idea that a functional description of cognitive processes should allow some degree of multiple realizability, even across various physical substrates, does little work here. Common-sense functionalism would seem not to extend so far as to include couplings such as literally coupled people; if I cannot ever seem to remember where the theater is, but my spouse can and, upon driving to a show, I depend on his memory to get me there, it hardly seems like something the everyday functionalist would endorse as a singular cognitive process. Moreover, it would be difficult to determine whose mind is extending in such a scenario. We might appeal to a senior partner thesis once again, such that whoever is actually driving the cognitive process along most robustly would around whom we would say cognition is centered. Indeed, if I have a faulty memory and my spouse is responsible for remembering how to get to the theater, in some sense, 'I' don't play an extremely important role in achieving this part of the equation. However, it would not quite be right to say of my spouse and me, if we both arrive at the theater on time, that only one of us was thinking. Based on HOC, of course, we both have brains and

under normal circumstances, would be considered separate and distinct organisms. Hence, if cognition is organism-centered, then the coupling of two organisms seems to muddy the waters.

On the other hand, if what is meant by 'organism' is itself not entirely based on biology, but instead admits to degrees of flesh-machine or even person-person couplings, then perhaps the common sense functionalist need not be concerned. However, Rupert's (2004) worry about the HEC, namely that it suffers from *cognitive bloat*, wherein the whole world is potentially imbued with cognition, is only that much more exacerbated by this revised version of 'organism.' If we begin counting two persons as one organism, a corollary *organism bloat* – counting any and all organism-like configurations as organisms, seems to follow. Even Clark (2003) recognizes in great detail how much of embodiment is infiltrated by technology as well as by the 'ultimate artifact' – language, and hence, so much of the world actually gets incorporated into our bodies and likewise, our bodies are constantly being pushed beyond their usual biological barriers. To be sure, the *biological* body, by definition can only include what has already been deemed biological kinds of processes but the *human* body with its plastic hearts, its cochlear implants, and its prostheses, is hardly limited to strictly biological parts.

A further complication arises when we consider the possibility of *disembodiment* that is often afforded at the intersection of bodily subjectivity and technological enhancements, such as those found in virtual worlds. For example, consider Microsoft's new gaming console, *Natal*, in which the controlling device is neither a joystick nor a remote motion mechanism (such as that used in Nintendo's *Wii*) but is instead the player's body itself. Mounted cameras and motion detectors capture the player's bodily

frame and kinesthetic movement in order to produce a real-time avatar on the screen, one which the player then controls with her body. If one were playing a wakeboarding game, the player's body would therefore go through most of the range of motion that would accompany being towed behind a live boat and maneuvering through real water. In a scenario like this, while the organism is indeed an integral part of the overall gameplay, where the player experiences her*self* is arguably not anywhere near that biological mass of cells, but rather, 'she' is on the screen, participating in a highly intense sporting activity and can arguably be said to have left her body in some capacity. This is not to say that a person playing *Natal* is experiencing anything like a genuine Out-of-Body Experience (cf. Blanke & Metzinger, 2009), as the body remains integral to the gameplay and is never taken as a separate object to behold in the way patients who have suffered from OBEs often claim to have been floating above their bodies looking down upon them. Nevertheless, there is a sense in which a person participating in a highly realistic virtual world has displaced his or her *self* from the center, such that organism-centeredness does not hold up so well. While the brain may still play a role in driving the processes behind the control of the body, the feedback from the game itself must also play an important if not essential role. Not only this, but when asking where the action is happening in this situation, one need only observe a crowd of video-gamers, in particular an audience of them, to see that no one cares what is going on with the controllers (even if those controllers turn out to be embodied subjects) but their eyes are, like the player in the game, glued to the screen.

What this small digression illustrates is that the worry Rupert has raised about locating a cognitive subject for the purposes of fruitful cognitive science is a serious

concern, one that is not ameliorated by claiming that cognition is organism-centered. This is because what Rupert has touched upon is not simply the task of marking off one biological body from another. Given current definitions of organisms in biology, this should be relatively straightforward. Rather, Rupert has charged HEC with the inability to mark off one *human* from another. In other words, he has claimed that if we don't keep cognition 'in the head' then we will have no other way of understanding how anything like subjectivity in general is possible.

2.5 Conclusion: Problematizing Subjectivity is Every*body*'s Concern

To a large extent, Rupert is absolutely correct – defining and delimiting cognitive subjects is difficult. Where he goes wrong however, is in assuming that this task is made more challenging by assuming that cognitive processes are dynamically distributed over brains, organisms, and external tools. It would seem, with a quick scan of the entire history of philosophy that no one has yet to pin down precisely how subjectivity is experienced, and this has certainly not yet been accomplished by reducing subjecthood to biological processes. Thus, to point to finger at HEC for its impotence in solving the mystery of subjectivity is only to accuse any theory, intracranial or otherwise, of the same failure. To be sure, Rupert is concerned specifically with defining 'cognitive subject' for the purposes of engaging in scientific study of persons, psychologically, cognitively, and linguistically, and hence, he might rightly point out that an entire account of subjectivity is not needed for such endeavors. Cognitive science can and has indeed been conducted in the absence of a suitable theory of how 'persons' are constituted, and relies heavily upon the one-body = one-person model for its purposes. Again, this is where Clark will

agree that the organism plays an key part in locating cognitive experience, but to think that human bodies themselves are sufficient for understanding all of cognition, psychology, and subjectivity in general, is a huge oversimplification, one to which even Rupert will not likely assent. Surely, when someone is engaged in scientific study of a 'cognitive subject' they are examining behaviors, past histories, relationships, interactions, and transactions with the world; hence, cognitive science must somehow include all of these external 'props' if we are truly to comprehend the cognitive subject.

The brain may not be sufficient for such a vast array of experience, but then, is the body enough? Rupert wants to keep cognition confined and embedded and his HEMC proposal attempts to rein it in once and for all. Likewise, Clark, although allowing for cognitive processes to extend beyond the bodily boundary, insists that the body is 'where it's at' for the most part. However, the body is not so easily tracked with its implants and prostheses, along with the experiential domain which often has persons feeling as though parts or all of their bodies are not even their own. It will be worthwhile therefore, to examine problematic embodiment in some detail in order to see why neither HEMC nor HOC are entirely suitable answers to the question 'where am I?' By embodiment however, I will not be referring strictly to 'the body' as it is conceived in biology or in any other science in which it is an object, relatively static, and highly constrained by genetic, chromosomal, and cellular processes. *Embodiment* includes 'the body' but also denotes the *way that body is experienced*. This phenomenological consideration and the juxtaposition it affords us between 'bodies' and 'embodied subjects' is I think crucial to understanding first, why the experiential domain properly understood *must* be distributed over more than mere biological bodies, but also, that when we understand just how

problematic embodiment is, we will begin to see why subjectivity itself, the very element Rupert thinks he can locate in 'the body,' is a fluid, dynamic, and distributed web of interactions. Much like I will argue that *embodiment* is not reducible to *bodies,* I will push this argument further to suggest that cognitive subjects are never wholly contained within that skin-skull barrier. In other words, by properly problematizing embodiment and subjectivity, something I think Clark and the externalists have failed to do thus far, I will be able to marshal an even stronger case against their intracranial opponents.

Chapter 3

Not Just Any*body*: Bodies, Embodiment, Embodied Subjectivity

But because I who am a man have seen the cadavers of men dissected, because I have read articles on physiology, I conclude that my body is constituted exactly like all those which have been shown to me on the dissection table or of which I have seen colored drawings in books [Sartre, 1956; 401]

3.1 Introduction

In *Being and Nothingness,* Jean-Paul Sartre spends a great deal of time distinguishing between the 'for itself' and the 'in itself' (*por soi* and *en soi*) and often applies this distinction to the experience of the body. While the body, taken as a "this among other thises," can quite conceivably be a *thing* - an object for science and medicine to investigate – if we try to understand our own peculiar existence solely in terms of the body, *in itself,* we shall always come up short. The way my body shows up *for me,* he argues, cannot be grasped by trying to unite my consciousness with "the body of others," much as in the way the quote above suggests we often do. Sartre is in some sense, therefore, prefiguring the anti-reductionist response to claims regarding the 'Neural Correlate of Consciousness' (NCC), and the purported ability to understand, once and for all, the 'mystery' of conscious experience entirely by an objective neuroscience. He is also highlighting a crucial difference between how we might experience our own *embodiment* in ways indescribable by objective accounts of *bodies.* In other words, when *I* experience *my* body, I do not do so in the same way I experience the bodies of others, nor do I experience it like any other object, such as the cadaver on the operating table

Sartre mentions. I might be able to conceive of having a body *like* all the others out there in the world, but I achieve this only *through* my body and hence, my body is also my being.

Recalling that, as Rupert (2004) argues, in order to be a meaningful and worthwhile pursuit, a science of cognition must 'locate' cognitive subjects,'the body' might provide just such a point of reference. Indeed, as we have seen in the previous chapter, based on parsimony, thinkers like Rupert argue for something very much like a reduction of cognitive subjectivity to an objective body-object, be it the whole body or perhaps even just a specific part of it, namely, the brain (cf. Adams and Aizawa, 2010). Thus, the reductionist idea that cognitive processes are always contained in a body-object is at least a working theory worth consideration. Even if, as Clark suggests, we allow that cognitive processes are not bound to the body, but are instead typically centered on it, the question remains: what precisely are the limits of this body? In other words, given bodily malleability, it is not a straightforwardly simple task to definitely state where the body ends and the rest of the world begins. In turn, marking off cognitive subjects is a tricky business because 'my' cognitive experience might at one moment be centered on more than just my biological body and may even, as the CEO-secretary example from Chapter 2 illustrates, center on two or more such bodies. As it turns out, this question of *embodiment*, or, the question of how *I* live through *my body*, is problematic for intracranialists and externalists alike. In what follows, I intend to expose some of the difficulties in pinning down 'bodies' as proper 'objects' for cognitive science. As I hope we shall see, given some of the strange ways in which 'my body' is not always experienced in the way science would deem that it ought to be, there is often a disconnect

between the objective ‘organismic’ view of *where we are* and the subjective phenomenological account of *where I find myself*.

3.2 Having AnyBody, Being Somebody

What it means to have a body is not as straightforward is it may seem. The very utterance *I have a body* is enigmatic insofar as it sets the subject, *I*, in opposition to the body, as an object *for me*. The history of this problem is long and complex and I shall not attempt to sketch it in detail, but will instead jump immediately into contemporary discussion. Indeed, by doing so, one can see the same thematic difficulties that have persisted for centuries continually resurface, as nearly all language surrounding ownership of the body, both in philosophical and scientific quarters, channels the Cartesianism these disciplines have sought for so long to disavow. The paradox of *bodily having*, or the idea that the body is something owned by me, is what I seek to further clarify in this section.

To begin, consider human bodies from a post-neuroscientific revolution vantage point. For the ‘brain-obsessed,’ the rest of the body is treated more like an extremity to the brain. When it comes to something like mind-reading, the ability to infer what someone is thinking or feeling, for example, it is assumed that this ability is localized in the brain, possibly in the mirror neuron system (Goldman & Gallese, 1998) or distributed among several systems. The debate between simulationists (e.g., Goldman, 2006) and theory-theorists (e.g., Gopnik & Meltzoff, 1997; Perner, 1991), is about *how* the process is carried out, not about *where* the process takes place. It is an unspecified preconception that the execution of mindreading is a brain-event. Even in hybrid theories (e.g., Nichols

and Stich, 2004), although Fodorian (1983) anti-localization modularity talk pervades the discussion, the idea that the substrate of these activities, whether we want to call them modules or mechanisms, is the brain and the brain only.

Brain-centered cognitive science and philosophy of mind is perhaps most fervent when it comes to the question of how conscious experience in general is made possible. The hypothesized answer – the Neural Correlate of Consciousness (NCC) – has yet to be found, but the assumption that consciousness can be reduced to a brain process or set of processes is certainly guiding the research (e.g., Koch, 2004). Subsequently, proposals such as Manzotti's (2006), that conscious experience might better be explained under an externalist framework, are rarely taken seriously and thus represent the 'fringe' of consciousness studies.

The very idea that the NCC is presupposed as existing is telling. It is not a general bodily correlate of consciousness, but a specifically neural one. Embodiment has purposefully and systematically been left out. To be sure, a brain is a body, or part of a body, but 'scientists of consciousness' often treat brains as if they were isolatable bodies that retain their functioning, meaning, and significance with or without the rest of 'us.' This is not an entirely fair assessment, given that it is obviously presupposed in studies of say, vision, that eyes are a necessary component and the recent focus on saccades and microsaccades (cf. Martinez-Conde, 2008, 20072009; Martinez-Conde, et al, 2009) is a testament to such awareness. Furthermore, we might consider that a person needs, in addition to eyes, the extra-ocular muscular system and good control over head posture and movement in order for the eyes – and the saccading they perform – to function properly. These things depend further on the vestibular and proprioceptive systems for

general body control. In other words, neither eyes nor brains float around detached and disembodied whilst realizing visual and cognitive awareness, and yet, for the many of the NCC investigators, the brain represents the *sin qua non* of answering the 'where' question about mentality.

If we therefore ask a brain-centered NCC investigator what it means to have a body, the answer might go something like this: 'having a body consists in being *aware* of oneself as situated in this or that particular biological organism, one that is controlled and recognized by the brain to which it is attached.' In other words, given that the correlate of awareness is supposed to be 'in the head,' then the brain is where we should expect to find that sense of ownership, that consciousness of oneself *as embodied*. But notice how such a view homuncularizes the 'owner' of the body, such that we imagine the brain as a sort of comptroller executive 'self' in charge of the rest of the body. Therefore, to understand what it means to 'have a body' is simply to take stock of this very relationship, one in which the balance of power is in the hands of a senior partner, namely, the brain. The idea of distributed control among brain and body, or even brain, body and world is often ignored or dismissed, as is of course, the more radical view that brains and bodies and environments are all 'equal partners' (cf. Hutto, 2006).

There is a similitude between the senior partner view of the brain and the immaterial Cartesian soul, that disembodied ego which Husserl (1960; 1931) later referred to as the I-pole of experience. Even though the brain-centered theorists of the late twentieth century claim to be denouncing any form of dualism, a persistent form of it remains nonetheless. There is one 'I' who is in 'my brain' that owns the rest of 'my

body.' Likewise, for Husserl, in the *Cartesian Meditations* and elsewhere,[19] the 'I' who stands over and above the body, who takes his or her body *as an object for* this or that intentional thought, is that "pure I" which is responsible for the mode of *having* in the first place.[20] Owning the body for the physicalist and phenomenologist alike therefore amounts to admitting somewhat of a dual-natured self. Even in the naturalistic world consisting solely of physical objects and processes, the utterance 'I have a body' mysteriously splits my *self* into both a subject of *my* experiences and an object *for me*. The difference between physicalism and phenomenology regarding this split between the body-as subject and the body-as-object is that while the former tends to brush the problem aside, the latter takes it as an issue worth exploring and indeed 'incorporating' into discussions of cognition and embodiment (e.g. Legrand, 2006). Physicalists, for example, often attempt to explain the apparent fissure by suggesting that 'I have a body' really means 'I am a body'– in other words, whatever dualism is present is simply a grammatical consequence (e.g. Ryle, 1945). Nevertheless, it is not simply a matter of linguistic convention that motivates proponents of the NCC to think that the brain is somehow the 'comptroller,' indeed, the 'owner' of the rest of the body. Even though it is not a substance dualism, like the Cartesian picture of bodily-having, the 'captain in the ship,' as it were, has been identified as the brain (the captain) and the rest of the body, a mere vessel. Of course, any good physicalist will renounce the idea that the brain and the body are ontologically distinct and can thus avoid the pitfalls of Cartesianism and yet,

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[19] Cf. *Ideas*, but see also in Rudolf Bernet's collections of Bernet, et al., 2005, for critical commentary and various other translated fragments from the archives in Leuven, esp. 1964.

[20] Husserl, albeit at times quite Cartesian, is not always as strongly so. He expresses a different conception in *Ideen II* where he sets out his view of the lived body and something akin to an enactive view – all of which influenced Merleau-Ponty. Also, the transcendental ego was not regarded as a spiritual substance in the Cartesian way.

when it comes to explaining the problematic nature of having a sense of ownership *of* my body while simultaneously *being* that body, little more than hand-waving typically results. It is taken for granted by Koch (2004) and others that this supposed body-as-subject/body-as-object split, like consciousness more generally, will be eventually be describable in strict neurobiological terms. These assumptions are not the basis of the phenomenological method and, as we shall see, not only does the sense of ownership over one's body matter to the phenomenology of mind, but according to many (Merleau-Ponty, 1962; Gallagher, 2005; Zahavi, 2006), problematizing and describing this relationship 'I' have to my body is necessary if we are to attain a comprehensive account of cognition.

As we have seen so far, not everyone in cognitive science and philosophy of mind has reacted to the neuroscientific revolution in the way reductive physicalists have. While the brain remains an important source of thought, Gibson's (1967) theory of an 'ecological body' has resulted in other thinkers (cf. Varela, Thompson, and Rosch, 1991; Haugeland, 1998; Gallagher, 2005) stopping to reconsider the role the 'body-whole' plays in cognition. The Gibsonian tradition invites serious discussion, for example, about proprioception and its contribution to cognition. Where the body is in relation to other objects is ascertained via a concatenation of all the sensory modalities, and has been argued by some to provide us with the basis for experiencing the 'whole body.' Proprioceptive awareness can be further analyzed, as Gallagher (2005) suggests, into the different roles it plays in what he calls a body image and a body schema. The former draws on multiple (including sensory and emotional) inputs to create an explicit representation of 'the body' as an object that is uniquely tied to 'me,' while the latter,

which primarily serves the demands of motor control, involves a much more tacit awareness of the body and its situatedness in the world. If I think about my body and decide it is out of shape, I am conjuring an image, or if I participate in an unfamiliar activity like learning to dance the tango for the first time, I will benefit from paying very close attention to my feet, my posture, and the position of my arms, which means I will be employing a body image. Contrast these examples with waking in the middle of the night to obtain a glass of water or putting on clothes while simultaneously watching television. When action is habitual or automatic, there is no need to take the body as an object for movement. For example, I do not need to pay attention to what my fingers are doing as it buttons my shirt; rather, the body itself provides a schema for action such that in a way, *it knows* what it's doing whether or not 'I' am explicitly aware of it. Thus, in normal and familiar action, Gallagher argues, the body schema plays a crucial role. In cases of body schema breakdown, such as in the case of Ian Waterman (henceforth, IW), for instance, who, as a result of a viral infection and subsequent mylenated nerve fiber damage, which resulted in the loss of proprioception and tactile sense below the neck, is unable to perform everyday tasks with the automaticity most of us are accustomed to, the body is no longer a transparent lived-through medium. Rather, the body, as Gallagher suggests, must be used as a tool, its image manipulated and controlled to produce the desired action. More will be said about IW and other embodiment abnormalities later, but it suffices at this point to note that there seem to be two modes of bodily having; one in which 'our bodies' are not explicitly 'for us,' but really seem to 'be us,' and the other in which we do explicitly take our bodies as representational images, objects to behold, manipulated, and 'owned.' This distinction was made explicit in Merleau-Ponty's

Phenomenology of Perception (1962) when he discusses the ways in which perception involves motor skills and is not reducible to simply experiencing an array of sensory data. His example, that of touching silk, is one that begins as a confused sensory state, but with practice, transforms into an automatic and immediate recognition, one that it is nearly impossible to explain. In such processes, Merleau-Ponty claims that our bodies do not appear to us as objects to manipulate, nor do our senses present us with heterogeneous information; rather, if I am skilled at something, such as recognizing silk, my body is "a ready-made system of equivalents and transpositions from one sense to another" (235). Dreyfus (2001; 1990) furthers this idea by suggesting, in what he calls "skillful coping," that such as occurs when we go from awkwardly splashing and nearly-drowning to smoothly gliding across the water in an effortless swimming stroke, we have acquired the requisite "muscular gestalt" which allows our bodies to drift into the experiential background. The objects of our perception are therefore no longer bodily movements or specific body parts, but instead are the tasks in front of us (249).

In addition to Gibson, the phenomenological tradition has greatly influenced thinkers like Gallagher (2005), when it comes to bodily having; but also, thinkers like Clark (1998, 2003, 2008), Haugeland (1998) and Zahavi (2003, 2007) have all taken cues from phenomenological investigations when attempting to understand a mind that is embodied and embedded in a world. Similarly, Heidegger (1962) and Scheler (see Zahavi 2003) who in turn influenced thinkers such as Merleau-Ponty (1964) and Sartre (1966), set their phenomenological sights more towards being embodied, and being-in-the-world (and, as we'll see, in a way that is always already imbued with the 'mark' of cognition). As Heidegger (1927) notes, the world is not wholly other to me, but I am always involved

it and because of this pervasive involvement, I often fail to notice the primary relationship between me and my body, my tools, and even language, because for the most part, that relationship is invisible to me. I will return to phenomenological descriptions as a means to complement and add to the discussion of embodiment in cognitive science in a later section however, as I think getting clear on precisely what the current trends are with respects to bodily having is where one should start. Rather than engage in a standard historical project in which the origins of or influences on current theories is somehow unearthed, I think by beginning with the varying viewpoints on embodiment and then examining the ways in which phenomenological descriptions are employed, either implicitly or explicitly will illuminate the historical underpinnings in a much more interesting manner.

An analogy can be drawn between Gallagher's body image/body schema distinction and the distinction Heidegger (1927) draws between the present-at-handedness (*Vorhandenheit*) and ready-to-handedness (*Zuhandenheit*) with which objects show up to us. The well-known hammer example is intended to point out that in most cases, the tools we use are barely noticeable; when using a hammer for example, one does not focus on the hammer itself but more on the *hammering* and in this sense our tools are often more like extensions of our bodies – thereby becoming part of the body schema. In cases of breakdown, malfunction, or in moments of theoretical reflection however, the hammer becomes present-at-hand, an object we consciously think *about* and see as distinct from ourselves. As Gallagher points out, our bodies can similarly be thematized and reified, such that 'I' might feel a bit distanced from 'my body,' and can therefore take it as an object, or even a tool for my use, and thus treat it as present-at-

hand (as– in the form of a body image). For the most part, however, we walk, talk, move around, and interact with one another in a much more holistic and unreflective way. In other words, our body is most often ready-to-hand, because we are most often operating with what Gallagher terms a body-schema. This analogy between the way tools appear to us and the way our own bodies are lived-through and represented is not perfect of course, because we don't typically think of our bodies as tools, nor do we think of tools as inherently attached to our bodies. Nevertheless, in some cases, our bodies *do* feature more like present-at-hand tools, when, for example, we feel detached, dysphoric, or just simply clumsy and awkward, such as in the case of taking a ballet class for the first time. Likewise, as the overarching aim of this project is intended to argue, the ready-to-hand feature of tools we are most often accustomed to experiencing, means that our body schema can actually 'incorporate' otherwise external objects into itself, thereby extending the limits of what is understood to be 'my body.'

The idea that my body can at times fade into the background and at other times, it is more like an explicit object I must manipulate, is phenomenologically uncontroversial. Contention arises, however, when we attempt to take this phenomenological description and utilize it in a philosophical or scientific explanation about cognition generally. As the previous paragraph suggested, we can experience ourselves as if detached from our bodies, or so at least it seems. It is an interesting question to pursue therefore, if we ask, *just how severe can this feeling of detachment be?* Answering this question would point towards a more general answer to the question, *how much does our cognitive experience depend on our being attached to a body?* Moreover, by examining the phenomenology of embodiment, we can begin seriously to ask to what extent is the body schema plastic and

extendable, such that tools and other external objects might become part of the body-whole. If it turns out that embodiment, even in cases of what I will collectively term 'body dysphorias,' is essential for cognition, but it also can be shown that this embodiment is malleable, then it would have to follow that cognition is better understood in terms of a "shifting coalition of tools" rather than a singular, unchanging, and unified body.

As is the case in much of cognitive science, one way to approach the question concerning 'normal' embodiment and cognition, is to examine 'abnormal' or pathological cases in order to see what sorts of breakdowns are occurring. These breakdowns typically highlight what, in non-pathological scenarios, is at play. There are hosts of possible 'abnormal embodiments' to consider, but I will limit the discussion to five, as each highlights a unique dissociation between the objective body and subjectively lived-through embodiment, and provides clues for understanding how embodiment plays a role in cognition and action. In particular, by looking at the levels of experienced dissociation, we can approach an answer to the question concerning how much cognition is dependent upon a feeling of attachment or unity with one's body. Thus, I will begin with the rare case of Ian Waterman, who suffered deafferentation, and will then proceed to discuss aplasic phantoms, somatoparaphrenia, alien hand syndrome, and Möbius syndrome.

3.3 Bodily Breakdowns

The following examples of abnormal embodiment are found regularly throughout the literature, from cognitive science to gender studies and from philosophy of mind all the way back to classic phenomenology (e.g. Merleau-Ponty, 1962). Despite the

regularity with which cases such as phantom limbs or Somatoparaphrenia are simply explicated, once beyond simple description, the interpretations vary wildly. Nativists, intracranialists, externalists, essentialists, and post-modernists have all weighed in on at least one of the cases below, and because of such disparity, I shall proceed first by simply citing evidence and exemplars from each category of bodily breakdown. Then, in the next section, a closer look at the supposed philosophical implications of each will be undertaken.

3.3.1 Deafferentation: The Story of Ian Waterman

Ian Waterman (IW) is by far the most discussed single patient in the contemporary literature on proprioception. This is because his condition is extremely rare and intriguing, as he suffered damage to the large myelinated nerve fibers in his peripheral nervous system, which are normally responsible for proprioceptive awareness and the sense of touch. The damage resulted in his loss of automatic motor control below the neck. Speech, facial expressions, and head movement remained normal. However, his implicit proprioceptive awareness – a feature of embodiment taken for granted by most of us – has been lost. In normal bodily action I am able to engage in the smooth coping that Dreyfus describes; I'm able to move around the world and engage in instrumental action often without thinking about my body or having my limbs in my visual field. For IW, however, to move about, dress himself, or do anything normal-functioning persons can do automatically, he must instead concentrate with great intensity on the task at hand. Indeed, he must maintain whatever part of his body he wishes to manipulate within his visual field in order to achieve the desired action. Therefore, performing multiple tasks at

once, such as walking while talking on the cell phone – abilities often taken for granted by those who engage in them routinely – are difficult for IW. He has no trouble talking, since the proprioceptive loss is from the neck down, but the amount of concentration he requires to walk distracts him from the conversation.

Gallagher (2005) explains IW's case in terms of a distinction between his use of *body image* and *body schema*, the former being the explicit representation of one's body, while the later is the more pre-reflective sense of bodily location and relation to objects outside of it. In other words, for most of us, buttoning our shirts while slipping on shoes is mundane everyday activity because we don't have to stop to consider 'where we are,' how far each of our limbs are from one another, from external objects, and so on. In normal functioning, the body schema provides the control needed to sit upright, walk straight, and touch one's hand to one's head, even while carrying on a conversation about Sunday's game. In IW's case however, he must manipulate an explicit image of himself, concentrating with great intensity on posture and his arm as it moves to grasp an object, or his legs as he places one in front of the other as he walks across uneven surfaces. Practice does not make his movements any more automatic; each time he reaches to grasp something, for example, he has to think through the action. Only a few aspects of his locomotive movement have come close to being automatic – namely, certain aspects of his leg movements while walking, and this is the case only on relatively smooth surfaces. IW is able to drive an automobile, but he will never be able to drive while talking on the cell phone.

IW's case, interesting in its own right, also sheds light on what is normally the case in non-impaired persons. As Gallagher (2005) and Noë (2004), for instance, have

emphasized, when we interact with the environment, vision, sensorimotor control, and proprioceptive awareness usually work seamlessly together, such that we hardly ever notice them as distinct systems. Nevertheless, even in non-pathological experience, we are often confronted with tasks in which we don't feel so 'at home' in our bodies. An example Dreyfus (1972) cites in this regard is driving, It is safe to assume that every person who has ever learned to drive a car, despite how quickly and easily they may have picked up the skill, went through a phase in which all of the discrete components of the task – the steering wheel, the brakes, the gears, and so forth – were individualized and consciously reflected upon. As we become more accustomed to the rhythm of checking the road, accelerating and decelerating, and gauging the sharpness of upcoming turns however, the need to 'think about' driving diminishes until finally, we find ourselves talking on a cell-phone, smoking a cigarette, and adjusting the temperature, all while speeding down the highway and zipping in and out of traffic.

Although Dreyfus's example is helpful, a possible rejoinder to the idea that the beginning stage of driving is somehow analogous to IW's lack of control would be to argue that even in clumsy and inefficient driving, our ability to move our limbs in space, to unreflectively control our bodies, and to execute actions without explicit visual imagery remains. In other words, the reason a task like driving begins so awkwardly is not a feature of our embodiment *per se*, but is rather a lack of mastery over our tools. We have not 'skillfully coped' with our environment. In the following chapters, I will attempt to show that this difference in coping with one's body versus coping with one's tools is really a distinction without a genuine difference; however, *even if* it is the case that the driving example is insufficient to demonstrate that in non-pathological actions, we can

experience something similar to IW's condition, I think there are other examples that do succeed. If I am accustomed to jogging along a particular path, I might very well engage in a conversation with my running partner or if I am alone, it might even be the case that I entirely 'zone out,' such that after completing the trail, I have little to no recollection of the jog itself, but instead have outlined a paper or planned a party. Contrast this familiar experience with jogging on a path that is entirely new, one that contains many unknown obstacles such as rocks, tree roots, and fluctuating topography. Quite literally in this scenario, if I don't maintain my feet within my visual field, I could fall over, much like the way in which Ian must watch what his feet are doing at all times. Add to this of course, the fact that if Ian or I, in our respective situations, don't also monitor what is going on at eye level, we might smack into a tree, another person, or a building. For me, but not for IW, over time, the manipulation of discrete body parts, calculated movements, and detailed planning become more automatic. I can eventually 'lose sight' of this monitoring and hence, my movements don't just appear automatic; they genuinely are, and I no longer represent my body to myself as a manipulable object. On the other hand, although he might be able to 'pass' as normal to an outside observer, his movements seeming automatic, to Ian, the maintaining a visual awareness of his body and utilizing his body image remains a constant necessity and hence, the body schema with which genuine automaticity is achieved in non-pathological cases, is not part of Ian's experiential framework.[21]

What we can glean from this discussion of IW, as well as the comparisons between his case and non-pathological embodiment is two-fold. First, we learn that in

[21] It is worth noting as well that Ian's walking never truly looks normal, while he has mastered fairly normal-looking grasping and reaching.

normal, everyday andfamiliar actions, there is no need to consciously monitor sensory input, motor action, vision, and prorprioception. At the pre-reflective level of bodily experience, 'my body' and 'I' really are one. In other words, I do not experience *any* dissociation with my body; it is not an object *for me* when I am say, walking through my house while talking on the phone. It is also not the case that I feel uncomfortable in my own skin in these familiar modes of embodiment. IW's case however, shows us that this at-homeness can be disrupted to the point that in order to engage in otherwise simple tasks, taking the body as an object *for me* is absolutely essential. Hence, the second thing we learn is that there are non-pathological experiences in which I can become more distanced from my body; indeed, it is helpful to do so in some cases, such as learning a new skill. A question mark hangs over these phenomenological findings however: when one takes one's body as an object, exactly where is the control? Who is the controller? More importantly, have we not resurrected a troublesome dualism by suggesting that not only in pathological cases, but in everyday uncomfortable or awkward actions, we can tease ourselves apart from our bodies? In order to answer these questions, I will turn to several other examples of 'abnormal embodiment' to gain more insight into this supposed fracturing of the cognizer from his or her body. As I will continue to highlight throughout these cases however, there appears to be a need to distinguish between a pre-reflective and reflective level of awareness when discussing automatic versus non-automatic action. Herein, I think, will be the key to understanding from whence bodily dissociation, in all its various forms, arises.

3.3.2 Phantom Limbs

While cases such as IW's are extremely rare, another form of bodily breakdown involving loss of one or more limbs is not so uncommon. Amputations in the U.S. are estimated to affect one in every 200 persons (Adams, et al, 1999) with reasons for the surgery ranging from injury, to cancer, to dysvascular complications, the latter being the most common and increasingly prevalent cause.[22] The typically accompanying phantom limb syndrome has fascinated philosophers, psychologists, and doctors alike for ages. Sensations felt in parts of the body no longer present led Descartes, for instance, in a fit of radical skepticism, to doubt that we can really ever trust our senses and that all bodily knowledge is dubious. Even more astonishing is that persons born without one or more limbs (aplasic) often claim to experience phantom sensations in the missing limb. Aplasic phantoms affect a much smaller percentage[23] of the population, but nonetheless, their existence has suggested to many (Melzack, et al, 1997; Ramachadran & Hirstein, 1998) that 'the body' is an innately specified boundary, such that we are born with a representation of the 'body-whole' encoded in our brains.

Although the symptomology is not entirely agreed upon in the medical community, the received view (cf. Simmel, 1958) about phantom limbs has been that they are only experienced in patients who have had amputations late enough in life so as to be able to 'remember' once having the now missing appendage. However, countervailing evidence obtained by Weinstein and Sersen (1961) shows that a significant number of persons born without a limb *do* experience phantom symptoms. Despite the phenomenological accounts of aplasic phantoms, several theorists (Melzack,

[22] Fact sheet for U.S. amputations, *National Limb Loss Center*, 2008.
[23] Cf. Wilkins, et al. (1998), in which it is estimated that only 7.6% of persons with congenitally missing limbs experience phantom sensations.

1990; Merleau-Ponty, 1962; Poeck, 1964) have argued that the phenomenon of *forgetting*, which is present only in amputees, makes a big difference as to how we ought to interpret the role of body schema in shaping the experience of the missing limb; in other words, the phantom symptoms of an amputee and an aplasic are markedly different and hence ought to be referred to as distinct phenomena. "Forgetting" is the phenomenon in which amputees who otherwise are fully aware that their limb is missing, will still act as though it were present in an attempt to use it. Examples from Poeck (1964) such as leg amputees who continue to attempt to walk with both legs, suggest, according to Gallagher (2005), that "the missing limb continues to function schematically in motor behavior for an indefinite time. It continues to play a part in the organization of instrumental or locomotive actions. Its absence is not taken into account" (90). Put another way, amputees experience their phantoms *representationally* – at the body image level – to be sure, as they claim to have kinesthetic experiences of pain, itching, and so forth in the missing limb. But they also experience their phantoms *pre-reflectively*, as part of their body schema, and hence in automatic, sensorimotor action, there is no sense of loss. They simply forget what they already 'know' about themselves.

Gallagher goes on to argue that even in cases of aplasic phantoms, there must be an innate body schema. While the debate concerning nativism is far beyond the scope of this project, it is interesting to see how assumptions concerning the 'hardwiring' of the body schema shape his discussion of phantom sensations. First of all, as he argues concerning amputees and forgetfulness:

> The phenomenon of forgetting is actually a normal part of normal motor action. Movement in general and specifically the continued functioning of a phantom part in movement, does not depend on a vivid representation or percept of the body, or specifically of the missing limb. Rather, forgetting is normal and possible precisely because motor behavior does not ordinarily require that my limbs be included in my perceptual awareness. [2005, 91]

Likewise, therefore, persons with congenitally missing limbs do not represent the limb to themselves in normal motor action. So, does their 'non-forgetfulness' necessarily imply that their body schema innately includes or does not include the missing limb? Hardly so, and it is just as conceivable that forgetfulness and non-forgetfulness alike are products of learned behavior, or what Merleau-Ponty (1962) calls the "habitual body." As we have seen in chapter two, 'where' memories are actually stored is nowhere near a settled issue. To be sure, a pattern of neural activation might in fact be what subtends many of our memories, but as the Otto case, and pretty much any human who is highly dependent on an external device such as a day planner can attest, a lot of our memories seem to be out of our heads. If so, then why would it be such a stretch to claim that the phenomenon of forgetting might also be the result of bodily encoded behavioral memories, memories that extend beyond the brain and into the rest of the body which also learned at one point to interact with the now missing limb? Even more along the lines of an externalized explanation of phantom phenomena would be to take what Meuse (1996) asks us to consider, which is that body images are often culturally informed and highly dependent on social practice, and to then conceive of the source for aplasic phantoms as entirely socially derived. This proposal, which could be put in terms of shaping our own body image in terms of others' bodies, is a viable alternative to the theory about an innate body schema (see, e.g., Brügger, who suggests the involvement of mirror neurons).

Whether the mind is endowed with innate representations, of one's body or of any other information for that matter, is, once again, beyond the scope of this project, and furthermore, is arguably an intractable debate, especially when it comes to aplasic phantoms. There is no evidence of the phenomenon until late childhood and by then, a vast array of motor, linguistic, and cognitive skills have been acquired, not to mention, a large amount of social information has been absorbed by the child. Determining if the experience of a phantom limb is entirely the result of an innate bodily representation, deeply embedded social ideals about the body, or some combination of the two would require first, that the neuroscientific accounts were conclusive and second, that the phenomenology of aplasic phantoms were somehow unified and systematic. Although embryonic studies have been undertaken (cf. Hepper, et al. 1998) in order to determine at what point lateralization of the left and right limbs occurs, they have been interpreted *both* as providing evidence for innate bodily representations (Ramachadran & Hirstein, 1998) *and* for the necessity of environmental interactions *beyond* what goes *in utero* for the phantoms to occur (Price, in press). Moreover, some congenital para- and quaraplegics claim to have experienced phantom symptoms "for as long as they can remember" while others only begin to have sensations in the absent limbs later in development. Given all of this disparity, it would appear fruitless to try and determine, from the occurrence of aplasic phantoms alone, whether something as complex as 'my body' could ever be encoded innately in the brain.

What *does* present itself as plausible, however, is that we could investigate further the phenomenological descriptions of phantoms, both reported by the aplasics themselves, and the third-person accounts given by doctors, scientists, and philosophers.

What sorts of sensations are felt in the missing limbs, for what duration, and with what frequency? When engaging in everyday actions such as dressing, walking about, or cleaning the house, are the patients aware of the limb *as* missing, or is it more that the proprioceptive awareness had by aplasics seems to include the missing limb as if it were really there, when one is acting automatically, at what Gallagher (2005) would refer to as body schematic level of pre-reflective bodily know-how? In other words, dividing experience into the two levels of explicit body image versus tacit bodily action might prove beneficial in determining at what stage of body-world interaction the phantom is prevalent. As Gallagher argues concerning amputees and phantom limb syndrome, the body schema is predisposed to 're-member' – either due to training or by some innately specified predisposition – and hence, when we observe someone 'forgetting' that they are missing a limb (trying to walk on an absent leg, e.g.), what is actually happening is that the body schema is simply producing the sorts of movements we would expect to occur for *anyone* pre-reflectively. The same is true of aplasic phantoms insofar as pre-reflectively, the limb shows up as really there, and hence, before there is even time to pause and consider the nature of the sensation, my proprioceptive awareness tells me that there is pain in my left arm. It is only in reflective experience that persons experiencing phantoms will state that they are aware that the limb is actually non-existent. Aplasic phantoms and standard phantoms alike illustrate that embodiment is experienced pre-reflectively as unified, undifferentiated, and for the most part, without awareness of its discrete parts. In this sense, we need not worry about whether the body schema is innately specified to encode four limbs or whether aplasic phantoms result from some psychological response to perceived norms of embodiment. Those questions miss the

point that at the schematic level, something like ‘four limbs’ could not really be properly understood, as this is to already attribute too much reflective ability to a system which is by definition, pre-reflective. It would seem therefore that whether in pathological or non-pathological cases, if fully functional, the body schema operates as a unified and non-dissociating whole.

3.3.3 Somatoparaphrenia

While aplasic phantoms represent a case in which the holistic nature of the schema can result in a pre-reflective sense of owning more limbs than one actually has, on the other end of the spectrum, the somatoparaphrenic renounces ownership of one or more appendages that really do exist. In extreme cases, denial of an entire side of the body occurs. Technically, somatoparaphrenics are not simply *asomatognosic*, meaning they do not just deny ownership of a body part, but they also attribute it as belonging to someone else, often claiming it must belong to a previous patient in the doctor’s office, or a relative, etc. Nevertheless, patients with somatoparaphrenia are born with ‘normal’ bodies, and as such, phenomena surrounding the disorder are much the inverse of those accompanying aplasic phantoms. Where the former is deluded into thinking the limb actually attached to his or her body is in fact not part of the body-whole, the latter experiences sensations in limbs that are not even present.

While little is known about somatoparaphrenia, it is generally characterized as one of the many sub-versions of the more general delusion, *anosognosia*, which is the denial of an illness or injury. This is because in most cases of somatoparaphrenia, the patient has suffered a stroke resulting in right hemisphere damage with

hemiparesis/plegia. The refusal to accept the brain damage is translated into some form of disregard for the correlated paretic or plegic limb; in other words, from the patient's perspective, the source of the problem is not in his or her head, but instead resides with the troubled appendage. The problems are not limited to denial of ownership of body parts, which is in fact labeled *asomatognosia*, but, according to a questionnaire given to hemiparetic stroke patients by Baier and Karnach (2005), anosognosia is further subdivided into *somatoparaphrenia*, or the attribution of ownership of one's limbs to someone else, *anasodiaphoria*, or a lack of concern/notice of the limb, *misoplegia*, which involves a specifically negative attitude towards the limb, *personification*, or the naming and/or anthropomorphizing the limb, *kinetic hallucinations*, or the feeling that the limb is moving of its own volition, and perhaps most striking, patients may claim that the limb simply appeared, as if by magic, a condition known as *supernumerary phantom limb syndrome*.

The above catalog of syndromes highlights the nuanced pathologies that accompany specific brain damage. Although it might be said of all the various forms of anasognosia, that they are of common origin, namely, a hemiparetic stroke, simply relying on the neuropathology as an explanation of the varied psychopathologies is not very illuminating. Thus, in a later section, we will investigate the various modes of *ownership* and *agency* operative in these forms of anasognosia, paying particular attention to somatoparaphrenia, as it shares some similar phenomenology with various other pathologies that have hitherto been otherwise ignored. Examining cases of bodily pathology, such as somatoparaphrenia, shows not only that we can and often do become dissociated from all or parts of our bodies, but also, that there is an important difference

between the way the dissociation shows up to us in conscious experience as opposed to how it is realized neurobiologically. For example, in IW's case, the neuropathology alone would suggest a permanent loss of his ability to find his bodily place in the world and yet, through a manipulation of his body-image, he is able to override the otherwise disabled system. Likewise, in somatoparaphrenic patients, it is quite possibly the case that brain damage alone is insufficient to describe what it's like to experience a limb as foreign or unowned. For instance, Katerina Fotopoulou, at the University of London, reports an interesting case. Fotopoulou has a post-stroke patient with somatoparaphrenia. Her left arm (paralyzed and without proprioception or sensation), she claims, belongs to her granddaughter. This is her response when she is asked about her arm and made to look at it. But when she is shown her full image in a mirror, and asked about her left arm as it appears in the mirror, she correctly identifies it as her own. When asked about her granddaughter's arm she looks down, directly at her left arm. Whenever she looks directly at her arm, she identifies it as her granddaughter's; whenever she looks at it in the mirror she identifies it as her own.[24] This suggests that there may be different kinds of perception of body-*as-object*, as Gallagher (2010) suggests. But it also suggests that this cannot be explained purely in terms of damaged brain areas. Nothing changes in the damaged brain areas when the woman looks into the mirror and re-establishes her body image on the basis of a visual and literal image in the mirror. The brain, damaged as it is, plus the body, paralyzed as it is, cannot provide an explanation of this re-established image. To the brain and the body, one needs to add a particular instrument in the world, the mirror, to explain this re-established unity. This renewed body image is thus not

[24] A similar phenomenon of mirror correction has been found to cause immediate recovery from anosognosia for hemiplegia (Fotopoulou et al. 2009).

reducible to brain processes; it extends to processes that include engagement with the environment beyond the body.

3.3.4 Anarchic Hand (or Limb) Syndrome

One such condition that receives relatively little attention from philosophers concerned with agency and freedom of the will is Anarchic Limb Syndrome (ALS). Typically affecting a hand or arm, patients with ALS experience a loss of control over a part of their bodies such that one hand will reach out and grab objects, repeatedly touch things, and perhaps violently strike other persons or even the person to whom the rogue extremity belongs. Because it is a syndrome, this means that little is known about the precise cause of the disorder. Neurologically, ALS has been shown to occur after strokes or brain trauma; in particular, damage to the basal frontal lobes and the corpus callosum is often correlated with the occurrence of the syndrome (Josephs and Roessler, 2001). Nevertheless, there exist a large number of subtypes of ALS, ranging from a 'levitating hand' which is thought to result from posterior parietal lobe damage, to a more complex phenomena often termed 'intermanual conflict,' in which patients, typically those who have had a corpus collascotomy, will actually 'self-diagnose' the actions of one limb as opposed to the other, as if the two originated from distinct cognitive agents with distinct intentions (cf. Nishikawa, et al., 2001).

As this quick survey suggests, the disorder is far from a unified pathology and thus has no cure. Likewise, the phenomenology behind ALS is rife with inconsistency and variation. One constant that seems to emerge however, is that patients with any form of ALS report a lack of control (a lack of a sense of agency) over their rogue limb either

some or all of the time. This fact will be of key importance when we attempt to tie together all these various modes of 'abnormal embodiment' into one very general phenomenological story.

3.3.5 Möbius Syndrome

Another way persons might feel detached from or not in possession of their bodies is found in patients with Möbius syndrome. An extremely rare syndrome, affecting approximately .002% of live births per year,[25] it results from underdeveloped cranial nerves, the nerves emerging immediately below the brain stem. In particular, numbers VI and VII are most often the affected nerve pairs, as these two, which are motor and sensorimotor respectively, control movement of the eyes and facial expressions, particularly oral movements involving smiling, frowning, pursing of lips, and even chewing and saliva regulation. With these nerves impaired, Möbius patients are expressionless, and babies often have trouble nursing, often uncontrollably drooling, a problem that persists into adulthood if not corrected. Möbius patients however, are typically otherwise unimpaired, having normal intellectual and physical development. Socially, on the other hand, they struggle with conveying and recognizing emotions. In other words, their social cognition is impaired – the ability to gauge others' intentions, thoughts, and feelings, as well as effectively communicate their own in a non-verbal manner – and as a result, they are often mislabeled as either autistic or even mentally disabled. (Cole, 2000; Cole and Spalding, 2008)

[25] Verzijl, et al (2000)

Because Möbius syndrome is congenital, like aplasic phantom syndrome it raises some interesting questions about innate body representations, albeit in importantly different ways. Simulation theorists (cf. Goldman, 2006; Proust, 2002) and Theory of Mind Theorists (cf. Stich, 2007; Baren-Cohen et al., 2000) alike have argued that social cognition, which is largely dependent upon facial recognition, is an innate ability, one that is impaired when certain parts of the body are underdeveloped or damaged at birth. Nevertheless, cases such as Möbius syndrome, as frequently happens in the cognitive sciences, often yield wildly varying interpretations as to what the *mechanism* behind learning to understand others' mental states is. Once again, this is a debate that is outside the scope of the present discussion, and yet when persons with impairments are used as illustrations of what 'normal' social learning must be like and decisive agreement is all but missing, such disparity suggests that not enough careful consideration is truly being given to what it's actually like to experience such bodily and emotional dysphoria. If we think of a Möbius patient as simply lacking the appropriate theory of mind or simulation skills, then the actual experiences of the patients are often overlooked, leading to an overintellecutalized ("in the head") understanding of emotion, which is not readily available for translation in 'normal' expression. As James, a patient of Jonathan Cole (2000) explains:

> I do think I get trapped in my mind or my head. I sort of think happy or I think sad, not really saying or recognizing actually feeling happy or feeling sad. Perhaps I have had a difficulty in recognizing that which I'm putting a name to is not a thought at all but it is a feeling, maybe I have to intellectualize mood. I have to say this thought is a happy thought and therefore I am happy. (p.254)

3.4 Toward a Phenomenology of Bodily Having

In this section, I will attempt to bring together the bodily pathologies discussed in *3.2* by highlighting some similar features found in the phenomenological descriptions from both the patients and those who study them. As it turns out, there are some persistent 'phenomenological pathologies' to be found lurking in such descriptions, which often paradoxically bespeak a Cartesian ideology about the body as a mere vessel for one's 'true self', while simultaneously endorsing a psychophysical reductive explanation about who and what 'I truly am,' which is to say, a physical body. By taking a closer look at the body image/body schema distinction and the sense of ownership and sense of agency one has over one's body (Gallagher, 2005) as well as the important lessons we can learn from experiences and experiments in what I collectively term 'body bending,' I think such confused accounts of subjective experience can be better understood.

If, as Gallagher and Zahavi (2008) have argued recently, the phenomenological method is not pure introspection – or simply a collection of subjective descriptions of experiences – but is rather an account of how those subjective experiences are made possible in the first place, then we can begin to uncover how the body may in fact show itself to an individual subject as 'other' or as the 'container' (and quite often the obstructer) of that person's true self. While it is important to take seriously these subjective descriptions of embodiment, a phenomenology that remains faithful to Husserl's (cf. 1910; 1965) original insights must attempt to reconcile what we might discover in terms of the eidetic or essential structures of experience on the one hand and the ways in which objects (and the subject's own body) might appear in various modes of

experience. In this regard, I will suggest that once again, a look at the pre-reflective and reflective levels of awareness might provide just such reconciliation. Rather than assuming that individual and subjective descriptions of experience are contradictory to current empirical science, it is more defensible to think of the two modes of explanation as operating on different levels. While neuroscience may indeed inform us about some of these essential structures of experience – those that phenomenologists would argue are the proper parts of an overall account of subjective experience generally – there are important lessons to be learned from the level of reflective awareness as well, such as the fact that in reflection, one can often become detached from oneself and hence, will come to think of one's embodiment in ways that run counter to the supposed 'facts' found in neuroscience.

3.5 Ownership and Agency at the Reflective and Pre-Reflective Levels

We need not simply *assume* that body image can affect body schema if we consider IW once again. In IW's case, his body schema was effectively destroyed and because of this, even maintaining an upright position in a chair was at first impossible for him. Through careful manipulation and perceptual focus on certain areas of his body, he has been able to achieve more controlled movements, however, so much so that he has sort of recreated a body schema, as Gallagher and Cole (1996) suggest, a virtual one. However, he will never regain genuine somatic proprioception, as the nerves that subtend it are forever destroyed. Thus, when Gallagher, Cole and McNeill (2001) experimented with IW's ability to gesture, they found that even when his hands were occluded from his visual field, he was still able to gesture, although he lacked the topokinetic control that

would normally occur when someone's body schema was intact. This lends support to the argument that he creates a sort of virtual body schema, facilitated by linguistic and communicative processes. As long as his hands are in his visual field, he maintains topokinetic control over them and can appear to gesture as automatically as someone with a fully intact body schema; but when his hands are not within visual proximity, this ability is lost. Thus, if the interpretations of phantoms and IW lend credence to the argument that the body schema is susceptible to manipulation or substitution, respectively, by the body image, the question concerning the nativity of the body schema mentioned earlier can be replaced by a the more relevant question having to do with plasticity and hard-wiredness. Just how malleable is the body schema? It would seem, regardless of its innateness or whether or not it is neurally locatable, that it must be somehow 'more hardwired' than the body image, at least insofar as it is the means by which regular motor action is made possible and in most cases, it is prior to an explicit body image. However, it might make sense to think of *both* schema and image as being partially hardwired and partially 'soft assembled.' If there are cases in which the schema can be shown to be malleable and likewise, if there are cases in which body image is arguably more hardwired than we might have guessed, these would be sufficient counterexamples to the claim that the one is more 'innate' or prespecified than the other. In order to explore this option, I will look in further detail at the *sense of ownership/sense of agency* distinction as it occurs in abnormal, manipulated, and normal embodied actions. The aim is to show that how I experience myself as the owner and/or author of my actions as well as my body, is a function of both schematic and imagistic levels of awareness. If both of these can be shown to be equally composed of hardwired and

manipulable components, then it would seem that *embodiment* generally is soft assembled, constituted by biologically hardwired features as well as coalitions of tools, social roles, and interpersonal relationships. 'The body,' albeit a necessary component of cognition, is essentially a self-organizing system, open to environmental influence, machine interfacing, and a vast array of soft-assemblages. Thus, while we might be able to say that there are facts about bodily systems or sub-systems that are 'hard-wired,' the rigidity of this wiring seems to be contingent upon very specific developmental and environmental interactions. In other words, expose the body to very different stimuli and it will follow suit, changing and molding to its situation, thereby allowing for 'rewiring.'

The image/schema distinction however, is only part of the story. Embodiment is not just about schematic processes underpinning action and imagistic awareness of one's body for the purposes of manipulating it and acting with it. To be sure, in cases of abnormal embodiment like IW's we can clearly see a disruption of the former, which thereby forces the burden of executing actions onto the body image, a feature that, as we learn in normal everyday action, is not readily utilized for such purposes. But what is missing in this account is an understanding of the 'executor' part of action. In other words, as an embodied subject, I also experience a sense of ownership of my body – it is mine and does not belong to any other subject – and a sense that 'I' am the one causing the actions it performs. Unless external forces act upon me, I have a sense of agency over my body when I go to pick up an object, take a walk, or feed the cat.

In the cases we have looked at concerning abnormal embodiment, some or all of this sense that I am the executor of my actions is absent. Perhaps most salient among the cases is ALS, as the patients with this syndrome almost uniformly report not having

control over the alien limb. The alienation one experiences between themselves and their rogue limb might not just be an issue of control however; indeed, the hand might be so anarchic that if fails to be seen as a proper part of one's body. One can lose a sense of ownership of his or her body or its parts as well. Clearly, this is the case in somatoparaphrenic patients who literally denounce ownership of an extremity or limb. But, as Gallagher (2005) notes, "sense of ownership does not require an explicit or observational consciousness of the body, an ideational, third-person stance in which I take my body as an object. Rather, it may depend on a non-observational access that I have to my actions, an access that is most commonly associated with a first-person relationship to myself" (29). Thus, in normal embodiment, we don't stop to question, as we go to pick up a glass of milk for instance, 'is this *my* hand picking up this object?' It is simply that we have a reflexive and seamless relationship with ourselves, one that is typically unnoticed, automatic, and below the radar of conscious representation.

Much like Heidegger's hammer however, when the tool we are so accustomed to using breaks down, we can and do stop to reflect upon the relationship between 'I' as the subject, author, and owner of all these bodily actions and 'the body-object' that performs them. I like to think of my countless experiences as a ballet dancer trying to perfect a pirouette and exclaiming in frustration that I just could not seem to get my belly to stay in and my spine to be straight and that my arms were 'in a world of their own.' Cases of dissociation such as these are fairly common, but they do not signal any sort of pathology or disorder in the way that an ALS or Möbius Syndrome patient would.

The pathological cases do however, highlight the ways in which ownership and agency are often highly conjoined experiential domains, but can also be teased apart. The

somatoparaphrenic might still feel as though she can control her limb, it is a result of its simply being attached to the rest of *her* body, but that the limb itself is not in fact her own. On the other hand, IW might have never lost the sense that he owned his body, but during the initial stages of his illness, he certainly lost all sense of agency over it. Gallagher suggests that such teasing apart of ownership and agency can also occur in normal embodiment when external forces are at work, such as in the case of someone knocking you down by surprise. If I get pushed by a reckless football fan at the game and go tumbling down the bleachers, I will certainly not think that I was the author of this fall, but, Gallagher suggests, it is still I who am falling. Again, the point is that while in extreme cases of dissociation, the feeling of lacking agency or ownership or both might be persistent and hence, pathological, in normal everyday embodied action, we rarely, if ever, experience this 'dysphoria.'

The point of highlighting the ways in which agency and ownership can be disrupted in both pathological and non-pathological cases is to allow a space in which to ask the more pressing question: exactly what should we make of the phenomenological fact that 'I' can sometimes be dissociated from 'my' body? In other words, have we not simply spun our wheels describing and trying to understand all these bodily breakdowns only to come to the conclusion that the subjective accounts given by those experiencing them are simply at odds with a more objective or scientific understanding of embodiment? While it might seem that this is the case, another look at the levels at which dysphoria might be experienced indicates that the I-taking-myself-as-object seems to only occur reflectively. Consider as an example, someone with unilateral neglect. To be sure, upon speaking to a person with this condition, we learn that a sense of ownership is

missing, but, we might wonder, is this loss of ownership present *all the time*? If a person with unilateral neglect is walking down the street while talking to a friend and window shopping, the parts of the body otherwise neglected by the brain, are functioning normally insofar as they are instrumental to the task at hand. A person with this condition maintains agency over the disowned limb therefore at the pre-reflective level because, I submit, the body schema is functioning as usual. However, the body schema, given that it is inherently pre-reflective and non-imagistic, does not maintain ownership over one part of the body, while losing it over another. In what Sartre (1956) calls the pre-reflective unity of conscious experience, in other words, there are no divisions among parts of the body, or experiential axes such as owning and authoring. Once the dissociation occurs, we are already representing to ourselves the specific part or parts from which we feel detached. It is my contestation that this is the case for all bodily dysphorias – that they occur experientially at a body-imagistic and reflective level of awareness.

The point here is to demonstrate how often the scientific account of 'bodies' is irrelevant in determining who and where we are. The pathological cases illustrate an extreme end of such unimportance but they shed light on the ways in which although normal embodiment is usually subtended by the mutual interdependence of schematic processes, ownership, agency, and a body image, even these can be disrupted in moments of reflection or in times of externally generated loss of control.

3.6 Conclusion: Soft-Assembled Subjects

Another way to think about embodied subjectivity in light of the cases we have discussed is to compare the way 'the body' is experienced in pathologic cases and the

way it shows up in manipulated experimental designs. One such example is the 'Rubber Hand Illusion' in which participants have one hand occluded behind a curtain. Next to their hand, they also see a rubber hand or some such replica of a human hand. The experimenter will then stroke both hands simultaneously with a paintbrush while the participant stares at the rubber hand. The majority of persons in such experiments report feeling the sensation of the brushing in the spatial location of the rubber hand and not their actual biologically attached appendage. Thus, simply by cutting off the visual contiguity between 'me' and a specific part of my body, external parts of the world that would otherwise not be part of my proprioceptive awareness become incorporated into my experience, so much so that I am convinced that where my experience is being felt is not even *in* my body.

What is striking about the Rubber Hand Illusion and others like it is that 'where I am' is not totally about my actual biological body, but instead, this sense of self arises by the soft assemblage of my biological body, external props, and direct manipulation. Turning back to pathology for a moment, it is worth noting that in treating somatoparaphrenia, one preferred method is to place a mirror in between the two legs, with the one that is owned occluded from view, and then allowing patients to attempt to move their 'owned' leg while looking in the mirror. The subject would move their unaffected leg and simultaneously see in the mirror, the unaffected leg appearing as the affected leg. This would then link the motor pattern and body schema to their conscious awareness of the leg as theirs (cf. Ramachandran & Hirstein, 1998).

Cognition involves thinking to be sure, but it also to a large extent, involves placing myself in space in relation to the rest of the world, a feat achieved not simply by

an introspective account of my 'body,' but by a richly endowed embodied understanding of where that body is in space. Given our discussion so far concerning how malleable this embodiment can be, the intracranialists should be more concerned than ever. Pointing towards the body, or worse, the head, as the site of 'cognitive subjectivity' is only one component among a whole array of other tools we employ in order to experience ourselves as agents, owners, and thinkers. If this chapter has not been compelling enough as to this soft assembly argument about cognition, then it might help to consider another important facet of embodiment that will most assuredly shape the way cognitive subjects are constituted. For all the claims that the new wave 'embodied cognition' approaches, whether they be of the HEMC or the HOC variety, attempt to understand the 'whole body' and how it 'shapes the mind,' hardly any of these scientists or philosophers of mind have actually attempted to understand this entire organism to which they pay homage, in which they embed cognition, and on which they center 'the mind.' Perhaps one of the most salient ways we can see embodiment actually molding mentality arises from biological sex and the gender roles that get attached to these categories. In my opinion, there is no better way to see the ways in which subjectivity is 'soft assembled' than to peer into the construction of gender roles, sexual identity, and embodied sexuality. In the following chapter therefore, I aim to first argue that an account of embodied subjectivity not only must *include* sexed bodies as part of its story, but it must *begin with* them – indeed, a viable account of 'having and being a body,' I will argue, is not possible without such a conceptualization. I will then go on to argue that the soft assemblage of gender, which is the very basis of subjectivity itself, is always already

constituted as a hybrid of biotechnological and sociological tools, none of which are reducible to nor contained solely within, the biological body.

Chapter 4

Sexing Embodiment: The Phenomenology of Gender, Sex, and Sexuality

The emotional, sexual, and psychological stereotyping of females begins when the doctor says, "It's a girl." – Shirley Chisholm

Hence it is that the shape of something is especially meaningful. – James Gibson

4.1 Introduction

As discussed in chapter one, an important shift in thinking occurred when Gibson (1954; 1979) introduced his theory of affordances. The 'ecological approach' to perception, as it is often called, provided an interactionist framework that rejected the inner-outer split between mental and physical processes. The world shows up to us in meaningful ways insofar as it *affords* us a range of potential actions. However, our bodies themselves determine to a large extent just how useful an object in the world will be, a point Merleau-Ponty (1962) stressed well before Gibson's theory was fully codified. While there are marked differences between Gibson's and Merleau-Ponty's theories of perception, the overall picture is the same: perception is a feature of humans + their environments and cannot be conceived wholly 'in' the human, as the standard view would have it.

Because, however, Merleau-Ponty is steeped in the traditions of Husserl, Heidegger, Scheler and others, he is less inclined to focus on the specific biological underpinnings of embodiment and more on the experiential elements that comprise interaction with the world. In this regard, he employs the use of the 'lived body' as a

means through which action and perception are possible. The lived body is not simply an 'organism' in which we can observe perception occurring. Like Gibson, Merleau-Ponty stresses that the dynamic interaction of our bodies with the world is what constitutes perception. Our environment plays a crucial role in shaping what we are able to perceive and what we can do, such as in the case of certain objects appearing 'sittable' to us – in Gibson's terminology, they *afford* us sitting opportunities – while others, like cacti, do not. Perceiving these affordances requires *interacting* with the objects themselves and hence, perception is not a matter of inwardly cognizing an externally constituted world. Thus, both Merleau-Ponty and Gibson therefore emphasize the mutual interdependence between 'us' and the world, albeit with slightly different aims. While Gibson tends to focus on the ways in which our physiology shapes our perception of the world – a world in which objects have significance for us based on their physical size, shape, and 'fit' with our bodies – Merleau-Ponty extends this discussion to encompass not just the ways in which the body is *lived through* but how it can *thought about*. In particular, Merleau-Ponty adds to the discussion the way we form images of our bodies, images which then come to be an important source of who and what we think we are.

These interactionist approaches fit nicely with the argument from chapter three, that *embodiment,* and not simply 'the body,' is the proper starting point for grasping what cognition comprises on the one hand and what it is to be a cognitive subject on the other. Much like the 'lived body' and its environmental affordances, the phrase 'embodiment' is intended to capture the way that body+world should be the focal point of any theory of cognition and cognitive subjectivity. There are reasons to think that simply examining the brain, even when trying to determine the correlate of pathological embodiments such as

AHS, will not tell us much about *what it's like* to have this syndrome. Likewise, to talk about 'the organism' is still only to discuss an object, whereas the 'human subject' involves more than skin and skull. Nevertheless, there are important ways in which the body as a physical object delimits the range of experiences we can have. Indeed, Clark (2008) recognizes the necessity of the brain for cognition, as he is even willing to grant it a 'central' role, and hence, there are certain biological facts about the body that must be true in order for the kinds of cognitive experiences we generally call 'human' to take place. This chapter will therefore be an attempt to uncover some of the ways in which bodies – those physical organisms that I argued to be only part of the story of embodiment – shape cognition and help constitute subjectivity.

Rather than proceed by way of endless examples from vision, haptic perception, or skeletal construction, which provide rich accounts of the way *the human* body is said to constitute bodily affordances,[26] I shall focus on an aspect of the body, as well as of embodiment, that is even more fundamental to cognition, but one that is systematically overlooked in cognitive science. To be sure, one can be an embodied subject and not have eyes with which to see. One can also be, like IW, lacking in particular proprioceptive abilities or perhaps, like someone suffering from a Hereditary Sensory Autonomic Pathology (HSAP), rendering them insensitive to pain, heat or cold. The definition of being an embodied subject cannot be essentialized by reference to skeletal structure either. Being bipedal is a feature of most humans, but not all. And, as we have seen, even having all limbs intact is not sufficient for experiencing them as your own or

[26]Besides of course, Gibson (1966), others have offered detailed accounts of the way the visual system (cf. Martinez-Conde, 2009), haptic perception (cf. Streri & Spelke, 1989), and the body generally (cf. Varela, Thompson, &Rosch, 1991; Noë & O'Regan, 2001) shape the way the world shows up and likewise, the way our bodies are molded and adapted to the world.

maintaining control over each of them. There remains however, one element of 'the body' as yet unconsidered, but one that is more essential than any other phenotypical trait thus far discussed. This facet is the sexed body and unlike 'tall,' 'fat,' 'blind,' or 'athletic' bodies, the descriptors marking out which sex a body is are always already at play, even if precisely *what* that sex amounts to is questionable. Whenever I conceive of myself as this or that kind of person – a professor, a dancer, a swimmer – it is always implied that I am also female. I might not represent this fact to myself explicitly with every action I perform, much like I don't always represent my body generally to myself if I am engaged in an activity such as running, in which I need not think *about* my body; rather I simply act *through* it. Nevertheless, much like there is a tacit knowledge of where my body is in relationship to other objects, so too is there an always present awareness that I am not just person, but a female person. It is one of the most fundamental forms of identification and also one of the most universal. No matter which corner of the world or in what linguistic group you find yourself, checking a box for 'M' or 'F' is crucial to identifying who and what you are. For the most part, people can be classified as male or female, with rare exceptions, who are collectively termed 'intersexed,' and this *personal* categorization is based on biological facts about *the body* – genitalia, chromosomes, hormones - but just how much do these facts shape *embodiment*? To ask a slightly different yet related question: If there is a *body schema,* a program for action that underpins all embodiment, to what extent is this schema 'sexed'?

It will be my contention that for the most part, biological sex is not an inherent feature of embodiment but is instead an artifact of science, which is itself a byproduct of sociocultural and historical context. This is not to suggest that there are not 'female' and

‘male’ bodies in the world, but just as it can be claimed that human ‘organism’ is only one description, a biological understanding in particular, of the whole ‘person,’ female and male bodies will only tell as a partial story about ‘gendered subjects.’ While it will be a matter of contention to what extent *sex*, in the strictly biological sense is prior to, a result of, or reducible to *gender* – the way ‘I’ show up to myself and the world as feminine, masculine, a hybridization of the two, or some other categorization – and vice versa, it will remain the case 1) that biological sex is only one among many facets of gendered subjectivity, and more generally, cognitive subjectivity, and 2) that *both* sex and gender have been relatively ignored in cognitive science and philosophy of mind, thereby overlooking several crucial constituting factors subtending cognition and embodied subjectivity In order to defend these claims, I will examine the ways that sexed bodies actually afford the subjects who own them specific actions, perceptions, and cognitions, but also, the ways in which the world and the objects present in it will show up differently based on sexual identification. Such descriptions will not however, come from the standard literature on cognition, as there really is not much from which to draw. Instead, I will turn to feminist theory about the body and embodiment in order to provide an account of these ‘gendered affordances.’ In turn, by doing so, it will be my further claim that ‘the sexed body,’ much like ‘the body’ in general, can often be at odds with, is always insufficient for, and is never prior to *gendered embodiment.*

4.2 Lived Bodies and Life-Worlds

That our bodies are important elements in the overall understanding of how the world shows up is deeply rooted in philosophical history. However, this idea is typically

founded upon the more negative assumption that the body is corruptive, and the senses, albeit the primary means by which we receive information about the world, are not to be trusted. One need only consider Plato's theory of the tripartite soul (cf. *Republic*, II-IV) or Descartes' infamous rejection of sensory knowledge in favor of 'clear and distinct conception,' to get the gist. Even the great empiricist, Hume, who thought all knowledge must originate in sensory experience, was quick to remind us that at best, we can hope to be fairly certain about the associations we draw from those sense impressions. What Hume *did* do however, was to remind us that despite the epistemological uncertainty which accompanies knowledge via sensory impressions, this source – the body – is our *only* mode of interaction with the world. Thus, according to Hume, any notion of disembodied egos or pure rationality detached from embodied experience was speculative but also uninteresting. If we want to uncover the basis of human knowledge and cognition, we must start, he claims, with sensory experience.

Consider, for example, what Husserl (1936) says of the life-world and how we 'arrive on the scene' ready to actively constitute ourselves and our environment in a shared 'we-subjectivity:'

> In whatever way we may be conscious of the world as universal horizon, as coherent universe of existing objects, we, each "I-the-man" and all of us together, belong to the world as living with one another in the world; and the world is our world, valid for our consciousness as existing precisely through this 'living together.' [1936; 109]

The universal condition of humanity remains that of 'I-the-man' and so we should not expect any theories regarding bodies or embodiment to be concerned with sexual difference, as this would be somehow after-the-fact of 'our' shared living together, in 'our' world.

Merleau-Ponty (1962) makes some effort to account for 'The Body in its Sexual Being,' when he claims that "a handless or sexless man is as inconceivable as one without the power of thought" (170). In order to unpack this simply stated yet highly dense and problematic assertion, it is helpful to consider it in the context of the rest of the chapter. This section of *A Vindication of the Rights of Women* is full of insightful ways in which *sexuality* indeed molds cognition, but it fails to take properly into account the way that sex itself, the way a person is identified biologically as female or male, provides a schema through which the world 'shows up.' So, on the one hand, if Merleau-Ponty means to suggest that 'having a hand' and 'having a sex' are both necessary constituents of embodiment, he does very little to demonstrate how and why this might be the case. Sexuality, the way Merleau-Ponty uses it in this section, refers to some sort of conglomeration of gender identity and sexual orientation. Hence, he provides us with examples of sexual *preference* – masculine males who also desire feminine females, feminine females who prefer a masculine male, females who like other females, and so forth. And certainly, these sexual preferences will shape the way one perceives the world. Indeed, if I am a more masculine female but I still prefer masculine males as partners, one can only imagine the sorts of behaviors – from everything to my dress, the activities I engage in, ways I go about flirting and seducing the other sex, and so on – that are contingent upon the fact that I perceive myself as a more masculinized female than most other females, but that my sexual orientation still draws me to masculine males. Nevertheless, these complex and socially informed categories – gender and sexuality – are typically thought to be a level removed from "sex" as a biological category. Thus, we never really get a sense that Merleau-Ponty is interested in asking the question: *how does*

the actual sexed body, prior to these gender roles and desires, inform perception, if at all? Nevertheless, a closer look at Merleau-Ponty's treatment of bodily signification might suggest that he means not to tease the two apart, such that when he does discuss the socially informed gender roles one might take up, he is at once describing the way the sexed body is given meaning.

To use 'having a hand' as an analogy seems a bit of an odd similitude to draw, for surely, there are important ways in which having or not having a hand will alter the way the world appears, and Merleau-Ponty, much like Gibson, does not overlook this fact. The book is rife with examples of the body and its relationship to the world. In *The Visible and the Invisible*, we find a unique discussion of the hands in particular, and their ability to both touch and be touched – as in the case of touching one of my hands to the other – he is hyper-aware of the ways in which particular biological facts about our embodiment lend themselves to very specialized ways of knowing the world, but also our bodies. In a moment of touching one hand to another, there is a "reversibility" of subject and object, which he describes as a "veritable touching of the touch, when my right hand touches my left hand while it is palpating the things, where the 'touching subject' passes over to the rank of the touched" (1968; 133-4). In other words, what has come to be roughly termed 'proprioception' – that sixth sense of where my body is 'in the world' and where the parts of my body are in relation to one another, is highly malleable and contingent upon an ever shifting sense of agency and ownership of these discrete elements. In one moment, my hand-agent, the one doing the touching, can be turned into a hand-object, the one being touched. Likewise, as we have seen in previous chapters, there is reason to believe this sort of reversibility between subject and object of

perception occurs with tools as well, such as in the Rubber Hand Illusion or simply in everyday pre-reflective body-machine incorporation.

Nevertheless, we are still left wondering just how this "necessary" element of embodiment – having a hand – is in any way like the necessity of having a sex. First, it should be noted that Merleau-Ponty fails to even consider those who are missing a hand or are missing both, either congenitally or due to amputation. Thus, we might wonder *just how much does perception get shaped by having a hand?* Moreover, despite the lengthy discussion of gender roles and sexual desire, there is no discussion of the ways in which the sexed body, qua necessary constituent of the *human* body, molds cognition. We do not find any sort of analogue between the highly interesting subject-object reversal made possible by the proprioception of the hands, nor are there any insights into the ways in which this *necessary fact* of human existence – that it is sexed – plays into gender roles and sexuality. So, on the one hand, it is satisfying to find a philosopher who recognizes that it is not just *any* body that is always already present to us in perception, but *his* or *her* body; on the other, it is quite unsatisfying that the analogy between necessarily having a hand and having a sex is never fully explained.

There is one way to interpret the passage however, that might help better relate it to Merleau-Ponty's overarching project, and simultaneously, to the project in which I am engaged. As the example of subject-object reversibility in touching the hands together suggests, I do not conceive of *my* hand necessarily as a subject nor as an object. What is necessary is that depending on the action, my hand can show up as *either one.* In the *Phenomenology of Perception*, likewise, we find this passage concerning the 'having of' a body and its constituent parts:

> There is in human existence no unconditioned possession, and yet no fortuitous attribute. Human existence will force us to revise our usual notion of necessity and contingence because it is the transformation of contingency into necessity by the act of repetition [1962, 170].

If necessity of bodily-having is only made so through repetition of otherwise contingent facets of embodiment, then we can begin to understand the "impossibility" of conceiving a handless or sexless person as a fact not so much about the biological body itself, but instead, about the *ways in which the body is utilized in action*. Having hands becomes necessary through the repeated use of them in human activity, but they are indeed contingent, as not all persons have hands. In terms of sexed bodies, it is even more difficult to imagine a body without a sex and yet, the reason for this 'necessary fact' about bodies is shows up as necessary through the constant repeating of gender roles, sexual desires and actions, and other socially sedimented truths about who and what males and females are. In other words, this particular reading of Merleau-Ponty on sex suddenly bears a strong resemblance to Butler's (1993) argument concerning performativity as the chief mode of production of sexed bodies. As she suggests in *Bodies that Matter*, the signification of bodies proceeds first by way of examining what bodies *do* – how they *perform* – and thus, the lived body is always cast as a man or a woman. The repeated performance in which we all engage *as man* or *as woman* – much like Merleau-Ponty's argument runs – allows for the 'material reality' of the body to be cast as *necessarily* male or female.

To be sure, my interpretation is reading quite a bit into Merleau-Ponty and when it comes to perception in general, all of the interesting differentiations he draws between maleness and femaleness seem to disappear. Namely, we get a story about perception *qua human*, as if all the differences in bodily comportment based on sex did not matter:

> In perception we do not think the object and we do not think ourselves thinking it, we are given over to the object and we merge into this body which is better informed than we are about the world [1962; 238].

The assumed universal humanity that merges into 'this' body, supposedly contains wisdom of which even 'we' are unaware. In fact, this is precisely how Merleau-Ponty characterizes his *schema corporel*, and what Gallagher (2005) translates as the *body schema*, both theorists suggesting that body-knowledge normally operates whether we consciously represent it to ourselves or not. For Merleau-Ponty and Gallagher alike, in most of our everyday actions, such as pouring ourselves a drink, or grasping an egg to make an omelet, our body 'knows' all sorts of laws of physics and dynamics, such that when we go to explain how we were able to pick up the egg and use just the right amount of pressure to firmly grasp it and yet not crush it in our hands, unless we are in fact physicists, we usually cannot.

But is it true that regardless of sex, our bodies all know the same things? In other words, do 'we' all have the same comportment to the world and does the world show up to 'us' as 'human bodies' in ways similar enough to discount sexual identity as any importantly formative aspect of that embodied perception? The answer to these questions is, I think, no. In the following section, I will explore arguments, some of which originated contemporaneously with Merleau-Ponty, that compel us to think that how 'we' are sexed changes the way the world of objects affords us action and thus, how 'we' think about and experience this world.

4.3 Girl Bodies

In *The Second Sex,* Simone de Beauvoir (1949) provides a detailed account of the 'woman's situation,' paying particular attention to the ways in which women exist in a contradictory recognition of their humanity, on the one hand, and their objecthood, or *being-for* on the other hand. While western rational discourse tends to afford men the status of 'pure reason' and a promise to transcend the confines of bodily immanence, Beauvoir argues that in particular, because of regulative bodily functions such as menstruation, women are never entirely free. Her body must be kept watch over, monitored, cleaned, and adorned – tasks that deter her from being a fully transcendent person. In other words, it is because of the sexed body itself that the norms of society, which place women in the home, with the children, and on a pedestal as an object of beauty, get constructed. Thus, Beauvoir contributes to an already emerging distinction – one that traces back at least to Mary Wollstonecraft[27] and one that also surfaces in the literary works Virginia Woolf,[28] Katherine Mansfield,[29] and many more – between the sexed body and the gendered person. Take, for example, what Wollstonecraft concludes at the end of her third chapter:

> In the superior ranks of life how seldom do we meet with a man with superior abilities or even common acquirements? The reason appears to me clear, the state they are born in was an unnatural one. The human character has ever been formed by the employments the individual, or class, pursues; and if the faculties are not sharpened by necessity, they must remain obtuse [1792; 56].

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[27] *A Vindication of the Rights of Woman,* 1792.
[28] Most notably in Mrs. Dalloway (1925) is the tension between a woman's 'nature' as a caregiver, mother, object of beauty, etc (as is the dominant theme of party-preparation, which comprises an entire day and subsequently the entire novel) and the author's own struggle to live the life of an intellectual, a tension presented in many ways throughout the novel, in particular, the shifting nomenclature of the protagonist from 'Mrs. Dalloway' to 'Clarissa.' See also *A Room of One's Own* (1929) and *The Waves* (1931).
[29] Cf. *The Garden Party,* 1922.

The idea here is that being born 'male' does not imply that this nature includes with it superior intelligence or any other supreme achievement. Like any other faculty, intelligence must be acquired through learning, practice, and repetition, regardless of one's sex. It just so happens, according to Wollstonecraft, that *women* are not generally educated and as such, this socially contingent fact about one's role in society is transferred onto the body of all females as an inherent and necessary truth. There are of course, some interesting parallels with this account of necessity and that of Merleau-Ponty's discussed above, namely, that it is through *acting*, over and over again, that the body and all its trappings begin to show up as necessarily implying this or that ability.

Likewise, Beauvoir teases apart sex and gender to expose the contingency of the latter concealed as a necessary outcome of the former. While being a female is a given, she claims, femininity or this 'mysterious feminine essence' is entirely constructed, contingent, and not relegated to a particular body type by any ontological necessity. Nevertheless, it has historically been treated in precisely this way. Female bodies are passive, receptive, regulated by cycles, and less capable of performing strenuous tasks, and hence, female minds are incapable of robust existential freedom, that transcendence promised by rational contemplation by an intellect unfettered by such worldly constraints. If we try to dissolve the entailment between biological sex and gender roles however, then the distinction opens the door for invaluable reconfigurations of women's roles in society, from the home into the workplace. But, as Young (1980) points out, "Beauvoir tends to create the impression that it is woman's anatomy and physiology *as such* that at least in part determine her unfree status" (29). This is because rather than focusing on the ways women actually move about, occupy, and live in the world, Beauvoir takes 'the

female body' itself as the basis from which all limitations arise. While she tries to separate the one from the other – biological sex as the 'given' and gender identity as constructed – Young argues that Beauvoir still insists that it is a feature of the female sex itself which gives rise to the common historical and societal understanding of gender roles and their relationship to it.

Like Young, I will eventually argue that the sexed body, as a static thing, is not enough to explain the seemingly asymmetrical lived experiences of men and women; rather, we must look to gender embodiment for this. Exploring gendered embodiment will thereby lead to the conclusion that unlike Beauvoir's original claim that the sexed body determines the unfree and factic nature of our lived experiences, it is often quite the other way around. Namely, the sexed body is much more an artifact of gendered experience and arguably does not even make sense outside of such considerations, much like 'the organism' only makes sense within a web of scientific enquiry, social contracts concerning bodily boundaries, and an account of subjectivity that transcends those boundaries. Nevertheless, as is the case with 'the body' generally, differently sexed bodies should afford us particular actions and perceptions to some degree, so it is worth exploring why Beauvoir and others postulated that the 'giveneness' of these bodies should be so deterministic of their action potentials.

Young begins by examining the psychological literature about women's bodily comportment, noting specifically Straus' (1966) descriptions of girls' bodies as opposed to boys' bodies during activities such as throwing a ball. While the boy makes use of his whole body and extends towards the target, almost as if to travel with the ball himself, the girl simply swings her arm, leaving her spine, legs, and shoulders relatively still. Straus

goes on to claim that since these differences are observed at such an early age, there must be inherent anatomical discrepancies in female and male embodiment, such that girls are simply born bad throwers, while boys come equipped to play baseball. However, through extensive research, Young goes on to show that there are other bodily movements, postures, and attitudes that arrive on the scene much later in life, all of which are mainly attributed to feminine persons and female bodies, but none of which are necessarily the case, based solely on biological sex. For example, women tend to keep their legs close together or crossed when sitting, a posture little girls do not readily maintain. Likewise, while men move freely and openly, swinging their arms and walking with large strides, women tend to remain more closed into themselves, arms crossed over their bodies, books held into their chests, taking shorter, more careful steps. Young even cites a personal example from hiking with male companions; while they bounded across a stream, she hesitantly tested out certain stones, held onto branches, and calculated her movements. As she describes it, "I do not believe it is easy for *me*, even though once I take a committed step I am across in a flash" (34). Here Young expounds on Beauvoir's original thesis: women experience their bodies as encumbrances, but moreover, we are taught to be afraid of getting hurt and as such, our actions will reflect such timidity.

To be sure, not all women fit this characterization, which is why it is easy to claim that we are taught and not born into our bodily postures and attitudes. What is more illuminating however, is that from this account of motility rather than from a strictly biological understanding of bodies, Young is at least able to begin bridging the gap between experiencing one's body 'as an object' versus living through the body as a means to achieve desired actions. In other words, by focusing on actions themselves, we

can begin to give a robust phenomenology of Beauvoir's original intuition; namely that in performing tasks, women often must focus on their bodies as objects to be manipulated, fragile encumbrances, and a manifestation of their awkward immanence, while at the same time existing *as human*, as a free and knowing subject. Thus, women occupy the rather tenuous space between free and unfree, human and non-human. A similar tension is present in Merleau-Ponty's account of embodiment generally. Although he was not as concerned about the differences between the sexes, save the few problematic passages discussed above, his account of intentionality as being rooted in embodiment provides thinkers like Young with a much more concrete phenomenological description of the way 'the body' can be an object *for me* and at the same time can be a subject, one which *is me*. Compared to a Husserlian I-pole, wherein a relatively disembodied ego is always the subject of intentional consciousness or even Sartre's account of the 'for itself' and the 'in itself' – which describes *consciousness*, and not necessarily embodied consciousness, as both a possible intentional object but also the subject of intentionality[30] – Merleau-Ponty extends these discussions to encompass the body as both the subject and object of experience. As he asserts, perception *emerges* from the interrelatedness of situation and environment and not purely from a knowing subject. And as we have seen, his contemporary, Gibson, puts forth a similar thesis, namely, that while the body is important for determining the space of possible actions, the world is what *affords* us the ability to discern such action potentials. Likewise, the view of enactive perception (cf. Noë 2009; 2004; Noë & O'Reagan, 2001; Varela, Thompson, & Rosch 1991) seeks to

[30] Although Sartre is pays much more homage to the body as a constituting element of conscious experience. Nevertheless, we do not find such a robust account of the body-as-conscious and body-as-object-of-consciousness as we do in Merleau-Ponty, nor do we find the extension of this experiencing subject into the world of objects, such as we find with the example of a blind man and his cane.

maintain Gibsonian currency by claiming that it is in the dynamic process of interacting with the world that perception arises. No example better characterizes the ramifications of these approaches than Merleau-Ponty's explication of a blind man using his cane to navigate through the world. In determining where to place his next step or surveying the terrain, the interface between the man and the world – the one that matters for the perceptual action that is – is not his hand, which is clutching the cane. Indeed, the cane, through which the man receives signals and perceptual cues and the end of which is actually the point of contact with the 'world' the man is navigating, is the real interface. To put it another way, while the man is engaged actively in trying to find his way around, the cane is not an object-for his intentional consciousness; rather, it is a that-through-which the world appears. This account of embodied cognition which allows for 'the body' 1) to actively constitute cognition and 2) to encompass more than just the biological organism allows the further interpretation that the image I form of my body when I am in the mode of taking it as an object *for me* might very well depend upon what would, under other conditions, be considered 'external to *me*.' However, Merleau-Ponty retains the Husserlian notion of presence-in-absence, even with respect to the body. Like any perceptual object, whose manifold of sides, aspects and profiles is always only partially given to us, the body is never entirely an object *for me*, as "it is that by which there are objects. It is neither tangible nor visible as it is that which sees and touches" (92). While I can never escape my body and retreat into pure thought, I can also never have my body in its totality as an intentional object. Its *presence* to me consists partially in its absence – I am always confronted with what Noë (2009) has referred to recently as a "presabsence." Much like I can walk around a chair and try to see it in its entirety, but

fail to do so as the once visible sides retreat into invisibility while the others emerge into my visual field, so too will parts of my body elude me.

Returning to the discussion of *gendered* embodiment, on Merleau-Ponty's account, it would seem that *all* human existence, at least at some time or another, occupies that contradictory location between immanence and transcendence. At a fundamental phenomenological level, as described above, we are never entirely for ourselves, but our embodied subjectivity does transcend 'the body' itself. Nevertheless, as Young (2005) ingeniously points out, by looking at the specific actions and social spheres that women occupy, the tension is perhaps felt stronger by women who are constantly expected to be both a subject and an object, rather than simply living through their bodies. Thus, in an action such as crossing a rocky stream during hiking, I experience an *ambiguous transcendence* – I must confront my own body as an object to manipulate while at the same time acting through my body as subject of the perceived action, an *inhibited intentionality* – the bodily "I can" with which possibilities are opened up for me in the world, is often replaced with a "I cannot," (or an "I should not," or "I can, but I have to really be careful about it") and a *discontinuous unity* – while being one unified subject, I must also take my feet as objects unto themselves, discontinuous from me in a sense, as I try to move myself over the treacherous terrain (35-38).

While I think extending Merleau-Ponty's phenomenology of embodiment into the realm of feminist theorizing about the body is a much needed and helpful endeavor, I want to suggest that Young's account is only the beginning of a successful and comprehensive story. Besides discussing the ways in which female embodiment is enacted in various motilities and postures, more needs to be said about the way the body

itself shows up to me, such that this last mode – *discontinuous unity* – is experienced. Young only hints at the ways I might represent my body both as a whole and as a collection of discrete parts, and I think this is because the focus has so far been too much on the "Phenomenology" part of Merleau-Ponty's work, and not so much on the "Perception" aspect. I now turn to perceiving the body, namely in the form of the "body image" in order to expound on Young's original project.

One way of accounting phenomenologically for the difference between growing up female and growing up male would be to appeal to the way the body itself is represented. The way I perceive my body during action is multi-dimensional; hence, many theorists from many different arenas have cashed in on explaining the various modes of body-representation. Merleau-Ponty's claim that knowledge of my body is always already a living through my body has its roots in psychological trends prior to his work. Elizabeth Grosz (1994), for example, concisely traces Schilder's development of the "body image" in order to show how it influenced Merleau-Ponty's conception of the 'lived body' as prior to the known body. Much like Merleau-Ponty, Schilder spends a significant amount of time discussing phantom limbs as a means to argue that the way we experience our bodies is often different than the objective accounts we give of them. Furthermore, the 'image' I have of my body is not static and can change based on how I am living my body. To cite again Merleau-Ponty's example of a blind man incorporating a cane into his body-image such that the end of the cane and not the end of the man's hand is said to be the outer-limit of his embodiment, there is a similitude between this account and Schilder's idea that the body image can expand, contract, and can include 'objects' that would otherwise appear foreign to it, depending on the role those objects

play in a given action. The body image, for Schilder and Merleau-Ponty, is not an isolated representation of the body, but instead, as Grosz argues, is a *postural schema* of the body, its position and situation, and the environment. This is significant in terms of the differences in bodily comportment among various types of persons because, as she puts it:

> The body image does not map a biological body onto a psychosocial domain, providing a kind of translation of material into conceptual terms; rather it attests to the necessary interconstituency of each for the other, the radical inseparability of biological from psychical elements, the mutual dependence of the psychological from the biological, and thus the intimate connection between the question of sexual specificity and psychical identity [1994; 85].

I think Grosz is correct to point out this important unifying element in bodily awareness and to suggest that it might provide the link between how my body is experienced both as an object for me and the subject of the actions in which I engage. Indeed, if neither my biological body nor my gendered psyche can solely constitute who I am, as both are modes of *knowing* my body and are always preceded by *living through* my body, then explaining the body image as a postural schema that situates me in a world, allows objects to show up at all for me, including my own body, seems like a plausible interpretation. Nevertheless, if we are to understand why I experience my body in the way Beauvoir describes it, as being overlain with immanence, especially in actions requiring me to distance myself from my body, or in cases where I face the world with an "I cannot," it might be rather hasty to conflate the notions of image and schema here. If it can be shown that for the most part, what is meant by body-image is still itself a mode of taking the body as an object for me, then perhaps the unifying modality is not imagistic at all, but is more kinesthetic, enacted, *schematic.*

Given what was discussed in chapter three concerning Gallagher's definitions of the body image and body schema, I think there is good reason to take such empirical findings seriously in a phenomenology of sexed and gendered embodiment. It is not enough however, to simply apply findings in cognitive science in order to embellish phenomenological descriptions. I intend to show as well that much of the phenomenology surrounding 'the lived body,' is actually missing or largely overlooked in cognitive science and philosophy of mind. In particular, I think the differences described by feminist phenomenology between male and female embodiment add to the discussion present in Gallagher's body image/body schema distinction. Paying attention to these phenomena thereby opens up new ways of broaching the subject of 'abnormal embodiment,' discussed in the previous chapter and if we go on to consider a case of 'abnormal gendered embodiment,' such as Gender Identity Disorder (GID), the distinction needed for dialogue between the two – phenomenology and cognitive science – will be ever more clear. Let us first recount Gallagher's distinction.

The conceptual distinction between body image and body schema is as follows: "a body image consists of a system of perceptions, attitudes and beliefs pertaining to one's own body. In contrast, a body schema is a system of sensory-motor capacities that function without awareness or the necessity of perceptual monitoring" (2005, 24). Of course, conceptual distinctions only go so far when trying to give a detailed description of actual embodiment, especially a phenomenology of the gendered body. Nonetheless, recalling Gallagher and Cole's rich account of IW, there is also empirical as well as phenomenological evidence to endorse such a distinction.

In terms of female and male embodiment then, the body image would include all the socially constructed norms of gender attached to the sexed body. As a 'woman,' I might form an image of myself as embodied in a feminine way; for example, shorter, weaker, and more fatty than my male counterparts, which will thereby aid in my forming an 'I cannot' attitude towards many tasks. To be sure, the 'I cannot' attitude is experienced by men as well, and it is not a universally applicable attitude for all women. It should come as no shock that in traditionally masculine activities – including many sporting events and other physical activities such as automobile repair – women are less likely to feel at ease, while during activities traditionally conceived as feminine – childcare, perhaps, or knitting – men are less likely to be comfortable. Again, there are exceptions, but the majority of women are more concerned with their appearance, keeping themselves safe, and avoiding harm, and as such, will be more timid and awkward in a situation like the one Young describes of bounding across a rugged mountainous stream. These empirical facts themselves are not as interesting as are the modes by which they get constructed. Contrary to Straus' claims, it cannot be inherent in all female bodies that they are just bad at hiking. We are taught to keep clean, to adorn ourselves, and to avoid harm, while little boys are taught the opposite. All it takes to refute the Strausian hypothesis is to observe a woman raised as a 'tomboy,' who can out-perform her male competitors, to see that much, if not all, of the attitudes we take towards our embodied actions are learned. Even if we consider less robustly embodied activities, such as mathematical or scientific reasoning, types of thinking that until recently, have been dominated by men, we can see that if encouraged and properly

trained, women can do just as well at these activities they otherwise report being "naturally bad at."

The point of all this discussion is not simply to reiterate an already well-rehearsed argument that women and men are raised to value different things. Rather, what I want to highlight is that those very things women are taught to value help to "cultivate immanence," as Beauvoir puts it, while the traditionally masculine activities with which most men feel comfortable, tend to promote full subjectivity and transcendence. As Wollstonecraft, Woolf, and other proto-feminists note, the ability to be educated, to read, write, and participate in 'the life of the mind,' has always been highly valued as a sign of fully actualized humanity, and these activities are those from which women have been traditionally excluded. What I want to add to this is that the very same promotion of subjectivity and transcendence is present in the construction of the man as the more physically adept and athletic of the two sexes. Being able to change your own oil, scale a cliff wall, or complete a triathlon have been linked to individualism, self-sufficiency, cleverness, and power, while, as many Marxist feminists (cf. Landry & McLean, 1993) have noted, housekeeping, childrearing, and other traditionally feminine activities are not. Thus, the *inhibited intentionality* and *ambiguous transcendence* which accompany so many of women's attempts to engage in these activities, even today, as Young points out, suggests that there is still very much a sense in which 'my body', as a female one, is incapable and disallowed the privileges of fully actualized subjectivity.

These examples take Gallagher's original notion beyond what he intended, but I am willing to defend them as corollary components in body image deployment. Gender might not always play a role in motility, but if it does, it most often is a function of a

body image and not a body schema. It is malleable, subject to manipulation from without, and is often the product of social conditioning. This is not to say that the body image I have of myself *as woman* cannot alter my body schema; quite the contrary, as the examples I have discussed so far illustrate, if I have constructed an image of myself as fragile, in need of safe-keeping, or less physically capable than others, eventually, my body schema will follow suit. In other words, I will automatically act *as if* these contingent facts about my body image were necessary truths of my body schema. Conversely, if the schematic processes subtending an action are already a particular way, then the body image will alter based on the fluency of motion. We can think of IW here yet again – his schema was essentially non-existent and as such, his body image responded to the lack of motility and control by assuming some of the roles otherwise attributed to the body schema. Likewise, if I have a propensity toward a certain type of movement – for instance, if I have natural turn-out and flexibility, bodily traits which are necessary for ballet dancing – the resulting image I have of myself will be one of capability, but moreover, I will probably not use my body image as much as I would need to if the actions I was performing were unfamiliar, difficult, or, as in IW's case, nearly impossible.

There are two things worth noting concerning these examples of body image/body schema influence: first, while the two are easily dissociated conceptually, they are not always so easily dissociated at an experiential level. Perhaps the best evidence for such a claim comes from an embodied skill such as dancing. In particular, in ballet, body image plays a crucial role – as soon as I stop thinking about where my arms are or if my stomach muscles are engaged, I fall over – and yet, this imagistic representation of where

I am in space and what all the parts of my body are doing, begins to function almost schematically, as I improve my technique. Indeed, professional ballet dancers claim to not think *about* their bodies at all; however, if you ask them how they executed a specific movement, they resort back to an explanation that utilizes the body image just as much if not more than any automatic and unreflective schema. In more everyday examples, the same would seem to be true. Young's account of crossing a stream and feeling awkward is a case in which the body image might dominate, such that I conceive of myself as less athletic than my male friends and such already predisposed to awkwardness, but the fact that this conception of myself can interfere with the subconscious body schema and its processing suggests not two separate experiential realms, but rather two distinct levels of awareness, both of which are intimately intertwined, influencing and possibly interfering with the other, but also potentially working as a unified system.

Second, in discussing the way image informs schema and vice versa, we easily lose sight of the very concepts we set out to examine in relation to all of this, which was the role of the sexed and gendered body. This is because when I describe myself in action, I don't really utilize the concepts of female or feminine, so much as I do the concepts of 'skilled,' 'athletic,' 'able-bodied,' 'unable,' 'awkward,' or 'timid.' To be sure, I am tacitly aware at all times that I am a woman, and likewise, that my biological sex is female, but the extent to which this information alters my embodied action is not entirely clear. What is relatively clear is that in successful motor action, if I utilize an image of myself at all, it will be a positive one, and it should not matter what sex or gender I am. Conversely, if I feel awkward or timid when trying to climb a rock wall, I don't explicitly represent to myself the fact that I am a woman and this is why it is

difficult. I simply feel scared. I might later reflect that if only I were more like my male friends, I could climb more confidently, but it hardly seems that I do this in the middle of acting. What I *do think* is instead, 'I can,' or 'I cannot,' or maybe 'I hope I can this time.' The superordinate categories of 'masculine' and 'feminine' that get attached to the 'I can' and 'I cannot' in various actions are therefore even more malleable than the body image itself. Women don't always have an 'I cannot' attitude. Of course, there are skilled female athletes, but there is also a vast array of traditionally feminine actions – applying cosmetics, walking in high-heels, cooking, and perhaps even flirting or specifically feminine modes of seduction – with which the women who are skilled at them are always in an 'I can' mode of imagining. The fact that these actions are called feminine, while fixing a car engine, becoming a physics professor, or being muscular and athletic are most often conceived of as masculine, does not express a necessary contrast. However, as Merleau-Ponty notes, through repetition, these otherwise contingent facts become so ingrained and sedimented that they appear inevitable. One might wonder then, how a larger, socially agreed upon fact such as 'women are just better at caring for children' becomes encoded in the form of an individual person's body image, and then is so rehearsed that it becomes an automatic and unreflective fact about the body schema. As I stated earlier, it hardly seems to be the case that in any action, whether I am skilled at or not, I represent the fact that I am a woman to myself while attempting to perform the task. And yet, if the body image can and often is the product of social manipulation, perhaps syllogism – I am a woman, and women are good at *X*, therefore I am good at *X* – *does* become incorporated into my body image, which then can shape the pre-reflective body schema. Regardless if the answer to this question is affirmative or negative, what

remains is that the attachment of particular embodied skills to particular genders is itself contingent upon socio-historical context and power relations, among other things, in particular, the idea that whatever is masculine is to be praised and sought after, a connection which is itself built upon the construct of male-dominance.

The point of the above discussion is to highlight the tenuous nature of a 'gendered body image.' On the one hand, to be a woman or a man always already implies a set of traits, abilities, and roles, all of which are contingent upon social context. Thus, to say that when I utilize a body image and that body image is this or that gender, what is meant more fundamentally, is that I *can, cannot, should, should not, am really good at, am really terrible at,* whatever action I am performing. Nevertheless, since the body image can always be altered, just as much as the social context from which it arose can change, all of these 'truths' about the gendered body in action are really never essential and certainly not necessary.

What then, of the other concept I have been until now purposefully ignoring? How does biological sex, the part of who and what we are that appears, at least prima facie, to be a necessary truth about our bodies? While I have argued at length that any gendered body image we form of ourselves is the product of social construction, it remains to be discussed whether the physiological facts of our sex shape and change a person's body schema, and the extent to which biological sex figures into body image construction and utilization. In order to answer these questions however, what must first be examined is the relationship between 'the gendered person' and 'the sexed body.' As it turns out, the two are not as separable as they may seem, nor is it as easy as one may

think to define and delimit *necessary* and *essential* components of being a male or being a female, as these concepts will prove to be quite malleable themselves.

To begin therefore, we will need to ask to what extent the body schema is sexed – in other words, is there a pre-reflective motor program for males and females based on the biological differences of the body itself? Most of the studies conducted by researchers such as Gallagher and Cole (1995)[31] are only concerned with seemingly sexed-neutral general movements and usually those related to the arms, legs, and face. For instance, while there is a known case of deafferentation[32] in a female subject, GL,[33] how her body shows up and is lived through in comparison to IW, has been relatively ignored. Likewise, the differences between female and male Möbius syndrome patients is not explored, although it would seem that facial expressions and emotion conveyance would be a fascinating place to look for differences that are potentially the result of a sexed schema. Regarding phantoms, Gallagher (2005) does mention that research has shown that mastectomy patients often experience a phantom breast. Even phantom penises have been reported (cf. Gallagher, 2005; 151). Of course, these phenomena imply nothing about any innately sexed body schema, as we could just as easily explain the phantom sexual organs in terms of a learned process of assimilation. Women get accustomed to carrying around breasts after forty years of doing so, and when one or both

[31] See also: Gallagher, Cole, & McNeill, 2002, and Gallagher, 2001.
[32] As discussed in Chapter 3, deafferentation typically involves severe damage to the mylenated nerve fibers generally thought to be crucial for proprioception. In IW's case, the damage he incurred constituted a loss of proprioceptive awareness from the neck down, although he could still receive proprioceptive information. He just had no idea from where such information was coming.
[33] In particular, see Cole & Paillard, 1995. GL's damage was more severe and as such, she was paralyzed from the chin down, rather than the just the neck. The only mention of difference between the two patients in terms of sex or gender is that IW's main concerns with rehabilitation centered on walking again and eventually going back to work, while GL was attempting to regain her ability to run a household and raise children, differences which, according to my characterization so far, would be gendered, and not the direct result of biological sex, *per se*.

are suddenly removed it is hardly surprising that phantoms are experienced. Also, considering the plasticity of the brain and body to incorporate new parts or learn to live without lost ones, arguments about innate 'body parts' and their schematic representation can be easily deflated. But, as was suggested at the beginning of the chapter, it is an inherent feature of bodies that they be sexed, at least insofar as there are two distinct types of chromosomal, hormonal, and genital configurations to which nearly all humans fit one. The chief question thus remains: how, if at all, does this essential body-fact form part of the schematic processing subtending all embodied action, thereby potentially shaping body image and cognitive subjectivity more generally?

4.4 Sexed Schemas?

According to Grosz and many other feminists, gender is constructed and therefore learned behavior, and although science would have us believe that biological sex is a given, much of recent feminist thought (cf. Lorber, 1992; Butler, 1990, 2004; Haraway, 1989) rejects this, favoring instead, the idea that the sexed body is just as much a construct as is the gendered person. For instance, Judith Lorber (1992) argues that "bodies differ in many ways physiologically, but they are completely transformed by social practices to fit into the salient categories of a society, the most pervasive of which are 'female' and 'male,' 'women' and 'men'" (569). Arguments such as these typically run in the following way: 1) People tend to label as 'masculine,' whatever traits we find to be dominating, active, strong, and virile and then we label those traits which are more submissive, passive, weak, and receptive as 'feminine.' 2) Science then proceeds to confirm the hypothesis that there are two sexes by using, as a dual-assumption, a) that

there are only two genders, and b) that those two genders map isomorphically onto two biological sexes. 3) Science then discovers ‘male’ and ‘female’ chromosomes, hormones, and phenotypic traits and concludes that there must indeed be essentially two sexes. But, claims the critic, this reasoning assumes the very thing it is trying to prove and hence, it is unfounded. In other words, the presupposition that ‘male’ and ‘female’ denote the only two types of bodies that occur, which is itself based on the presupposition that ‘feminine’ and ‘masculine’ refer to an exhaustive categorization of gender, is flawed at the outset, since we are interested in learning whether or not it is essentially true of human beings that they must be either male or female. Anne Fausto-Sterling (1999) discusses the way brain science is conducted in precisely this way in a chapter of her book titled *Sexing the Brain*. Most of the studies attempting to discover essential differences between ‘male’ and ‘female’ brains, she claims, have put the cart before the horse insofar as the very discoveries that one hopes to make – namely, that there are two distinct brain types – are assumed at the outset and are built into the experimental methodology. Likewise, Nelly Oudshoorn (1994) tracks a similar story regarding the history of the ‘discovery’ of the hormones, estrogen and progestin, wherein she describes the crucial role that gender norms played in locating “agents of sex” – one passive, submissive, penetrable, the other, active, dominant, penetrating.

Another way to further illustrate the paradoxical nature of assuming that males and females and feminine and masculine roles 1) pick out natural kinds and 2) are essentially exhaustive is by way of a sort of reductio thought experiment. Suppose that there is a possible world, much like Putnam’s (1968) *Twin Earth*, in which most of the facts that hold true in this actual world obtain in our possible world, call it *GenEarth.* On

GenEarth, however, sexual reproduction happens quite differently, insofar as there is a hermaphrodite-like sex who is capable of both inseminating herself and giving birth to new members of the species. Should she choose, she can be inseminated by the other sex, which would be much like the male sex as we know it here on Earth. Thus, reproduction can occur asexually or sexually and this all depends on the whims of the hermaphrodite sex. (It turns out that the worm species *C. Elegans* reproduces in precisely this way and so the thought experiment need not be so fanciful after all).

Now, given the nature of reproduction on GenEarth, what might we conjecture about the gender roles of the two types of persons found here? One response would be to assume that the *inhibited intentionality, discontinuous unity,* and *ambiguous transcendence* with which Beauvoir argues Earth women are subjected to based on their physical structure and biological sex would be experienced to a lesser degree, if they were experienced at all. Indeed, if the hermaphrodites on GenEarth were capable of producing sperm and eggs and thus, were the more powerful of the two sexes in terms of evolutionary necessity, then we should expect to find that they would have developed a more robust sense of autonomy, unified sense of self, and an overall 'I can' phenomenology to accompany most actions. 'I can' propagate my entire species all by myself seems to quite easily entail all sorts of other attitudes of capability regarding action. Furthermore, we might find out that because of the extra testosterone and androgen present, the hermaphrodites would have evolved to be just as strong if not stronger than their male counterparts. But if we were to make such assumptions, on what would they ultimately be grounded if not the fundamental fact that there are two naturally occurring kinds of persons on GenEarth and that we can identify these kinds of persons

based on the roles they perform, which are themselves *products* of the biological sex which they have? It would be undesirable to identify biological sex in this way because in order to prove that it is the substrate of all other identifications, we must rely on an assumption that it is the substrate of all other identifications.

The problem is best explained like so: On GenEarth, to believe that the hermaphrodites would be the more powerful of the sexes, or that they would be at least equals to the males, would be to tacitly agree that it is a universal fact that possessing traits such as strength, virility, motility, and freedom are valuable and moreover, that these are inherently masculine qualities. In other words, this assumption implies the corollary assumption that masculinity is a natural kind. But the original thesis was that biological sex, *not* gender identity, was fundamental and more naturally occurring kind of identification, while masculinity and femininity are constructed upon already existing biological roles and functions. And yet, do we not need the descriptions 'masculine' and 'feminine' to even begin to understand what would count as a 'male' biological function and a 'female' one? Indeed it seems we must, and our GenEarth example only illustrates just how absurd it is to try to determine which comes first on our possible planet, the male-hermaphrodite biological distinction, or the masculine-feminine/masculine distinction. To understand the one, we need to assume the other is a natural kind and to understand the other, we must rely on the one being 'given.' Thus, to further ask from whence these differences between the sexes arise, would be a non-starter because in order to even broach the topic of sexual difference, we must rely on gender difference, which is far from being shown to be inherent to the species, here on Earth, on GenEarth, or anywhere else.

A particularly compelling reason to side with the constructionist view of sexed bodies stems from the real-world occurrence of intersex births. We need not fantasize of a 'third' type of sex, as nearly one in every one hundred births does not fit the standards of scientifically determined sexual identity.[34] Rather than accepting that we might have made a mistake in judging there to be only two naturally occurring sexes however, medical technology is often used to 'discipline' these bodies that do not conform to the dual-sex model. Complications from invasive surgeries, psychological trauma, and social ostracism are often what follow from such stubborn insistence on scientific realism (cf. Foucault, 1980; Butler, 2004; Dreger, 1998) and such suffering is cause for those like Fausto-Sterling (1985, 2000) to argue for multiple sexes, rather than only two.

While intersex births provide good reason to question the supposed scientific fact that there are only two sexes, just because there are those for whom the appellations 'female' and 'male' do not so easily apply entails that it impossible to have a 'sexed schema.' To be sure, there might be more than two types of sexed schemas if there are such things at all, but if we assume for the moment that the majority of persons cluster around one of two identities defined chromosomally, hormonally, and genitally, then we might wonder if there is anything further that might divide these two types of persons along lines of motility, comportment, and proprioception. Straus obviously thought there must be, as he argued that girls were simply born less athletic, more timid, and weaker than boys. In fact, it seems to permeate a large part of the history of sexual oppression, or as Shirley Chisholm puts it, the fact that as soon as babies are born – or even prior to this when they are first identified via ultrasound, for example, and they are labeled 'male' or

[34] http://www.isna.org/

‘female,’ they are immediately subject to stereotyping, and for females, this is often a negative labeling.

By drawing a parallel between the socially constructed ‘disability’ associated with being born female and the disabilities associated with other bodily abnormalities, I am in no way attempting to equate femaleness with deafferentation, AHS, or any other extreme pathological embodiment. The idea is simply to consider that the duality of sexes is not simply an objective division of persons based on their material reality; it is often couched in such a way so as to place half of all humans in a category of ‘able to move about freely and capably’ and the other half into the category ‘incapable of athletic dominance, strength, or agility.’ It is worth discussing therefore, whether or not Gallagher intends for the body schema to be inherently sexed, such that some bodies and/or brains come predisposed to comport themselves in very different ways based on the physiological status. We have only just begun to see the difficulties inherent in trying to ‘schematize’ experiential modes such as *inhibited intentionality* or *discontinuous unity*, as those seem to be highly contingent and learned; in other words, they occur at or are at least products of the *body-image*. In order to talk about the body-schema as being sexed therefore, we must seriously consider what such a thing would involve, without referencing anything gender-specific. From a purely biological standpoint, what would a sexed schema entail for proprioception, movement, agency, and ownership?

Considering IW again, his entire proprioceptive awareness was lost due to a specific neuropathology and thus, we should expect that if there were some part of the body schema that encoded what the biological sex of the body was, that it should also be capable of being disrupted or destroyed. In IW’s case, as far as we know, he never

admitted to forgetting that he was indeed a male, but then again, we might wonder if this was all imagistic representation; he never 'pictured himself' as anything other than a male, but did his brain, damaged so severely to the point that it forgot where its limbs were located in space, also 'forget' that it was a male brain? There seem to be no experimental cues to determine whether or not the body schema encodes anything like biological sex because we have yet to find a specific neuropathology that knocks out the 'sex module' of the brain. Furthermore, it is difficult if not impossible to provide a list of criteria for determining how one might behave differently were their schemas to no longer be sexed without simultaneously referencing already gendered actions. For example, if IW's loss of body-schematic processes had also resulted in no longer having a sexed-schema, then if he began to move less freely, to experience himself as both an object to be manipulated and a subject of his own actions, or to approach tasks more with the 'I cannot' attitude, we could say that his schema is no longer male. Indeed, all of these experiences were and continue to be to a large extent had by IW. Would it be correct to then say that his schema is now a female schema, simply because he is unable to move freely? Surely not, because then we would have to say that the body schema is so malleable that every time someone lacks a sense of agency over his or her body, they are undergoing a 'sex change.' In other words, on such an account, the body schema would turn out to be, just like gendered norms of behavior, entirely socially constructed, which, as Gallagher has demonstrated quite convincingly, is not the case. I think herein lies the true difficulty of assigning the schema any sex at all. As soon as we try to, we are already buying into the gender roles that define masculine and feminine motility and then trying to map those isomorphically onto biological sex, assuming that the schema somehow

already ‘knows,’ simply by virtue of its being male or female, that it ought to be timid and clumsy or bold and agile.

So, suppose we dispense with talk of a sexed schema. Does this ultimately rule out the possibility of a ‘gendered schema?’ It would seem really strange to talk about the body schema as knowing that it will be more passive, reticent, and careful as opposed to active, intrepid, and daring. For one, these categories of motility are hardly exclusive and exhaustive. It is not as if there are only two types of movement and comportment in the world. To believe so would be to ascribe the ultimate duality to the world. Not only are there two sexes and two genders, but moreover, there are two kinds of embodied action, and every *body* is either one or the other. Another problem with the gendered schema is that it would not so readily allow for change from one type of embodied action to the other. If your schema is hardwired to be ‘feminine’ then it seems it would be really difficult to assume more masculine motility and yet, as we discussed earlier, this happens all the time. But most importantly, as the foregoing discussion has illustrated, one’s identity as feminine and/or masculine does not necessarily imply that one possesses a particular set of bodily skills over another. The linkage between, for example, masculine and athletic, or feminine and graceful, is a byproduct of social contrivance. To be sure, the body schema is relatively fixed and one might be born with a natural propensity to be graceful, such as a ballet dancer who was born with long limbs and hip rotation, or a basketball player who is tall. But this fact in no way means one is born ‘a man’ or ‘a woman.’ Moreover, the body schema *can change*, for instance, as a child develops, as a person acquires automaticity and control over a movement that once was new and awkward, or, of course, when the schema is disrupted, as in the case of IW or GL. All of

these facts make it nearly impossible to speak of a gendered schema in any meaningful way, unless we want to entirely disrupt the original intent behind the concept. Nevertheless, I think if we consider more carefully what I will loosely term 'Body Dysphorias' (BDs), we might begin to see that the idea of a gendered schema is not so easily dismissed. In the long run, I will reject the notion that gender roles and comportment are in any way pre-specified at the schematic level, but I want to spend some time discussing Gender Identity Disorder (GID) and Intersexed Embodiment (IE) on the one hand, and a whole other array of BDs on the other, for several reasons. 1) I will claim that although extreme, GID and IE remain on the same continuum of felt *unheimlichkeit* or dysphoria with one's body that constitutes bodily experience generally. 2) In all these dysphoric experiences, the tendency, both by professionals and persons with the dysphoric experiences, is to nativize or schematize complex social identities such as gender, sexuality, even athleticism and occupational identity and that this phenomenology is misguided. In order to make this second claim however, I will take seriously the experiences reported, in particular from GID and IE, namely that there is a gender the person with GID often feels as though he or she was 'born with.' Likewise, as is evident in cases from IE, in which persons who are given corrective surgeries to force their bodies into one or the other sexual category, there are often reports of a mistake made, such that the 'real me' is now trapped in this body made by medical science. These phenomenological accounts, along with a host of others, from tall people trapped in short people's bodies to athletic women trapped in big-breasted bodies, will be the focus of the next chapter. My aim is to argue that although people may feel as though they were born into this or that social role, even sexual identity is something highly constructed and

learned, and hence dysphoric experience with one's body and its place in society is just as much externally induced as it is internally driven.

Chapter 5

Transgressed Binaries: Body Image and Subjectivity in Transgender Embodiment

The "third" is that which questions binary thinking and introduces crisis…The "third" is a mode of articulation, a way of describing a space of possibility. Three puts in question the idea of one: of identity, self-sufficiency, self-knowledge. – Marjorie Garber

5.1 Introduction

The preceding chapter began with a premise – that embodiment always shows up as sexed and gendered, even if only tacitly – and concluded with the argument that this fact about embodiment is never rigidly fixed, either in the form of a body image or a body schema, either as male or female, feminine or masculine. While the body image is much more highly susceptible to social conditioning and alteration than the body schema, even the schema is to some extent, malleable, as automatic and pre-reflective motor actions can and do change, are acquired, and even lost, as in cases of deafferentation such as Ian Waterman (IW). Furthermore, in terms of a sexed schema, the only way such a program for action could ever be described would be in terms of bodily comportment, movement, and actions that are already gendered – hence a 'female schema' might be one that includes among its traits the ability to give birth, being shorter, having less muscle mass, and so forth. And again, these actions are never inherently necessary simply because one is born a male or a female. Thus any talk of a sexed schema will, like the body image, admit to a degree of plasticity and learnability.

Nevertheless, there are at least two bodily experiences – Transgender (TG) and Intersexed Embodiment (IE) – that challenge the notion that body schemas have no

inherently ‘female’ or ‘male’ encodings. Someone who is born biologically male but who has identified with the female body and the feminine gender for as long as he/she can remember, or a person born with ambiguous sexual morphology, who is surgically altered at birth to fit one sex, but grows up identifying with the other – these are both instances in which the necessary nature of ‘having a sex’ is plausibly *not* the result of learned behavior or socially internalized cues, but is rather an innate ‘sense’ of who one truly is. As I suggested at the end of Chapter 4, I will examine the theories and phenomenological studies of TG and IE, but my intentions are themselves not strictly theoretical, nor purely phenomenological. As I have argued in previous chapters, in agreement with Gallagher and Zahavi (2008), complex phenomena such as cognition are best studied and understood from multiple vantage points. This is so when it comes to TG and IE as well. Accordingly I will examine these experiences from various theoretical and phenomenological vantage points, but will begin by looking chiefly at Queer Theory (QT). This is where we find the bulk of TG theory and IE discussion, and more importantly, QT is itself at least partially a product of the lived and shared experiences of the transgender and intersex community. Through examining QT’s appropriation, in particular, of the transsexual as a figure that subverts the traditional gender binary, my first claim will rest on the idea that by juxtaposing monstrous and natural bodies, QT runs the risk of replacing one binary for another. Namely, in dismantling the natural/non-natural divide, it is often the case that a *new* dichotomy – that between the figurative and the literal – comes to stand in its place. As I intend to show however, this binary of figure/ground is no more necessary or ‘given’ than any of the others of which QT seeks to subvert.

While I will follow Jay Prosser's (1998) critique of QT to some degree, insofar as I think he reveals important oversights, such as the one just mentioned, I will diverge from his account slightly when it comes to characterizing the role of *body image* in the formation of transsexual subjectivity. Whereas QT tends to cast how one imagines and thus identifies oneself – as part of this or that group, for example – mostly, if not entirely, as a product of power and socially constructed and enforced norms, Prosser attempts to reclaim the body image of the transsexual as prior to the socio-medico-technological practices that inconsistently act as the "cure" of a pre-existing disorder while at the same time functioning as the creator of this disorder. Both QT and Prosser extend the concept of 'the body' beyond its typical referent – i.e. the human organism – and hence how the body is thought or imagined never refers strictly to a biological or material entity that is prior to medico-scientific discourse. Whereas a queer theorist such as Butler (1990), for instance, will argue that the concept of 'the body' never simply refers to a material reality independent of discursive practice, Prosser on the other hand, attempts to reclaim some of the literality of 'the body' as a concept. By considering the way bodies are imagined in narratives and lived experiences of trans persons, he avoids an overly deconstructive view of 'the body,' insofar as for Prosser, what this concept refers to remains importantly rooted in the material reality of the flesh. This grounding, I argue, is lacking in QT. However, Prosser's amended account tends to characterize the *body image* as somehow independent of all external influence, independent from even *the body* itself. This aspect of Prosser's work sidesteps the question of 'sexed schema' and in its place, offers a 'hardwired image' one that I find implausible. Prosser's account overlooks an invaluable contribution made by QT – the deconstruction of the naturalness of the gender binary. In

the end, I argue, neither a body image prior to technology nor a hardwired sexed schema are plausible. Although body schemas, as we have seen in Chapter 4, are more fixed and less influenced by sociotechnological practices than body images, it is quite plausible that this is a matter of degree, and that the two systems – the schematic and the imagistic – mutually inform, influence, and shape each other. And, as it turns out, any notion of a sexed schema is itself a byproduct of the socio-medical discourse that would have us believe, like Straus (1966), that the way little girls and little boys comport themselves to the world is already worked out in a complex pattern of motor behavior somewhere in the brain. Thus, a sexed or gendered body image that is prior to technology and what I will call 'sociotechnological hybridity' is, I will further argue, even more 'unimaginable' than a sexed schema.

Several methodological and conceptual clarifications are in order before I begin, however. First, although I am interested in recounting the role of body image in shaping the embodiment of transgendered and interesexed persons and thus will discuss them both throughout the chapter, my focus will be more on transgender. First, there is an entire theoretical movement, *Transgender Studies*, devoted to such investigations, and so, I not only have an abundantly rich resource for personal narratives, but as well, there is a large group of transgendered scholars who offer both theoretical and first-person accounts of their experiences. Second, some terminological distinctions: I will use the term *transgender* to refer to a consistent queering of accepted gender norms, such as persistent cross-dressing or cross-gendering, or a continual feeling of 'not-being-at-home-with' the body and the embodiment of that gender. Hence, *transvestite* denotes a particular type of transgendering, namely, a cross-dresser. The term *transsexual* refers to

a person who identifies with another *sex* and hence, this term applies more at the anatomical level. In other words, a transsexual might feel genuinely female, despite male physiology, and while not all transsexuals who identify with the opposite sex will seek sexual reassignment surgery or any other bodily modification, persons who do seek such bodily changes can be characterized as transsexual. This term, the way I am using it, is broad enough to encompass those who are "pre-op," mid-transition, and "post-op" and it does not limit itself to persons who have had the full surgery or any surgery at all. Simply feeling as though one has the wrong 'parts' as it were, suffices for inclusion in this category. The term *cissexual,* on the other hand, is used to denote a person who is non-trans in any way; someone who is comfortable in their own skin, has never questioned what gender he or she truly is, and who does not have problems with the roles he or she is expected to perform is 'cissexual.' All of these terminological distinctions are founded in trans literature (cf. Stryker & Whittle, 2006; Shepherdson, 2006; Serano, 2007). I also recognize the discrepancies inherent in utilizing a particular taxonomy to generalize over lived experiences. To this end, I will take special care to address such concerns, and will even aim at a phenomenology of individual experience that is ambivalent to the particulars of these terms.

5.2 Inner Selves, Outer Bodies, and the Construction of a Disorder

Prior to detailed phenomenological descriptions, which I will mostly glean from trans- and intersexed narratives, and without examining the theoretical and historical frameworks from which these phenomena are typically thought, it is easy to take a cursory glance at the experiences, generalize over the superficial 'data,' and reach the

conclusion that anyone suffering from Gender Identity Disorder (GID) has the sense of being 'trapped in the wrong body' – his or her 'true self' ensconced within a flesh that is foreign and unwanted. Furthermore, a quick survey of the way gender reassignment surgery is allotted reveals that most persons awarded 'new bodies' have to have sufficiently demonstrated that they have felt this dissociation for as long as they can remember (cf. Hale, 2007; Spade, 2006). Given this totalizing picture of all trans embodiment, it is therefore not a huge leap to make the assumption that there must be some element of sexual (or gender) identity that is 1) independent of the specifics of one's particular body and 2) prior to social influence. In other words, we might say that GID involves forming a *body image* of oneself that does not correspond in any meaningful way to the *body schema*; a body image that has arisen without making use of said schema. Or, we might characterize the experience as suggestive of an innate, hardwired, and pre-social facet of embodiment that cannot be fully realized due to the actual material substance in which it is housed – namely, the 'opposite' sexed body. Either way, the phenomena of cross-dressing, seeking sexual reassignment surgery, and even committing suicide in response to GID can at first appear as though what is really being experienced is some sort of disembodied self, or an 'inner self' that is independent of the outer body and is trapped within its confines. Put differently, we might conjecture, based on trans phenomenology, that we all have sexed schemas after all, some of which are not aligned with our imagistic 'genders.' A brief look at the history of transgender reveals that there has not always been a consensus regarding the phenomenon and, fascinatingly, the thinking has shifted from radical materialism concerning sex and

gender, to a psychologism that more closely reflects a substance dualistic view of the mind/self versus the body.

The reason such conjectures about the nature of transgender and transsexualism are so easy to make stems, in part perhaps from the relatively scarce amount of scholarship devoted to it. More importantly, the larger culture typically consumes the medicalized, psychologized, and overly generalized accounts, as they are presented in popular media. For example, the movie, *Transamerica*, which although it was an independent film was nominated for two Oscars and so far has been one of the few films about a trans person to reach so many viewers, tells the story of a road trip taken together with a pre-op MTF and her son, who is unaware that he is riding cross-country with his father-soon-to-be-woman. While the plot is innocuous enough, the depiction of the main character, Bree, helps to further the notion that what is really at stake for transsexuals is that their 'outer bodies' match their inner selves and in this particular movie, Bree's desire to link the two is portrayed via a hyperbolic obsession with appearance, in particular, appearing feminine. To be sure, putting forth a feminine image is important to many transsexuals and transgendered persons alike, but certainly not all of them, and certainly not to the degree with which Bree was preoccupied. Julia Serano (2007), for instance, has claimed that portrayals such as Bree in *Transamerica* work to maintain two negative images. First, the stereotype of trans persons as only concerned with superficial gender appearances – makeup, voice, clothing, etc – which thereby effectively erases nuanced differences in the phenomenology of transsexualism, transgenderism, transvestitism. Second, by portraying women in general in this way – i.e. as obsessed with appearance – the depiction of females, including all MTF trans persons, as objects of

sexual desire is reinforced. Serano's assessment is certainly debatable, but what is less objectionable is that films such as *Transamerica,* which often serve as the only insight into trans-lives thatcissexual and mainstream culture receive, should be scrutinized so as to determine what those images are that are being consumed. Along with Serano, I agree that if this is all the exposure most people will get to transsexualism, transgenderism, and the like, then the overly simplified account of '*real* soul/self trapped in wrong body' as applicable to *all* of these various modes of trans-experience is what will be thought by the viewers. Again, this overlooks the differences among individual lives, and serves to bolster the claims already made by psychology and medical science regarding 'the' trans experience.

Regarding medicalized and psychologized accounts, they have worked to establish the idea that what is essential to trans experience is a desire to 'cross over' to the 'opposite' sex or gender, a desire which of course implies that each of us has a solid notion of what it means and what it feels like to be that other gender, let alone, that there are only two from which to choose. As Prosser (1998) points out, even in 1864, the year that one of the first cases of "inversion" was recorded, medical science was the dominant authority and source of information. That is, prior even to the coining of the terms "transgender" or "transsexual," and prior to the availability of any surgical intervention, narratives of "inverts," as they were called, "appear to offer up the very stuff of transsexuality: the expression of being differently gendered; the recounting of a plot that pulls toward being the other sex; even sometimes the articulated desire to change sex" (140). Likewise, some of the first genuine attempts to materially alter sex – a double mastectomy obtained by a woman to masculinize 'her' body, or an even more obscure

record of genital masculinization in 1882[35] - were recorded by Magnus Hirschfield, a prominent sexologist. Although openly homosexual and an avid defender of gay rights, Hirschfield was not equipped with the nuances of the sex-gender distinction, nor was there anything like queer theory, postmodernism, and the like, for him to follow, given that he predates such movements by several decades. As such, his accounts remain first and foremost, *biological*. Like his contemporaries (cf. Ellis, 190; Krafft-Ebing, 1886), whose accounts also have an air of biological essentialism to them, he sought to diagnose "inversion" via somatic markers – deep voice, manly gait, and small breasts, for example, as Richard von Krafft-Ebing (1886) proclaimed, "makes the impression of a man in woman's clothes" (410). The driving force behind these proto-trans accounts was the hope that the bodies of the patients themselves would reveal their own narratives. Much like the story of *Herculine Barbin* (Foucault, 1980), a French hermaphrodite who spent the first twenty years of her life as a woman but was later discovered to have masculine genitalia, and was then forced to live life as a man, the biological body represents the *sin qua non* for *both* sex and gender. The notion that one's gender might supersede the somatic markers of genitalia, hormones, and secondary sexual characteristics such as hair, muscles and breasts, was not considered at these early stages. Hence, stories like Herculine's are at once tragic – she committed suicide as a result of never fully assimilating to the newly prescribed gender – but are also indicative, quite interestingly, of an early *somatic essentialism* – i.e. the belief that when it comes to identifying a gendered 'self,' one need only look to the materiality of the body.

[35] Hirschfield/ Haustein (in Prosser, 250 footnote 14) 1991

How then do the more familiar narratives of a 'true self' trapped in the 'wrong body' emerge? Elizabeth Loeb (2008) traces the legal history surrounding corporeal practices in the early 1900s and the concomitant drive in psychology to catalogue an array of mental 'perversions' in order to suggest that body modification practices generally, including sexual reassignment surgery, soon came to be markers of psychological disorders, due at least in part, she claims, to "the arrival of Freud, Valium, and postwar trauma in U.S. fashion." What was once seen as "property damage" – a solider purposefully amputating his leg so as to escape the war, e.g. – became "firmly established within law, medicine, and psychiatry as evidence of "gender identity disorder" or "body dysmorphic disorder" or "body integrity disorder"" (51).[36] In other words, the attempt to alter one's body for the sake of gender or any other 'deviant' reason, such as elective amputations, by the mid 1900's began to be seen as a manifestation of a disordered psyche. It is not surprising therefore, that medical practices concerning transgender, in particular, the guide for those practices, the *Diagnostic and Statistical Manual* (DSM) for psychiatry, began to characterize the phenomenon as a mismatching between one's self and one's body. Despite the historical contingency and social malleability of the gender roles that characterize the 'inversions,' which the DSM IV labels as 'disorders' – boys with GID, for example, "enjoy playing house, drawing pictures of beautiful girls and princesses…avoid rough-and-tumble play and competitive sports, and have little interest in cars or trucks" – psychology and psychiatry treats the symptoms as arising solely from within the subject, as if the dominant social norms which police count as suitably female and male have nothing to do with the behavior

[36] See also: Spade, 2003; Yates, 1961; Roman, 2006

showing up as 'abnormal.' It is, as Spade (2006) puts it, "in the minds of the ill that gender problems exist, not in the construction of what is healthy" (319).

In a similar vein, the autobiographical narratives of persons seeking sexual reassignment surgery reflect the idea that 'gender' as an identifying category is psychological, or is at least irreducible to the strictly biological body. Catherine Millot (1991) recounts that many of the trans-patients she has spoken with feel as if their "true self" or "true identity" had no "body" to call its own. Raymond Thompson, a female-to-male transsexual, describes his experience as being comprised of two bodies, an inner and an outer. Although Thompson does not necessarily evoke a disembodied and immaterial self trapped within a material body, his two-body identity remains consistent with the notion that there is some aspect of gender identity that escapes the narrative told simply by the fleshy, outer body. To quote his narrative at length:

> I needed to be out of my body, to be free. It felt as if my "inner body" was forcing itself to the ends of my limbs. It was growing ever larger inside of me, making me feel I was bursting at the seams and wanting out…out…out! Because this was impossible, this process would abruptly reverse and I would start to shrink inside myself. My whole inner body shrank until I became very small inside. It was as if I became so small I had to find some safe place to hide inside myself. My tiny inner body was in unfamiliar surroundings, in a place it didn't belong and I felt utterly unsafe. I became like a little shadow inside my physical body, a shadow running around everywhere trying to find somewhere inside [Thompson & Sewell, 1995, 200].

In some sense, Thompson's narrative echoes accounts given by persons with some of the bodily pathologies discussed in chapter three; for example, patients with Möbius syndrome who characterize their 'true emotions' as being locked away behind their emotionless faces (Cole, 2008), or patients with misoplegia, who often seek amputative surgery to match the image they have of themselves 'inside' to the 'outside' of their bodies. Thompson even goes on to describe unexplained blisters that form on his face as

manifestations of his "internal stress," which resonates with all sorts of attempts to link inner *psyche* with outer *soma*, from biblical correlations between leprosy and 'inner demons' (cf. Leviticus 13; Matthew 10:8), to the current trends in plastic surgery to allow one's inner beauty to be expressed more fully as outer beauty. As Kukla (2008) recounts, even the case of the "snaggletooth killer" depicts what she terms a "phrenological impulse" that persists today, despite the downfall of phrenology itself, or the ideal that outer bodily morphology indicates inner charactereological traits. Ray Krone, as he was officially named, was wrongfully convicted of murder due to the 'snaggletooth marks' found on the victims which matched his dental patterns. After DNA testing proved that Mr. Krone was not in fact the murderer, he sought reconstructive dental surgery, so that he would no longer be conceived of as a killer. As a blog from a friend remarks, post-surgery, "I just saw Ray on Extreme Makeover and he looks great. Now his outer beauty matches his inner beauty."

Prosser (1998) claims that narratives such as these, in which an inner self or body is felt to be "pushing out" and demanding external embodiment, suggest the re-materialization of the psychological phenomenon of dissociation. By looking at the "skin," he claims, we can find the connective surface that binds together psychical and physical, inner and outer. As Anzieu's (1974) *Skin Ego* argues, the body's surface is that which most robustly constitutes the self – the body's physical skin is how 'we' relate to the world, in proprioception, in the sensations we derive from it, and in its unique position as a 'border' between that which is inside and that which is outside. Thus, Prosser takes Anzieu's "skin ego," which he sees as a literal rendering of Freud's "surface" – that which the ego projects – and argues that the skin is the "pivotal

connective surface" which explains how the "trope of being trapped in the wrong body can be materialized." In other words, the skin provides the "mechanics of this catachresis" (71). For Thompson, and for other transsexuals therefore, it is often not enough to simply restructure the material body, surgically or otherwise, nor is it sufficient to cross-dress and cross-gender without bodily modification. This skin, as it represents both Thompson's inner and outer 'bodies' must project his true nature, both in its reception by society, but also as he himself recognizes it as part of that true nature. Hence, before his surgery, he speaks of "detaching" himself from his body so as not to have to notice those parts of its projected surface that were hindering expression of who he truly believed himself to be.

This rather lengthy digression about Thompson's transformation illustrates two things. First, the autobiographical narratives of trans-persons are much more complex than the medical literature would have us believe. To obtain surgery, at least in the U.S. and Canada, it is *required* that prospective candidates demonstrate an *unheimlichkeit,* first, by being diagnosed as 'disordered' and then by demonstrating that "living like the opposite sex," is actually healthier for them – in other words, that they are 'at home with' the opposing gender roles and norms they have adopted. (Millot, 1991). In a real sense, therefore, they must "pass" as the desired gender, even prior to the surgery itself (Spade, 2003; Prosser, 1998). But according to Thompson, this is impossible so long as his skin ego is mismatched. Hence, the psychiatric demands made by the "gatekeepers" of reassignment surgery might turn out to be impossible to meet, not to mention founded on a lack of understanding of the complex phenomenology surrounding trans-experience. Second, by insisting that we have a "master narrative" for GID, the DSM overlooks

differences among individual persons who are gender variant. Unsurprisingly therefore, as Spade (2006) points out, the distinction between a 'normal' child who is simply a 'sissy' or a 'tomboy' and an 'abnormal' child who has genuine GID, is murky. Covering over specific differences among narratives in the name of a unified science of gender identity is not only personally harmful to the patients seeking to finally live in a 'skin of their own.' It is also damaging to the culture at large, who, rather than actively learning about the lives of transgendered persons by reading such a vast array of autobiographies and actually meeting and talking to persons in the transgendered community, are satisfied with the superficially scientific reductive explanation of gender deviance provided by the DSM, which is then filtered through mainstream media such as news stories, Hollywood sitcoms, or movies. As Sandy Stone (2006) claims of this erasure, "polyvocalities of lived experience, never present in the discourse, but present at least in potential disappear;" this involves a covering over in which "both the transsexual and the medicolegal/psychological establishment are complicit" and one that "forecloses the possibility of a life grounded in the *intertextual* possibilities of the transsexual body" (231). In order to make sense of how reclaiming the intertextualized transgender body – that is, a body that is not reducible to medico-scientific discourse, nor simply the product of it – might afford the transgender community a better voice in the construction of their social identities, a closer look into the theoretical framework that has dominated the relatively brief history of what is now known as Transgender Studies will be necessary. This will not only allow for a more diverse rendering of trans embodiment, but such a reclamation might also open up a new theoretical space for understanding, both by scholars and by the culture at large, an understanding that does not cover over differences

or autobiographical narratives, but instead incorporates them into its 'body of knowledge.' I will now turn to the intimately interwoven pair that is Queer Theory and Transgender Studies, examine the former's reliance on the latter for its prominent 'figure,' and eventually discuss this coupling in terms of our larger task, which is approaching a more comprehensive understanding of cognition and embodied subjectivity generally.

5.3 Queer Theory and the 'Figure' of the Transgender Body

In the introduction to *The Transgender Studies Reader* (2006), Susan Stryker provides a definition of Transgender Studies, which is:

> A field that claims as its purview transexuality and cross-dressing, some aspects of intersexuality and homosexuality, cross-cultural and historical investigations of human gender diversity, myriad specific subcultural expressions of "gender atypicality," theories of sexed embodiment and subjective gender identity development, law and public policy related to the regulation of gender expression, and many other similar issues [3].

This is a considerably broad categorization and it becomes even more extensive if we consider what the co-editor to this volume, Stephen Whittle, says in his foreword about the denotation of 'transgender' as encompassing:

> Discomfort with role expectations, being queer, occasional or more frequent cross-dressing, permanent cross-dressing and cross-gender living, through to accessing major health interventions such as hormonal therapy and surgical reassignment procedures [xi].

A cursory read of these two passages might suggest to the reader that "Transgender Studies" (henceforth TGS) is just an offshoot of QT, or even more generally, an offshoot of Gender Studies. Indeed, as Stryker points out, TGS includes discussions of gender

diversity, sexual embodiment, and personal gender development, which are all elements that Queer Theory, among other branches of Gender Studies, examines. Likewise, if being transgender implies "being queer," we might wonder on the one hand, does the converse hold – namely, does being queer imply being transgendered? – and on the other hand, why bother having two separate domains of inquiry, if both TGS and QT claim as their purviews, 'the queer?' Nevertheless, as is the case with most terminological differences based on historical antecedents of and transitions between theoretical frameworks, a closer look into the dialogues between the two shall reveal perhaps why TGS has effectively claimed territory that is just as broad, if not broader than QT.

To be sure, the characterization given by Stryker and Whittle is far from representing unanimously agreed upon definitions for *transgender* and TGS. Even my definition at the outset of this chapter was a bit more restrictive. Likewise, not everyone will so readily accept QT's use of the transgendered person as a model for deconstructing gender. In *Second Skins* (1998), for example, Jay Prosser spends the first chapter arguing that while QT has done a great deal to bring TGS into academic focus, the problem with its "arrogation of transgender is that it allocates to nontransgendered subjects (according to this binary schema, straight subjects), the ground that transgender would appear to *only* figure; this "ground" is the apparent naturalness of sex. For if transgender figures gender performativity, nontransgender or straight gender is assigned the category of constative" (32). Much like a literary figure comes to stand in for a specific element of human nature or a personality trope – King Lear as the figure for all human greed, for instance – if transgender illuminates the performative nature of all gender, then there still remains a dichotomy, that between this 'figure' of the transgendered performer and its grounding in

reality, namely, in that this is the 'nature' of gender itself. Of course, more will need to be said about how performativity features for both QT and TGS and whether or not Prosser makes a good case, but theoretical skirmishes aside, one thing does appear to be rather unanimous among those who write in TGS and QT; namely, that the "figure" of the transgendered person has been an indispensible element for people like Butler (1990, 1992) and others seeking a "theory of (homo)sexuality distinct from feminism" (Prosser, 22). Thus, to better understand this intimate connection, we must turn to Butler's seminal text, *Gender Trouble,* which, according to Prosser, "yoked transgender most fully to queer sexuality" (24).

Although transgender occupies just a few paragraphs of *Gender Trouble,* what Butler's brief discussion of drag has functioned to do for QT is to subvert *all* conceptions of gender that treat it as a natural, stable, and necessarily binary category. Because drag carries with it the potentiality for "passing" – that is, the person performing drag can sufficiently act out the desired gender roles so as to be attributed, by him/herself and by others, that gender – transgendering reveals that occupying a particular gender is a matter of *performing* that gender convincingly.. As Butler puts it: *"In imitating gender, drag implicitly reveals the imitative structure of gender itself*" (137, italics original). However, *what* gender performances imitate turns out to be altogether unclear. Consider that the term 'gender' is itself an amalgam of several conceptual and experiential components:

1. Subjective Gender Identity – how 'I' *feel*, who I believe myself to be – man, woman, other – my sense of femininity/masculinity, but also, my sexual orientation
2. Gender Attribution – can be both subjective and objective. 'I' can name my gender, label it as 'man' or 'woman,' and likewise, others can identify me as belonging to this or that gender category.
3. Gender Roles – the actions one performs that align with a particular gender and the "cues" or signs that are used to determine this attribution

This list, adapted from Kate Bornstein's *Gender Outlaw* (1995),[37] suggests that when a person is 'gendered' they are engaging in a complex and dynamic system of phenomenological, social, and symbolic rituals. Each of the three components is dependent on the others – for example, one cannot act in a particular gender role if one does not also have a sense of what that gender is, how it feels to be it, etc. – and yet, each can be teased apart from the others, as one might feel as though they are feminine, but perform as masculine and therefore be attributed as such. Likewise, one's performance is not always 'good enough' and so I might attempt to be a woman because I feel like one, but I might still be attributed by others the label 'man.' Perhaps most complex among the list is the third item, gender roles. As Bornstein points out, performing the role of a gender involves at least these cues: *physical, biological, behavioral, textual, mythic, power dynamic, and sexual orientation.* There are likely more to add and ways to further refine these, but it suffices to simply note that acting *as a man*, for instance, is more than simply having a penis (although this is part of it) – it involves one's entire body looking like a man, dressing and behaving like a man, which includes having sex the way 'men' do (whatever that means), possessing the correct documents that prove one's manhood, engaging in and with mythologies of manhood (for example, the myth that all men are sex-crazed or that they can only focus on one thing at a time), and occupying the specific

[37] 26-28.

nodes on the power grid that signal manhood (traditionally, the dominant nodes). It is worth reiterating, since the concept has retreated into the background during this discussion, that 'sex' – the term I have so far used to denote one's bodily and biological markings as either 'male' or 'female' – under this performative framework, becomes just another way to imitate gender. Hence, having particular genitalia is just one sign among many – indeed only one *physical/biological* sign among many – and to be sure, one's anatomy can easily narrate a gender that is in conflict with what one's social status or sexual orientation signal..

Nevertheless, how these various cues come to all triangulate upon the same gender or conversely, how they might conflict with one another, only highlights their instability as strict referents. It is not inherently contained within the concept of possessing an XX chromosome that one will be a heterosexual, female, feminine, mother, who is intrinsically passive So, if someone attributes the wrong gender to me because they notice that I like to have sex with transsexual women, this misidentification results from my failing to meet certain established norms of behavior on the one hand, but it also highlights the arbitrary nature of the connections drawn between and among the various categories pertaining to gender performance. To cite the rest of Butler's quote from above, *"In imitating gender, drag implicitly reveals the imitative structure of gender itself – and its contingency."* Drag makes visible not just the performative nature of gender, but also the fact that what it imitates, the 'original' that it seeks to copy, is a fiction. What it means to be a gender – what 'man,' 'woman,' 'other' and the like denote – are matters of historical, social, and political constructions, and hence these terms don't refer to stable, dichotomous categories. . For Butler, drag exposes the heteronormative

myth that ‘sex’ and ‘gender’ have literal referents. The ‘figure’ of transgender therefore serves to subvert the supposed naturalness of gender. What gender is thought to be grounded in – what Butler (1992) later refers to as the “heterosexual matrix,” is made possible only by the arbitrary positing of the binary systems of male-female, feminine-masculine, and heterosexual-homosexual. By imitating gender and hence, exposing the imitative nature of gender itself, drag therefore exposes these binaries for what they really are: fluid, figurative, and eminently transgressable.

Despite QT’s rendering of drag, one might protest that transgender actually *reinstantiates* the dominant heterosexual matrix. By seeking to become the opposite sex or to perform as the ‘other’ gender, one might be led to identify transgendered identity as supportive of the two-sex/two-gender model. As Shepherdson (2006) points out, this view is set up in contrast with the ‘deliterlization’ view for which Butler is most often credited – in other words, the view that obscures what the concept of body’ refers to. Seen in this way, drag would simply bolster the already given binaries by implicitly endorsing the notion that one can only cross from gender X to gender Y or from sexual orientation X to sexual orientation Y. Unlike Butler, who argues that the figure of transgender serves to undermine the notion that what gender amounts to is a two-part system, there are feminist theorists and even queer theorists who view the use of trans-identity as actually reinforcing the binary system (cf. Raymond, 1979/2006; Hausman, 2006); but the majority of Queer Theory tends towards seeing the figure of trans as elucidating the ease with which the signifiers, ‘gender’ and ‘sex,’ can be detached from what they signify, which is whatever in the world the terms ‘woman,’ ‘man,’ ‘feminine,’

‘masculine,’ and so forth, are supposed to pick out (Prosser, 1998, 27, 64; Shepherdson, 2006, 98).

Nevertheless, in the larger culture, these categories – in particular, the male-female dichotomy – are taken as ‘given,’ as natural, and as necessary. The process by which ‘sex’ is brought forth as a literal referent is, as Butler (1990) dubs it in *Bodies that Matter: On the Discursive Limits of Sex* (1992), “citation.” ‘Sex’ is created through our citing it – by its repeated use in language, for one, but in all other modes that citation might take, such as recognizing and being recognized *as* this or that sex, and so forth – and our continual compulsion to *recite* it. Likewise, gender and sexual orientation achieve their statuses as ‘real’ by the repetition and reproduction of the norms thought to ground them. Citationality is not exactly the same thing as performativity, although my reading of Butler’s use of the two terms is that the former is one mode of the latter. Insofar as she immediately references speech-act theory[38] in the introduction of *Bodies that Matter,* as well as her intentions to adapt and adopt parts of Derrida’s reading of it, citation can be seen as a new way of conceiving performance. Indeed, as Austin (1962) originally conceived it, we often ‘do things’ with words – that is, speech acts can be *performative*. In pronouncing a couple man and wife, for example, the illocutionary act is also the performance of the ritual of marriage. Likewise, the statements, *it’s a boy* or *it’s a girl*, when uttered by a physician in reference to a newborn or a developing fetus, serve to “cite” sex, thereby, ironically but quite fittingly, *reproducing* the binary categorization of male and female in order to call forth a subject to which one of these labels can be attached. And every time I engage in citing – by clicking a box on a form that reads ‘F,’

[38] Austin, J.L., 1962.

by behaving *as* a woman or being attributed by others as such – the binary is reiterated. reinforced. Thus, for Butler, citationality shows that while drag might undermine the binary, for the most part, our daily routines, behaviors, speech acts, and other forms of citing gender actually serve to make it appear as thought that which we are citing is indeed necessary, stable, and given.

As we saw in Chapter 4, Merleau-Ponty (1962) viewed embodiment in a similar fashion. While never strictly necessary, 'having two hands' shows up as an essential defining feature of the body through the repeated actions that bodies engage in which involve two hands. This includes of course, the way objects are produced and reproduced as well; indeed, the world of objects is continually made for people with two hands and as such, we come to think of this as a necessary element of embodiment. Similarly, having a sex is viewed as natural and necessary because it is repeatedly cited, performed, and enforced. In particular, the enforcement aspect is important to Butler, as she locates these discursive 'recitations' as emerging from the powerful heterosexual matrix. Much like Foucault (1975, 1980, 2007) she argues that power relations congealed within this matrix produce the illusion that it is logically impossible to be unsexed. Intersexed narratives, such as *Herculine Barbin*, along with the medico-political narratives regarding surgical practices on intersexed infants continually recite the necessity of sexual embodiment (cf. Fausto-Sterling, 1999; Hird, 2004). As Dreger (2004) claims, "The way intersexuals are treated today has much of the same effect intended by the conceptual and practical treatment of the last century: to keep two clear sexes and to retain the notion that heterosexuality is normal and homosexuality is not" (197). Thus, in a mutually interdependent and reinforcing fashion, gender is also cited as necessarily binary, so that

contrary to Beauvoir's intuition, one really must be born a woman, or a man, and according to heteronormative standards, this will mean either being straight (normal) or gay (abnormal).

I want to now turn back to transgender, and consider specifically the DSM and the Standards of Care (SOC) which regulate sexual reassignment surgery for those transgendered persons who seek it. My aim in doing so is to examine the ways in which QT, in particular Butler's account, is 1) critical of the DSM and the SOC and 2) utilizes the figure of the transsexual as it is construed by such medicalized practices to draw important conclusions about gender in general. Psychiatrists, or "gatekeepers," as they are often called in the QT and TGS literature, quite literally evaluate the performance of surgical candidates based on a manual whose "criteria and the version of transsexuality that it posits produce and reify a fiction of a normal, healthy gender that works as a regulatory measure for the gender expression of all people" (Spade, 2006, 329). The SOC insist that a trans person passes as the desired gender well before the surgery – they must live as the "opposite sex," take hormones, and effectively "prove" that they are a suitable member of this new group (cf. Hale, 2007; Loeb, 2008). But by successfully performing the desired gender, as Spade notes, what counts as normal gender expression for all persons is recited. Not only do the practices surrounding and leading up to sexual reassignment surgery help to reinforce the binaries of sexual difference, but they highlight the inconsistency with which the heterosexual matrix views gender itself. Intersexed narratives provide a nice point of comparison. The *soma* at birth – and in particular, the external genital morphology – is taken to be the *sin qua non* of what Bornstein (1995) refers to as "Gender Attribution," or that first act of naming/citing a

person as this or that gender, and yet, as we have seen this is just one among a wide variety of ways in which gender can be performed and expressed. When it comes to proving that you are suffering from GID, or if you are simply trying to demonstrate that you are the gender you 'feel' to be on the 'inside,' behavioral cues – i.e. performances that go beyond the physical body – are privileged.

In her memoir, Bornstein recounts that no one ever told her "what it feels like to be woman," and that all she could ever get clear on was that she was not a man. Based on the above discussion and QT's subversion of gender via the figure of the transsexual, it would seem that this is because there is no satisfactory definition. By telling a trans person how a woman acts, this is only one element of *being* a woman and it turns out that all attempts to define the concept fall short in providing a comprehensive picture of 'what womanhood feels like.' I might try to define what it feels like to be a woman by referring to how I dress, but then in order to understand why the way I dress expresses my feeling of womanhood, I must refer to some other thing, like, say, acting like a woman. Nevertheless, acting 'like a woman' is still a step removed from explaining what it is that unites all these things under the category 'feels like womanhood' and as such, the cycle continues. In the end, in order to answer the question, *what does it feel like to be a woman,* the answer will involve some vague description of *womanhood* that fails to capture the essence – if there is such a thing – of the complex phenomenology behind 'being a woman.' Likewise, 'the sexed body,' in the wake of QT cannot be sustained as a concept that refers to an essential category, nor one that is independent of social construction, medicalization, or science, since the sexing of bodies is itself a performance which seeks to reproduce a binary that already has been shown to be unstable.

While there is much to offer here in terms of QT's contribution to deconstructing the sexed and gendered body and how the transgendered person dramatizes the performative nature of both, I don't think that we ought to adopt the equation, one suggested by Whittle (2006), e.g. that all transgendered persons are queer. Nor must it always be the case that transgender is subversive. For one, not all transsexuals and transgendered persons have subversion 'in mind' – the problematization of gender is often a theoretical addendum to the lived experiences of individual trans-persons, a result of what Spade (2006) refers to as autobiographical "picnicking." Secondly, not all queer theorists exonerate the figure of the transsexual as a paradigm for subversion. Lesbian Feminists (cf. Raymond, 2006), for example, are often critical of medical procedures they see as only buttressing the patriarchy. Indeed, weaving QT together with TGS, or weaving either of these two branches together with feminism more generally can turn out to be problematic, given the border wars and boundary politics often present even in those frameworks which seek to dismantle such exclusionary discourse. Prosser's (1998) concern over seeking to imbricate QT with TGS stems from the notion that the body becomes so inessential that it features only as a "costume" among all the other adornments – clothing, behavior, sexuality, etc – that one might choose to express their gender. Of trans experience, Prosser asks, "for if the body were but a costume, consider: why the life quest to alter its contours?" (67).

There are several responses one could give to this question off the cuff, but none seems sufficient. A quick rejoinder is to assume that the inability to sustain the body as a literal referent, which is the logical conclusion to Butler's account, is an undesirable consequent – in other words, it is not the case that the body is a mere costume and hence,

transgendered experience highlights this fault with QT. But then again, transgender and transsex do remind us that the *sexed body* is highly constructed, malleable, and certainly not necessarily fixed, nor does it always align to the gendered self. Thus, another response to Prosser's question might be to suggest that the body, albeit not *just* costume – we are after all, always stuck in *some* body and as such, cannot entirely disrobe from this particular adornment – is still a mode of presentation that, much like clothing, can be altered to suit one's felt identity. In fact the body, under this read, would be the *ultimate costume*, the one we must always tote around with us, and in which we must always be seen. Nevertheless, like Prosser, I think unproblematically adopting the body-as-costume framework of QT can and does conceal much of the lived experiences of trans-persons. Furthermore, if we take seriously, as I suggested we do in Chapter 2, the notion that the body is one among several tools for constituting cognition, and then extend this idea to the way in which we utilize this body-tool to fashion ourselves as this or that gender, then it seems we face a dilemma. Either *who I really am* must somehow be independent of all the transitory and unnecessary modes of embodiment I can take up and hence, my gender is really not grounded in my body, or, we must do away with the concept of a 'true self' altogether. Neither of these is palatable, as the former denies the importance of the body and embodiment in shaping who and what we think ourselves to be, while the latter would dismiss any claims – from trans persons or otherwise – to a self that is identifiable regardless of the body and its morphology. In order to explore these possible interpretations, and to hopefully resolve the dilemma, it will not be enough however to simply adjudicate between QT and TGS in order to decide the best 'theory of the body.' Again, doing so always overlooks the particular phenomenology of lived experience. An

account of subjective experience, as I have argued in this and the chapters preceding, is crucial to any 'theory of cognition' and transgendered experience highlights just this necessity of taking seriously the nature of experience. As it turns out, Prosser's account of the role of *body image* in forming a transgendered identity, as well as any gendered identity, will serve not only to allow just such a phenomenological approach, but will also resemble in important ways our discussion of body image and body schema from Chapter 4. What this discussion will add, however, will be a richer understanding of embodiment generally – one that simultaneously queers 'the body' while reclaiming it as a literal and material constituent in the formation of gender identity.

5.4 Imagining the Transgendered Body

Ironically, to approach the way 'the body' shows up in subjective trans-experience, I want to begin by examining how the medicalization of the phenomenon is portrayed by TGS. As it turns out, there is a sharp contrast between the way the experiences of trans persons are recounted individually and the way they are discussed within the framework of medico-scientific discourse. Because the dominant voice in assessing and assigning treatment or surgery is this medico-scientific discourse, the transgender theorists often claim that the individual concerns, desires, and narratives of the patients are overshadowed by a the 'master narrative' of science, which seeks a more objective and general account. One underlying assumption, according to transgender theorists (cf. Stryker, 2006; Spade, 2003; Shepherdson, 2006) that is made by medical science is that transsexuals seek to become the "opposite sex" and that this binary framework of choice between the sexes is real; indeed, such 'naturalness' of sexual difference is only made stronger by the presence of transsexualism. While the SOC

refrains from making any claims as to whether the existence of transsexualism actually bolsters the idea that there are only two sexes from which to choose, it is the case that an assumption of 'opposing' sexes/genders is at play in diagnosis of GID. For example, the first criterion for inclusion in the category 'transsexual,' according to the current SOC[39] is:

> 1. The desire to live and be accepted as a member of the opposite sex, usually accompanied by the wish to make his or her body as congruent as possible with the preferred sex through surgery and hormone treatment [2001; 5].

Hence, as Shepherdson (2006) suggests, medical science treats transsexualism as a psychological disorder with an anatomical solution and she further claims that "the surgeon works with the conception of anatomy that presupposes a natural version of sexual identity, thereby foreclosing the question of sexual difference" (95). Perhaps Shepherdson's claims are a bit overly dramatic; indeed, it would be difficult to support the claim that all surgeons operate with the same conception of sexual difference. The surgeons themselves might simply be carrying out an operation for the sake of fulfilling their role as a medical practitioner. Furthermore, the SOC do recognize that transsexualism involves more than mere anatomy alteration, and sometimes anatomical change is not requested or needed. In fact, a large part of the "Real-Life Test" to determine one's eligibility as the opposite gender is what is known as a "Real-Life Experience" – the attempted assimilation into the desired gender in one's work, school, leisure activities, name change, and so forth (16-17). What Shepherdson is right to point out however, is that the question of sexual 'opposition' – the idea that there are two and only two sexes and/or genders and that there are decidedly specific behaviors, dress, and

[39] The Harry Benjamin International Gender Dysphoria Association's Standards Of Care For Gender Identity Disorders, Sixth Version, February, 2001

activities that belong to each – is not even a question raised by the SOC, or the DSM for that matter. It is presupposed that if one feels uncomfortable in their gender roles or anatomical sex then there are two paths available. First, one must engage in psychotherapy followed by a "Real Life Experience" or test – which involves hormone therapy and living as the other gender – to see if surgical transition to the "opposite" sex is required. Then, one either makes the transition or it is recommended that therapy continues in an effort to achieve comfort with one's assigned gender. There is not an option to live 'ambiguously' or as a gender-queer, at least not as it is written in the SOC or the DSM. In this way therefore, medical science treats reassignment surgery and hormonal therapy as helping to create and sustain sexual difference – in other words, as helping to maintain a 'healthy' gender binarism.

Another interpretation worth exploring regarding the manner by which sexual reassignment surgery is prescribed is that to some extent, transsexualism – the type of transsexualism in which surgery is sought – is a modern phenomenon, brought about by the advent of the technological means to enact such body-modification. Alongside discoveries of neural plasticity, improved organ and tissue transplanting, and advances in surgical techniques generally, the body becomes less and less static, more malleable, and, one might argue, more like a costume that one can readily change. In order for a genuine MTF or FTM post-op transsexual to exist, certain technological innovations had to arise on the one hand, but also, the ideology of the body as a relatively stable entity – in particular, that biological sex was a permanent endowment – likewise radically altered with more and more ways in which technology could alter the flesh. In a similar vein, Shepherdson (2006), e.g. sees the history of science, in particular, the history of

technology, perpetuating the idea that the body is "present-at-hand, a material substratum inhabited by a 'spiritual substance,' an 'animated subjectivity'" (95). I am hesitant to view technological history as a trajectory towards such a robust ghost-in-the-machine metaphysics of self, although there is something compelling about the idea that the more manipulable the body becomes – the more materially and objectively real it is made by our abilities to "fashion" it like any other tool – the less and less essential it becomes. In other words, what is the body but a costume, if it is constantly alterable and never truly who 'we' are? The body, like any other tool, is something to be manipulated and utilized in order to *perform* certain functions, and in the case of gender, it is a mechanism for acting out various gender roles. In order to 'properly' be a woman for instance, one must, according to medical science, have a vagina, and as such, an anatomical male who identifies as a woman, will qualify for surgery that can transfigure those bodily parts – the 'tools' of sex as it were – such that they are appropriate to the "other" sex. But this leads us back to the earlier problem of sexual reassignment qualification: if an essential part of enacting the desired gender/sex is possessing the correct anatomy, then how can one go about proving that he or she really is the "opposite" of what is narrated by the body?

To be sure, according to transgendered persons themselves, but also, as the SOC in determining surgical candidacy attest, a particular kind of body is not sufficient for realizing gender. It would seem, nonetheless, that it is not necessary either, because, as the SOC dictate, at one can and in fact must prove his or her gender without the supposedly requisite body. In other words, there is a presupposition when someone is diagnosed as having GID severe enough to warrant sexual reassignment surgery that the

proper idea of *embodiment* is already possessed and that this idea transcends the materiality of the physical body. Nevertheless, for many transsexuals, this material body is precisely what is precluding full realization of the ideal embodiment. If we contrast transsexuals – and here, I mean transsexuals who are in fact dissatisfied with some or all of their anatomical sex - with transvestites, it becomes all the more clear that 'the body' is quite literally a site of identity crisis for the former, but not for the latter. While transvestites can simply 'vest' themselves in another gender by cross-dressing, performing, and so forth, and this suffices for the role-shifting they are seeking to attain, transsexuals who opt for surgery are cannot simply behave as the desired sex/gender and be satisfied. And yet, this *behaving as* is precisely what is required of them in order to 'prove' that they really do identify with the opposite sex/gender. It seems that for many transsexuals, the body, although not sufficient for enacting the desired gender, is at the same time a necessary component of it; however, this missing piece, prior to surgery, prevents the full realization of that desire. Shepherdson comes to conclude regarding this differentiation between transvestites and transsexuals as such:

> Perhaps we could say that cross-dressing is the act of a subject who plays with what we call "gender roles" while the transsexual is someone whose capacity to act (in the sense not only of "performance," but of speech-act theory) waits upon (an idea of) embodiment [2006; 101].

Shepherdson goes on to say that distinguishing between "embodiment" and "gender role" is no easy task, and is certainly not reducible to biological differentiation. Perhaps the embodiment of which the transvestite has an idea just is the gender role they enact and because their idea of gender does not need to be constituted by specific anatomical material, this idea serves its function well enough. I don't like this answer, however, as it

seems to overlook the quite obvious fact that transsexuals must have *some* idea of embodiment. How else would they 'know' that they are trapped in the wrong body? To add to Shepherdson's account, therefore, I want to argue that transsexuals do have an idea of embodiment, a *body image* that for them does not correspond to the gender roles that their actual body is expected to perform (or that they wish it to perform). This idea of embodiment, since it does not correspond to any material reality (at least not pre-op) is, unlike a transvestite's image, incomplete and is therefore not felt as 'matching.' In fact, looking at the way many transsexuals describe their experiences, as well as the ways in which transsexual theorists such as Prosser and Shepherdson characterize themselves and others, I will further argue that there are actually two separate body images formed, one, the ideal embodiment – the desired gender – is a projected image of wholeness, while the other, the body image which the actual body subtends, is fractured, incomplete, and above all, not experienced in an 'at-home-with' manner.. By examining how these transsexual body images are formed and transformed, I will then suggest a way to read transsexual narratives that avoids the pitfalls of QT and the radical anti-essentialism pertaining the body that results from the body-as-costume model.

Given the accounts of many transsexuals, it is not surprising that their phenomenological descriptions of embodiment are appropriated by Queer Theorists as signaling that the body, like a suit or a uniform, is interchangeable and thus no more constitutive of one's identity than any other external prop or aid. Consider these testimonies:[40]

[40] From Prosser (1998).

> "I might throw off the hide of my body and reveal myself pristine within – forever emancipated into that state of simplicity." – Jan Morris
>
> "I think how nice it would be to unzip my body from forehead to navel and go on vacation. But there is no escaping it, I'd have to pack myself along." – Leslie Feinberg
>
> "Because my body was becoming more and more alien to me as I developed, there was an urge to rip off my own skin, for lack of a better description. The frustration and anxiety were tearing me to bits." – Raymond Thompson
>
> "I used to look at my body and think it was a bit like a diver's suit, it didn't feel like me inside" – Anonymous

It is tempting to cast GID as an experience that reveals that the body is not sustainable as any real indicator for sexed or gendered identity. As the above narratives suggest, the body seems to have little to do with one's 'true sex/gender'– it is even described as a diver's suit or as something one can unzip and step out of – but to make the leap that the experience of *Unheimlichkeit* felt by persons with GID demonstrates that all of embodiment is a performance and that the body is one among many props is, I want to argue, too hasty. Prosser (1998) suggests that "transsexuals continue to deploy the image of wrong embodiment because being trapped in the wrong body is simply what transsexuality *feels* like" (69, emphasis mine). Given these narratives, coupled with my own ignorance of the 'what it's like' element of transsexuality, I can accept that for many trans persons, it must *feel* as though one is trapped in the wrong skin and if given the opportunity, they would jump out of it. However, the experience of dissociation between self and skin does not imply that the concepts of *body* and *embodiment* are not literal indicators of one's identity. Indeed, Feinberg (1980) recognizes the true impossibility of her desire – the body is "inescapable" – and Thompson (1995) alludes to the unavailability of a better description for his felt need to tear off his skin. It appears that

the narrators here are quite aware that the immediacy of the experience shows up in ways that are not expressible in language and, moreover, that the body cannot just be sloughed off like a coat. In some sense therefore, QT can be accused of reading into these body-narratives precisely what it has renounced – the 'figure' of the transsexual actually comes to ground the distinction between the physical body itself and the body image(s), which are rarely, if ever, literal 'pictures' of that body. In other words, the dichotomy of figure-ground is itself another engendered categorization, one that is the product of QT's attempt to use transsexuality as a foil for the supposed naturalness of sexual difference. 'The body,' as it is interpreted via this figure/ground distinction, comes to occupy a tenuous position in the formation of sexed and gendered identity – it is both a 'that which I am not,' and yet, a 'that inside which I feel trapped.' But it seems that this is not quite the message conveyed by the narratives; rather than claiming that their experiences highlight the non-essential nature of the body in the their sense of identity, the trans-persons narrating here seem to all have reached the conclusion that the body is both a part of their identity as trans but is also an object, costume-like though it may be, that they wish to alter.

Thompson's story, in particular, is interesting because he describes his true identity as his "inner body" and characterizes his "outer body" as that in which 'he' is trapped. Again, it is enticing to read this as suggesting that 'the body' has no literal referent, but why not read Thompson's narrative in reverse? What if 'embodiment' – the "idea that transsexuals wait upon," as Shepherdson (2006) characterizes it – is the term that does not have a referent? Prosser suggests something similar, as he argues that embodiment for Thompson is "incomplete" and not fully realized, since being a man

cannot be performed adequately without the proper body. This "inner body," is an image of oneself that is comprised of a body that does not even exist. Citing Oliver Sacks' (1984) work on phantom limb patients, Prosser (1998) claims that transsexuals, like those who 're-member' the otherwise non-existent limbs when experiencing phantom pains, are themselves 'phantomizing' a newly configured body, one that goes beyond the material body itself. Although the body phantomized never actually existed, and as such, unlike a phantom limb experienced after amputative surgery, the referent picked out by the transsexual body image has no *past* material reality, "the body of transsexual becoming is born out of a yearning for a perfect past – that is, not memory but nostalgia: the desire for the purified version of what was, not for the return to home per se (nostos) but to the romanticized ideal of home" (84). Based on this interpretation, it makes sense to think of the 'dual-body' characterization Thompson provides as denoting, on the one hand, the material, *the body* itself, or what he calls his "outer body," and the body image, Thompson's *embodiment,* or what he calls his "inner body." It is not that either one of these experiential domains is any more or less literal – both are 'real' – but Thompson's embodiment, an embodiment that is *other-to,* or better, one that *goes beyond* the material body, is whole and complete. It is an ideal of *heimlichkeit*, a body constructed by the imagination that is waiting to be *embodied* by his "inner body," which, until successful transitioning, dissociates from its "outer body." We might say that in the case of extreme bodily dissociation such as GID, there are two conflicting body images – one which corresponds to the 'inner' sense of bodily identity and one which corresponds to the 'outer, ' and hence, visible body. Again, Anzieu's notion of a *skin ego* is helpful here as a metaphor by which to interpret the sense of confinement that is felt by the inner self of a

transsexual who describes the desire to jump out of his or her own skin. The skin serves as a boundary between the inner and the outer body images, but it also helps to form them both.

Further evidence that body image is key to anchoring transsexual embodiment as a future ideal of completion, suggests Prosser (1998), can be gleaned by considering the history of the formation of transsexuality as a concept. Prior to 'the transsexual,' persons who today would be classified as having GID, were called "inverts." In fact, the term inverts in the mid- to late 1800s referred to a much broader variety of 'gender variance' – being homosexual, cross-dressing, hyper-masculinity in females, etc. But the narratives of the inverts who were said to feel as though they needed a "new body" or to change from one sex/gender to the other, Prosser claims, deploy the same body image that we find in transsexual narratives today. In other words, the protention of transsexual embodiment, which we might be tempted to think was made possible by medical technology, actually preceded it. Before there was any real future *body* for which to hold out hope – before technology made possible attaining a new sexed body – transsexual *embodiment* existed, in the form of projected ideas of heimlichkeit. Specifically, the body image correlated with the present body and that correlated with the "inner" body image – which is also projected as a future, *real* body – are in conflict with each other, whether surgery is possible or not.

While I see no problem in claiming that transsexualism is a phenomenon that predates the medico-technological invention of the term, I am concerned here that Prosser might be overlooking and/or underemphasizing the role that 'the technological' plays in the construction of transsexual body images specifically, and in the formation of body

images generally. If technology played no role in forming one's identity as transsexual, or as any other identity, my question is then, *from whence do such images arise?* As I have argued in previous chapters, while both *body schema* and *body image* can alter, it is the latter that is more susceptible to modification from 'outside' – namely, socially constructed norms of embodiment, ideals of beauty, and technological mediation. However, as Prosser casts it, the *body image* seems to be just as fixed as the schema; indeed, he never discusses a body schema and as such, the two are either conflated or body schema is just not a concept he considers. Regardless of this discrepancy, Prosser's use of body image is, I want to argue, a move *too far* back in the direction of essentialism. In other words, while his critique of QT has been fruitful for regaining a sense of *the body* as a real referential component of *embodiment*, the claim that transsexual body image is technologically unmediated runs the risk of sliding back into the dilemma claiming either a strict biological-body-as-gender-identity or a disembodied 'true self,' one that is independent of its body, but that also strangely must anchor itself in *some* body. Neither of these views captures fully the crucial role that technology *does* in fact play in shaping how we imagine ourselves to be *qua* embodied subjects.

I will argue in the next chapter that Prosser's account, along with all of the phenomenology of transsexualism thus far discussed, actually shows that embodiment is always already constituted by technology. To defend this claim, I will need to clarify what I mean by technology, as well as return to some important insights from QT concerning embodiment, namely from thinkers such as Donna Haraway (1988), whose image of the cyborg will provide a framework for better understanding transgendered subjectivity. My claim is that cyborg embodiment is the subtending phenomenology of

all embodiment and that the body images deployed in extreme cases of bodily disownership, such as in that of a transsexual, or any other sense of unheimlichkeit, are not philosophical markers for 'the rest of us,' nor do they simply establish, as Butler (2004) claims, "the limits of what we think *we* know." As it will turn out, the natural/unnatural divide, a myth perpetuated by juxtaposing non-transsexual with transsexual as well as human and machine, is, I will argue, another level of concealment, one which serves to mask the fundamentally hybridized, eminently dissociable, and yet always already technological nature of *all* cognitive subjectivity.

Chapter 6

The Technology of Queered Cognition

"Technologies, as organized systems, produce a range of products, effects, representations, and artefacts, chief among them … what we could call technologies of gender, race, and sexuality" – Terry & Calvert, 1997; 5.

"Cognition and signification, Self and Other, are not opposed to sensibility or affectivity, but rather presuppose it; discourse and figure, meaning and sense, the speakable and the unspeakable are mutually constitutive yet incommensurable. The relation is one of duplicity rather than duality" – Sullivan, 2001; 165.

6.1 Introduction

In this final chapter, I will return to several claims from the previous chapters concerning cognition; in particular, the notion that 'we' are never entirely 'in our heads,' but are instead, a conglomeration of organism + external processes. No image is better suited to expressing the nature of this hybridized human than the cyborg and as such, I will utilize the cyborg as it is evoked both in cognitive science as well as in feminist theory, in order to draw parallels between the two usages and further show how this image actually serves to elucidate embodied subjectivity. While the cyborg is utilized for various purposes by philosophers like Clark (2003) and feminists such as Haraway (1988), I want to focus on a common thread running through both disciplines, namely, the idea that who and what 'we' are is always an organism+artifact coupling. To be sure, this position will require some defending, as well as some clarification as to what precisely is meant by the second half of the always-already hybridized human – i.e. the technology to which the organism is coupled. To this end, I will differentiate between

visible and invisible technologies in order to maintain that complete dissociation from our tools is impossible, as we are often – in fact always, I will argue – in the grips of technology, albeit oftentimes of the invisible or 'transparent' type. In order to begin this process of defining 'the human' as an always already technological being, I will first look to some of the more extreme modes of organism-machine coupling found in the work of surgical artists, Orlan and Stelarc.

Having explicated and defended the claim that human cognition and embodiment is always a hybridization of organism, machine, and/or transparent technology, I will return to the discussion of Transgender (TG) and Intersexed Embodiment (IE) to revisit the overriding phenomenology expressed in these experiences, namely, that of dysphoria or *unheimlichkeit*. When one's actual body is not aligned with one's body image, or when one's projected or desired bodily presence in the world is precluded by the body, the resulting accounts we have seen tend toward describing the experience as being 'trapped' in a 'wrong body,' or having the urgent need to 'jump out of one's skin.' It is this ambiguous bodily-being-towards-the-world that is really the source of *Unheimlichkeit* in GID or any of the other bodily pathologies mentioned thus far. In other words, *embodiment* and not merely 'the body' is often what one does not feel at home with in cases of dissociation or pathology. I will examine various modes of 'embodied unheimlichkeit' and will argue two things in this final chapter: First, we should treat one's sex and/or gender as one mode of embodiment, and more specifically, as argued in Chapter 5, as an embodied practice of *performance*. That I feel like a woman and am labeled as such, is achieved through repeated behaviors that indicate or 'cite' womanhood. Sex and gender are just two examples of the multifarious ways in which

embodiment generally is a means of performing *as* this or that type of subject. One of the key 'tools' utilized in enacting embodied performance is of course, the body itself, although it is not the only one. In fact, the second claim I will defend is that we ought to think of sex and gender and other modes of embodied subjectivity themselves as tools. Indeed, they can be used to enact yet further performances, all of which, I argue, are part of the larger phenomenon we call 'cognition.' Based on this notion that we utilize a host of different 'tools' at different times – bodies, sexual identity, gender performance, and so forth – in order to cognize, I will further suggest that we begin to see cognition generally, as Clark (2003) does, as "a shifting coalition of tools." In this way therefore, what is actually dissociated in cases of GID or other 'bodily dysphorias' is a person's relationship to the tools they are using. Again, our notion of 'tool use' will need to be broadened and refined, so as to include among its exemplars, dress, language, and other sociotechnical systems. The payoff to all of this is that by treating the phenomena of dissociation experienced by persons with GID or IE as a mode of embodiment dysphoria, or more specifically, as cases in which there is a breakdown between person and world, a crucial possibility of human embodiment generally is made more explicit. This possibility I claim, is the always present possibility of breakdown, wherein I feel dissociated from parts of my body, the tools I am using, or the larger social context in which I find myself. My account will be overtly Heideggerian for the most part, insofar as the potentiality for breakdown – be it with tangible tools, such as hammers, or intangible tools such as language – can be described as a feature of my interfacing with the world. What I will add to Heidegger's account will of course be the notion that the artifacts of sex and gender are 'sociotechnical systems of use' from which we can and often do dissociate. In

fact, as I will claim more strongly, our embodied subjectivity is always caught up in attempting to 'be at home with' one or more of these 'systems' and hence, sexed and gendered identity, much like language, are 'tools' from which we very rarely, if ever, entirely decouple.

6.2 (Ex)Change Artists and Bodily Queering

The year is 1993, and New York's Sandra Gering Gallery is witness to an exhibit unlike any other it has hosted. The French surgical artist, Orlan, has reconstructed her face in order to resemble five separate computer images of famously beautiful women: *Mona Lisa, Diana,* Botticelli's *Venus,* Moreau's *Europa*, and Gérard's *Psyche.* She considered her surgeries to be part of the art and therefore also part of the exhibit. Since the early 1970s, Orlan has experimented with her body as a means to weave beauty together with the abject, and her work has thus come to be known as 'carnal art' (cf. O'Bryan, 2005). Influenced by the bodily transformations in the Mayan and Olméques cultures, in 1998, she worked with Pierre Zoville to create several images and video installations based on her own surgically modified face and pictures with headdresses, facial implants, and piercings. Below are the images from this project:

In 1998 Orlan collaborated with Pierre Zoville for an exhibition in the museum Carillo Gil in Mexico. Together they made new pictures and manipulated them with a computer and interactive video installations inspired by the body transformations in Maya and Olméques culture.

Figure 6.1: The Many Faces of Orlan

Jay Prosser (1998) had the opportunity to ask Orlan questions, in particular about the ways in which her identity was maintained or lost throughout all the transformations. Because, as Orlan claims, "skin is a mask of strangeness,"[41] one that she can peel off, restructure and resurface, it is a means of identification, but only loosely. It is an eminently penetrable surface, one that, as Moos (1996) describes it, "is Orlan's metaphor for the thin, osmotic surface of being, its existence as interface, intercourse between inside (flow) and outside (appearances)" (70). Recall that thinkers like Merleau-Ponty and Anzieu have argued that the skin is an 'interface' between world and self, between external objecthood and internal, conscious subjectivity. Given that Orlan's art construes the skin as so eminently alterable, extendable, retractable, and even "strange" as she calls it (implying an otherness of the flesh), the term 'interface' itself becomes tricky to understand, as that boundary between self and world so often shifts. This implies the continual transitioning of what we mean when we identify *as* this or that, juxtaposing ourselves against the other.

In further responding to Prosser's question about identity, Orlan went on to say that she felt like "une transsexuelle femme-á-femme."[42] Prosser notes that on the one hand, Orlan's use of transsexuality plays with the very idea of transitioning itself – she (ex)changed her identity for another one – but it was a female-to-female operation. Orlan's embracing transsexuality, according to Prosser, "made of surgery a spectacle" and "brought to the surface of a commonplace assumption about transsexuality: that is, that transsexuality is precisely a phenomenon of the body's surface" (62). However, sexual identity generally cannot be relegated to the surface of the skin, as we do not

[41] Cited in Prosser (1998) from Louis Gray (1996), "Me, My Surgeon, and My Art," *The Guardian 2*, 8.
[42] Personal communication cited by Prosser (1998), 61.

locate sex any one place on that surface (i.e. it is not just genital), nor do we find sexual identity by looking at all of that surface; indeed, much of sexual identification has to do with internal processes and chemicals. So, one might interpret Orlan's rendering of her body art as "transsexuelle" – as problematizing the very idea that we can ever look exclusively to *the body* and hope to ascertain true identity, sexual or otherwise. Regardless of how we want to read Orlan's performances – as suggesting identity is beyond the skin, internal to it, or is altogether no*where* – the point remains that her art queers the boundaries between artist and artwork. This line between the artist as she is seen through her artwork – i.e. an *externally* constituted subjectivity – and the artist's *internal* or experienced subjectivity is thereby also blurred in body-art such as Orlan's. As she describes it, she changes 'from woman to woman' with each modification and surgery, both on the 'inside' and 'out.'

Another artist who plays with bodily boundaries in a similar manner, although his 'materials' differ quite drastically, is the Australian techno-artist, Stelarc. Probably best known for his "Third Hand Project" (1976-81), wherein a robotic arm is attached to Stelarc's body such that contractions in his stomach muscles send messages to the arm to control and move it about, Stelarc has since continued to expand and invade the flesh. In an interview with Paolo Atzori and Kirk Woolford (1995), he claims "the body is an impersonal, evolutionary, objective structure…the desire to locate the self simply within a particular biological body is no longer meaningful. What it means to be human is being constantly redefined." Like Orlan, Stelarc recognizes that the skin is eminently malleable. Perhaps taking this interpretation a bit further, he maintains that the skin is a means of identifying ourselves and others, but claims that it is not the constancy of the flesh that

makes us who we are so much as its transformative potential. It is through the alterations of the flesh and hence, for Stelarc, the subsequent "new body architecture" that we come to know our true identities *qua* human. His more recent project, "Ear on Arm" (2007-present) highlights the way in which a seemingly rigid structure – the auditory system – turns out to be much more malleable and transitory than we might have thought. By using skin extenders, his own living cells, microphones, and transmitters, he has implanted an ear on his left arm that he hope eventually will be able to send the sounds it 'hears' not just to Stelarc himself, but to others as well. He has designed it such that the transmitters would be in his mouth, allowing for only he to hear what his third ear hears, unless he opens his mouth, in which case, the sound will come out of his mouth and be audible for nearby persons. Eventually however, he hopes to have it connected wirelessly to the internet so he can transmit what he is hearing through his third ear in Sydney, can be heard by a friend online who is physically in Prague.

Interestingly, MIT's Touch Lab has begun developing similar means of incorporating audio-visual-communication devices into the body. Their "Sixth Sense"[43] project would allow, for example, the use of one's hand as the dial pad of a cell phone or the observation of 'meta-data' immediately upon viewing an object, text, or even another person. All of this would be possible because of a mini-projector hung around the neck, wirelessly transmitting to a cell phone (which could always stay in the pocket) with internet access, and a blue-tooth enabled ear set. Upon scanning an image of, say, an approaching friend, the face-recognition technology coupled with a linked database of information could conceivably project onto the surface of said companion important

[43] P. Maes, P. Mistry. Unveiling the "Sixth Sense," game-changing wearable tech. TED 2009. Long Beach, CA, USA 2009

information such as his/her name, birthday, even a link to his/her facebook profile. These developments, along with Stelarc and Orlan's artwork, lend credence to the idea that detaching artist from art, human from machine, and self from world, is not a matter of tracing the surface of the skin.

Figure 6.2: Stelarc's Third Ear

Figure 6.3:MIT's "Sixth Sense"

The underlying philosophical importance to all of this, claims Stelarc, is that it reveals the importance of the body in understanding human cognition on the one hand, while simultaneously showing that 'this body' to which we attach so much importance in marking us as individual humans, is not merely a conglomeration of flesh, bones, and blood. Rather, we are biotechnological hybrids and the idea that 'we' have any identity independent of our tools is a misunderstanding. "Technology has always been coupled with the evolutionary development of the body. Technology is what defines being human. It's not an antagonistic alien sort of object, it's part of our human nature. It constructs our human nature" (Interview with Atzori and Woolford, 1995). This view is reminiscent of what was discussed in Chapter 2, namely Clark's (2003) idea that if there is a human

nature at all, it consists in that nature being eminently changeable, a "shifting coalition of tools," as he terms it.

These extreme versions of human+tool+art intertwining seen in the work of Stelarc and Orlan serve to illustrate several important points about embodiment, which in turn sheds light on ways in which the terms 'body' and 'cognition' ought to be reworked. First, it should be noted that I have purposely chosen to compare 'art' and 'technology,' as they are themselves not so easily distinguished and often become intermingled in each other. Etymologically, they have similar base meanings – a skill, technique, or craft knowledge, much like the Greek word, *technē* – and in terms of the products created by artistic or technological know-how, it is often difficult to determine whether the objects ought to be properly considered 'artwork' or 'tools.' In the case of some artwork and technology, it is difficult to tease apart the tool or instrument itself from the skillful use of it. Architecture, for example, if done well, achieves a seamless blending of function and beauty, such that the skilled use of tools, design, building and finished 'product' are just as much artwork as they are technology. In the case of dance, it is even more difficult to separate tool use from the tool itself – namely 'the body' is both the tool and the user, the product and the process. Similarly, in *The Question Concerning Technology* (1977), Heidegger claims that the "poetic revealing" of truth – *poiēsis* – that occurs in and among the fine arts can also shed light on the essence of technology. The two are united, he claims in the ancient Greek conception of *technē* (339) and yet they remain conceptually distinct:

> Because the essence of technology is nothing technological, essential reflection upon technology and decisive confrontation with it must happen in a realm that is, on the one hand, akin to the essence of technology and, on the other, fundamentally different from it. Such a realm is art [1977; 340].

Much like Stelarc's work forces us to consider that 'art' is not just about the final product – in other words, the 'essence of art is not any one piece of artwork – Heidegger points out that the nature of technology is not to be found in something *technological*. To be sure, tangible tools such as hammers and computers count as part of what we mean by the term 'technology,' but they are only one component of a much larger conceptual framework. As Stephen Kline (1985) concurs, technology is not limited to this "hardware" version of its definition. There are also at least these three alternative conceptions, in which technology might be treated as:

> *A Sociotechnical System of Manufacture:* wherein technology is not limited to the tools it produces, but includes the entire system of production itself – the tools needed to make the tools, so to speak, the machinery, the persons involved in production, and so forth.
>
> *A Knowledge or Know-How:* similar to the ancient Greek conception of *technē*, here, technology refers to the information and skills necessary to produce tools or artifacts.
>
> *A Sociotechnical System of Use:* refers to the "combinations of hardware and people (and usually other elements) to accomplish tasks that humans cannot perform unaided by such systems – to extend human capacities" [1985; 215-18].

To illustrate this last version, Kline cites military weapons as an example of hardware that is necessarily caught up in a system of use – for the purpose of inflicting harm upon the enemy, which is undoubtedly enhanced by weaponry – a system that is itself only understood in the larger context of conflict among persons and nations. In this way, the 'hardware' interpretation of technology is only one version of what we mean when we say 'military technology.' To be sure, a weapon qua single object is not identical to the larger system of use in which it plays a part, but the weapon has no meaning as a piece of technology without that larger context. Thus, the production of military weapons goes far

beyond the individual guns, grenades, and tanks that are manufactured. Likewise, art is not just about the product, but also the process and of course, the processor (artist). Examples that help illustrate this fact can be found easily in the performing arts – dance, theater, etc, in which the 'art' really consists in its *being done* – but even within the realm of fine arts, artists such as Pollock have argued that painting is just as much process as product – indeed *painting* is both a noun and a verb. What both art and technology share therefore is an ambiguity in meaning, between thing and process, creator and created. In other words, art and technology are *hybrids*, mixes of tools, tool-users, actions, objects, and information systems.

Another point behind these examples that is both crucial to my overarching argument and more contentious: the fine line between art and technology, which is also a blurring of process and object, serves as a reminder that 'we' are just as much a mixture of process and object, partial identities, and boundary transgressions. By this I mean that when we closely examine the melding of art and technology, particularly evident in Stelarc's work, it becomes all the more difficult to pin down *where* and *who* 'we' are without referencing and relying upon the tools otherwise thought to be other-to our 'essential' identity. Simply pointing to the biological body will not do; besides Orlan and Stelarc, we have encountered numerous examples about how *embodiment* goes beyond *the body*, and because embodiment is a necessary constituent of cognitive subjectivity, pointing to *myself* is always going to supersede *my body*. This is also evident if we consider again the way embodiment often involves forming a *body image*, a picture of *the body* in one sense, but a picture of the body *as a woman*, *as able-bodied*, or *as not-at-home with itself*. These images we form of who and what we are as embodied beings, I

want to claim, necessarily invoke technological mediation. In other words, embodiment is always already technological, as Stelarc and Clark claim. However, there are reasons to disagree with this version of embodiment as always already coupled to technology. For instance, if we treat the body too much like any other tool, we might overlook the very important sense in which the body, *unlike* other tools, functions both as tool and as user. I will address some of these concerns and in so doing, will refine further the conception of 'technology' in order to show that teasing 'it' apart from 'us' is difficult, if not impossible.

6.3 Hard and Soft, Opaque and Transparent: Technology Above and Below the Radar

It is not only painful to undergo surgical modification in the ways Stelarc and Orlan do; it is expensive, time-consuming, and perhaps, one might even argue, a waste of resources. More importantly, to use such extreme body modification practices as exemplars of 'human nature' reeks of a fallacious hasty overgeneralization. Most of 'us' do *not* engage in these practices. Indeed, the very thought of doing so is often repulsive. Orlan's work, for example, is often described as belonging to the realm of abject art. It seems that the only element of human nature revealed by these excessive bodily transfigurations is that we are much more comfortable 'in our own skin' as it were, and rarely, if ever, are so coupled to machinery and artwork.

This is a fair point and one worth addressing. To begin, let's consider body modification in a broader, less extreme context. Take tattooing and piercing for example. A recent Harris poll[44] indicated that as of 2003, 16% of all U.S. adults (≥18 years) have at least one tattoo, while 36% of those aged 25-29 years have at least one. As for piercings,

[44] http://www.vanishingtattoo.com/tattoo_facts.htm

it is estimated that 15% of adults have at least one "body piercing," although strangely, the term "body" here does not include the earlobes. One of the earliest forms of body modification, ear piercing, is so commonplace, it is not even considered in studies of piercing and tattooing of 'the body.'[45] Ear piercings, nonetheless, just like any other body-modification practice, can and do signal status, sexuality, achievement, and willingness to take risk, just as much as any other body art. In a different but related vein, consider plastic surgery. In 2002, there were 6.6 million procedures carried out in the U.S. and the American Society for Plastic Surgeons estimates that by 2015, 17% of all Americans will have sought plastic surgery.[46] It is more difficult than one might think in fact, to find someone who *has not* altered the contours of their flesh with metal, ink or implants. If we include things like earrings, navel rings, hair waxing, and dental procedures such as braces and whitening, it becomes nearly impossible. While the reasons for altering the body are vast and complex, in one way or another, piercing, tattooing, and surgical transformation mark the body as belonging to this or that type, class, culture, race, gender, or group. Modifying the body to fit within a certain limit of acceptable appearance – or modifying it so as to *not to fit* within a particular group, in cases such as dying one's hair so as to cease belonging to a stereotyped group, or tattooing the body to mark oneself as not part of a gang (although, in both cases just mentioned, the body modification, while excluding a person from one group, simultaneously includes them in another) – is the same sort of practice, regardless of the extremes to which it is taken. In other words, if we are talking simply about the attempt to locate oneself in a particular social group or to mark oneself as being this or that kind

[45] http://www.northwestern.edu/newscenter/stories/2006/06/tattoos.html
[46] http://www.livescience.com/health/080624-plastic-surgery.html

of subject, then piercing an infant's ears as a rite of passage into 'girlhood' is only a difference in degree, not kind, to implanting lights in one's forehead.

An immediate response to all of this is to argue that while common, these practices do not actually imply that who and what we are is essentially artistically and technologically modified. Stripped away of all of its tools and alterations, 'the body' remains an organic compound of flesh and bone, all other accoutrement being optional add-ons. I will table this particular concern for a moment and redirect the discussion to 'the mind.' While our bodies may not always be altered by technology perhaps, if we revisit Otto and his notebook, for instance, we might reason that cognition is always dependant on some sort of coupling with external tools. Indeed, while Otto is only a thought experiment, his kind is not so fictional, it turns out. Clark (2003) recounts a story of stepping onto a crowded subway car and noticing that while all of the people on the train were physically *there*, because they were so immersed in cell phone conversations, it was as if a part of them were *not there*. In a real sense, our technologies today allow us to be transported from one place to another. When we consider what it's like to be at a dinner party, or, as Clark (2003) suggests, on a crowded subway, and see that our companions are not really 'there' but are instead skyping, texting, or talking on the phone, it seems as though cognitive presence often has little to do with the physical location of the organism. Where 'we' are is often directly influenced or changed by the tools we use, especially tools like the internet, which allow for telepresent communication, synchronous chatting across the globe, and video conferencing. Switch the focus yet again to the way these tools, as Kline (1985) put it, extend human capacities. Like Otto, most of us are dependent on at least one device for "cognitive

offloading," such as the use of a PDA for the storage of data about our business contacts and friends. Even the more Luddite types among us are likely unable to compute large sums without the aid of pencil and paper. As I argued in Chapter 2, this fact suggests that cognition is not occurring entirely within the confines of the skull-brain, and while this conclusion may still be debatable, the idea that we simply cannot perform certain cognitive tasks without 'help' is far less contestable. Our memories pale in comparison to our computers' and even our sense of direction is often a disaster without having "an app for it" such that we can depend on our iPhones, GPS, or other navigational software just to know where we are and where we are going.

Again, however, it might be objected that not all of us are so dependent on tools for thinking and thus, what it is to be human does not imply a technologically constituted being. If we are only considering specific types of technologies then this might be so. According to recent data,[47] in 2009, only 26.6% of the world's population had reliable internet access. Estimates concerning phone use are not unanimous, with some studies suggesting that nearly 70% of the world's population have made a phone call and others indicating that 70% have not.[48] Either way, it stands to reason that the technologies I have argued to be so ubiquitous and constitutive of who 'we' are, are nowhere nearly so prevalent. However, I intend to maintain that embodiment – not simply *the body*, and not simply *the mind*, but *the embodied mind* – is always technological, and I think that if we reconsider the various types of technology and their relationships to embodiment, I can

[47] http://www.internetworldstats.com/stats.htm
[48] See for example: http://www.ceip.org/files/projects/irwp/events/braga_presentation/sld005.htm, as well as a full discussion at http://answers.google.com/answers/main?cmd=threadview&id=20411. The more dramatic numbers suggesting that only 30% of the world's population has made or received a phone call is taken from Hayles, K. (2002).

convince the reader that this is so. The interweaving of the tangible and intangible in sociotechnical systems of use such as gender, body art, and so forth, remind us that technology has at least two distinct dimensions. I have so far referred to these levels as the tangible and intangible, while others (cf. Sullivan, 2002) have discussed technology as being either "hard" or "soft," but the idea is the same: there are technologies that we can 'see' and 'hold,' such as hammers and computers and then there are technologies that are oftentimes much farther below the conscious radar, such as practical know-how. Social institutions, Sullivan claims, can serve as 'tools,' – I can use the university as a means to achieve status in my career, e.g. – but, these tools, if they are to be conceived as such, are inextricably tied to the know-how associated with using them. In other words, it makes no sense to talk about them as tools, without the correlated *technē* involved. Because of this ambiguity, it is often difficult to separate tool from tool-use, and it is also hard to 'see' these practices *as technological,* because they become so assimilated into one's identity and embodiment.

I want to argue that we ought to consider gender as an example of a "soft technology," specifically, as a kind of institution, or "system of use." Not usually considered technological in any way, the social institution of gendering serves as a tool for classification, identification, and moreover, for shaping one's individual embodiment. As we saw in Chapter 4, the body image which accompanies envisioning myself as this or that gender can actually change the way I comport myself toward the world and the ease or difficulty with which I accomplish bodily tasks. Being a woman – i.e. having the know-how or *technē* associated with performing 'woman' properly – or being a man, are not constant constituents of embodiment – we can slide between and among them – and

as such, according to our imaginary objector above, these modes of embodiment should not be part of who *we* essentially are, and yet, as I have argued, it is impossible to not be gendered in some way or another. I suggest that gendering is a necessary soft technology that constitutes who and what we are as cognitive subjects at a given time, one that is eminently mutable, but constantly present, in one form or another.

Since gender-as-soft-technology might not be a convincing idea yet, we can back up a few paces to the original claim that some technologies are best considered 'hard' while others are 'soft.' The idea behind hard versus soft technologies is not just to catalogue the tangible or intangible natures of the 'tools' we use. It is also a phenomenological distinction, one that serves to illustrate an important facet of embodiment generally. We have already discussed ways in which the *body image* and the *body schema* operate at substantially different levels of awareness. My body image is often a conscious representation of myself that I can use to manipulate my actual body in performing an action, while my body schema simply acts, without thought as it were, since it is a pre-reflective motor program. These levels of awareness, one *reflective*, and the other *pre-reflective*, as Gallagher and Zahavi (2008) term them, are important to consider because as it turns out, most of my everyday movements and embodied actions are executed *pre-reflectively*; that is, I do not form an explicit and reflective image of myself in order to walk to the fridge and grab a beer. It is only in cases of bodily breakdown, such as in a disruption of ownership or agency found in persons with Unilateral Neglect or Anarchic Hand Syndrome – or in cases of non-pathological embodiment such as hiking a new trail or tightrope walking for the first time - that the body must be reflected upon and utilized as an image for manipulation. This distinction

between pre-reflective versus reflective use also applies to the tools we use and dovetails nicely with the difference between what Donald Norman (1999) calls "transparent" and "opaque" technologies. Similar to the notion of soft versus hard, distinguishing between the transparency and opacity of a tool adds a phenomenological element to the story; namely, the distinction maps how we can incorporate a tool seamlessly into our bodies-minds whilst using it, but can also reflect on that very relationship and detach ourselves from our tools, taking them as *things* that are *not us.* As Clark (2003) notes, some examples of opaque technologies might be things like computers, cars, cameras, hammers, and the like – in other words, 'hard' technologies – while transparent technologies, such as a well-functioning cochlear implant or a well-incorporated prosthesis, are relatively invisible. However, what we consider to be a hard technology can easily become invisible, and likewise, soft technologies can and do become opaque. It is thus, *my relation* to these tools that determines their opacity or transparency. A car, typically thought to be a highly visible and 'hard' technology, might fade into near invisibility if I am so accustomed to driving it, or moreover, if the road I am traveling is so familiar (cf. Haugeland, 1998; Dreyfus, 1990). As Idhe (1990) explains it, the "alterity relation" between me and my technology in cases like these is best described as the following (I + tool) + world, wherein the parentheses indicate a unified subject acting in the world. Pre-reflectively, therefore, technology can and often does show up as transparent and thereby undifferentiated from 'us.' In cases of breakdown or in reflective moments of differentiation, 'I' can dissociate quite easily from my tools – hammers, cars, and traditional 'hard' technologies to be sure, but also, 'soft' technologies such as gender can show up as present-at-hand, and distinctly other-to me.

For the dissenter who will now claim that despite all of this, we can still retreat into our physical bodies and can still think, act, and move about without incorporating technologies into our pre-reflective awareness, consider that soft technologies, by definition, already (i.e., before we have a chance to decide about it) show up as transparent to us. Even the most Luddite of humans, or the person living in a third-world country without phones, books, or even shoes, has access to one of the most invisible and pre-reflectively incorporated technologies in existence. Clark (2003) claims that the ultimate artifact humans have created is language, and while I tend to agree, I want to be sure to clarify that language is not just a 'product' or tool that we have created, it is at the same time a sociotechnical system of use that works to create 'us.'

6.4 The Ultimate Artifact

When I ask my students to name some of their favorite technologies, rarely do I receive "language" as a response. Most of the answers tend to be of the "hardware" variety, which Kline (1985) describes as one form of technology – cell phones, computers, microwave ovens. Nevertheless, if I press the students on the idea that not all technologies are tangible – hard or opaque – it quickly becomes evident that language must in some way count as a technology. But what kind? Clark (1998) has referred to language as the "ultimate artifact" and he goes on to say in *Natural-Born Cyborgs* (2003) that our ability to use language was likely an important factor in our learning to design all sorts of other tools – to build "better worlds" in which to live. "When we freeze a thought or idea in words, we create a new object upon which to direct our critical attention. Instead of just having thoughts about the world, we can then make those very thoughts

(and thought processes) the targets of more thinking" (79). Put another way, language opens up a space for *metacognition*. When we can think about our thinking, we can then learn to think more efficiently, Clark argues. By creating "cognitive shortcuts," we can offload mental tasks onto external objects, thereby freeing up space for our brains to solve other problems. The first and perhaps still *most effective* means of such delegation of duties is the written word. The use of writing not only enhances our ability to "freeze" thoughts and make them "targets" or objects of further thoughts; writing also frees up memory space.

Language might therefore be seen as a "sociotechnical system of use" insofar as it "extends human capacities." Although, it might be objected that Kline's definition also means to include hardware and as such, language is not really a sociotechnical system of use because after all, not every language has a written form, and certainly there is no hardware needed to produce it in its spoken form. That is of course, unless 'we' are the hardware. Humans are the ones who utter, write, reproduce, recreate, and modify language, but as Clark (2003) notes, "instead of seeing our words and texts as simply the outward manifestations of our biological reason, we may find whole edifices of thought and reason accreting only courtesy of the stable structures provided by words and texts" (82). In other words, on this view, language is not just an extension of our already cognitively adept minds – it is often what *creates* cognition. Being caught up in language, we rarely consider that it is also a type of knowledge or know-how, a means of relating to the world in a particular way. In this sense, we might see language as potentially spanning all of the categories of Kline's taxonomy. It can be produced like other hardware, in the form of books, for example, but it is also *productive*. In fact, it can even

be made into art – literature, poetry, and song – and so, it goes beyond even Kline's list in its uses. Thus, his list provides an excellent example of how such a taxonomy is really only a conceptual distinction among components that are in reality, inextricably linked and moreover, not exhaustive of all the possible modes of technological production, know-how, and interfacing.

Our relationship to this 'tool' – language – is unique and allows for some important insights regarding our distinctively cyborg nature, according to Clark (2003). As an example consider language in relation to another soft technology – gender. The very terms 'man' and 'woman' are systems of use – ways of cognitively economizing the world – and as such, 'we' are always already sexed and gendered. In other words, 'we' always decomposes into a collection 'he's' or 'she's.' Thus, I would like to suggest that what 'we' are amounts to the sociotechical system of hardware (biological bodies), and "other elements" (technology now broadly construed to include invisible 'tools' such as language) that work together to enhance who we are and of what we are capable.

Who we are and what we can achieve are not fixed identities, however. Just as language itself is an evolving process, so too are we. This is perhaps what is most confusing about Clark's depiction of humans as natural cyborgs. On the one hand, he claims that cyborgs are human+artifact couplings, which seems at least to imply two elements, a human and its technology, but on the other hand, he says:

> No single tool among this complex kit is intrinsically thoughtful, ultimately in control, or the "seat of the self." We, meaning we human individuals, *just are* these shifting coalitions of tools. We are "soft selves," continuously open to change and driven to leak through the confines of skin and skull, annexing more and more nonbiological elements as aspects of the machinery of mind itself [2003; 137].

This latter interpretation of what it means to be a cyborg is more radical insofar as 'we' are not limited to contingent couplings, but are instead "shifting coalitions." In particular, the idea that there is no central comptroller that is 'I' means that there can be no original, naked, pre-technological 'me' who is de-couplable from my tools. Rather, 'I' am always in transition from one coalition to the next. And to further complicate matters, what defines something as a coalition is itself a shifting identity. Indeed, there are strange 'assemblages' – consider the rather odd example from Chapter 2, wherein a CEO and her secretary might count as a 'coalition' that in some cases will only constitute on 'cognitive system' – that we might not always consider to be coalitions of tools. The fact that 'we' and the shifting assemblages of tools that comprise us are so malleable need not imply that meaningful cognitive subjectivity is impossible, however. In discussing identity, Prosser (1998) makes a similar claim, namely that although this transitory notion of selfhood can be discomforting, one cannot deny its legitimacy in being that which actually constitutes who we are. Transition "pushes up against the very feasibility of identity. Yet, transition is also necessary for identity's continuity; it is that which moves us on" (3).

As we saw concerning transsexual identity in Chapter 5, it is not simply a matter of "correcting" the misguided Cartesianism of trans-narratives who claim to be someone independent of their bodies – one of the many 'tools' used to construct gender identity – one must look *beyond* the body itself, namely to embodiment. In so doing, we found that body images, the products of socially informed norms and ideals, are a large part of what shapes one's identity, *particularly,* one's gender identity. It is not surprising that if our ultimate tool – language – is constructed so as to categorize us as either/or, male/female,

feminine/masculine – that we will naturally construct body images that follow suit. In the exact same manner however, language works to "freeze" other categories of existence that might be otherwise fluid. The very dichotomy of biological and non-biological is one constructed by the sociotechnical system of biology and through the larger discourse of scientific practice. Science, it may be argued, is a ubiquitous "cognitive economizer" as it endlessly taxonimizes, categorizes, sets up boundaries, and makes static and stable that which is often, in actuality, a leaky mess. In this sense therefore, Clark's (2008) amendment to the hypothesis of Extended Cognition (HEC), the HOC – *organism-centered* cognition – still presupposes the organism as one 'type' of tool, and the rest of the non-biological arsenal of technology as another. Furthermore, by centering cognition on this part of the coalition, it allows for a hint of homuncularism to sneak its way back into the story. But, if this is just one among countless ways of carving up the world and our relationship to it – one that is a contingent fact of our sociotechnological system of science – there is no reason to think that it might not be better explained in some other fashion.

I do not mean to suggest that we do away with all of biological science in order to more fully capture what it means to be human. What I am arguing however, is that while language is an ultimate technology by which we construct and are constructed, one which often expands our cognitive capacities and makes us better thinkers, it is not always such a clearly beneficial tool. It can and often does blind us to the very transitory nature that supposedly characterizes our uniquely cyborg existence. In particular, Clark's version of humans as shifting coalitions of tools leaves out one of the most important tools of all that shapes who we are and what we think we can do. Quite simply, it overlooks the

difference between the scientifically idealized biological sex – which is supposed to provide a 'neat' and tidy system of classification – and *cyborg sex*, which is just as messy, leaky, and transitory as any other soft assemblage. Biology constructs bodies as stable entities opposed to the non-biological world. As well, the language of science constructs sexual identity as 1) a necessary component of the body and 2) necessarily dualistic. While I have argued that (1) is an inescapable facet of who we think we are, (2) is hardly a necessity. (cf. Fausto-Sterling, 2000; Hird, 2004).We do however, have a very difficult time thinking bodies outside the paradigm of sexual difference and this difference just happens to be one of duality. In fact, many of the dualisms afforded by language – male/female, human/world, body/mind, us/our machines, sex/gender – are technologies so transparent and intricately interwoven into our cognitive architecture, they often go unnoticed. By taking notice of these contingent dualities, however, and the role they play in shaping who and what we are, I think we might recognize our inherently cyborg natures. To do so however, we must examine another version of the cyborg that goes beyond the organism/tool binary.

6.5 When One is too Few and Two is too Many: Haraway's Cyborg

Donna Haraway's *Cyborg Manifesto* (1991) marks a pivotal point in feminist theory concerning technology. Continuing to insist, as she does elsewhere (1989), on the rejection of an "anti-science metaphysics," the postmodern feminist relationship to technology, she argues, must neither demonize nor worship it. As well, Haraway's *Manifesto* has inspired some of the founding texts in Transgender Studies, one of those being *The Empire Strikes Back: A Post-Transsexual Manifesto* (1996), written by Haraway's student, Sandy Stone, a piece which then ushered in the critical "post-gender"

analysis common to so many important trans texts (cf. Bornstein, 1998; Feinberg, 1992). Haraway's *Manifesto* is a politically, culturally, metaphysically, and epistemologically charged text, interdisciplinary in its aims, and unfaithful to its origins. Much like the "cyborg" Haraway imagines, the text is itself a hybrid, monstrous, and blasphemous thing, and as a technology itself – *qua* text – it functions doubly as a piece of "science fiction" and a "social reality." As such, it is impossibly dense and so, I shall not feign a comprehensive, line-by-line analysis of it. What I will offer is a look at some of the standard interpretations (cf. Sullivan, 2001 Stone, 1991; Stryker, 2006) in the hopes of providing a general summary of some crucial intentions and outcomes of Haraway's seminal essay. Doing so, I argue, will open up a space for seeing yet another implication of the *Manifesto* and how it reaches another discipline, something that has been entirely ignored. Queer Theory and Transgender Studies alike, as well as Cognitive Science and Philosophy of Mind have failed to recognize the much-needed dialogue that can and should occur among these seemingly disparate areas of inquiry. There is no better text in which all of these disciplines converge – a convergence that is, I argue, long overdue and absolutely necessary.

While transgender embodiment is never explicitly mentioned, as Stryker and Whittle (2006) claim in their introduction to the *Manifesto*,[49] the cyborg has come to depict borderline bodies:

> Haraway's cyborg demonstrates how a panoply of other marginalized embodied positions – such as "women of color," which she discusses in detail – become sites for critical, cultural, political, and intellectual practice.

[49] As part of the *Transgender Studies Reader*

Hence, weaving transgender and intersex embodiment into the story is, they claim, no difficult leap to make:

> Transgender and intersex figures have likewise become politically charged sites of cultural struggle over the meaning of the human being and of being human in an increasingly technologized world [2006; 103].

A closer look at Haraway's cyborg will provide more evidence for the claims made by Stryker and Whittle – that is, the *Cyborg Manifesto* is about monstrous embodiment of all kinds. By carefully considering 'the monster' as it features in the text, it will become evident that we ought not limit the purview of Haraway's cyborg solely to "women of color," transgendered, intersexed, or any other specifically marginalized figures. Rather, her discussion concerning the chimerical nature of *all* human embodiment – and therefore all human cognition – offers up an important lesson for cognitive science and philosophy of mind.

Unlike the two-part "coupled" systems of human+machine that populate Clark's (2003) discussion of cyborgs, Haraway's account shies away from a strictly dualistic system. To be sure, her first pass at explicating cyborgs is to call them machine and organism hybrids, but she goes on to queer the rather sedimented ideal of hybrids as being necessarily composed of two parts. She begins by playing on some of the received dichotomies, in particular, that between fiction and reality. The cyborg is, she argues, "a creature of social reality as well as a creature of fiction," but then she goes on to say that "social reality is lived social relations, our most important political construction, a world-changing fiction" (149). Twisting the commonplace conception of science as the arbiter of reality, science is made into fiction and social relations are reality; and yet, social relations, as constructed, are also fictitious. Likewise, science is as much a social relation

as it is anything else and hence, it is both reality and fiction. Haraway claims that the boundary between science fiction and social reality is an "optical illusion," one that works to reproduce further "leaky distinctions" – between human and machine, human and animal, and mind and body. What usually marks a machine *as not 'us'* is, for one, that it was *made by us*; however, as we have seen, machines are constructed so as to be seamlessly incorporated into our embodiment, such that they become transparent, invisible even. Furthermore, the distinction between being 'live' and being an inanimate object is far from clear. As Haraway claims, "our machines are disturbingly lively, and we ourselves, frighteningly inert" (152). The cyborg – being a mix of human and technology – hovers somewhere between concrete, organic organism and intangible, cybernetic information.

Each of these "leaky distinctions" belong to a larger assumed dualism, one that is perhaps the most insidious of all, and is yet tacitly evoked, even in the most deconstructive of analyses. Namely, there is a supposed distinction between *nature* and *culture,* between the 'given' world and the 'constructed' or 'made-up' one. Even Stryker's (2006) brilliant analysis of the monster as that which gives rise to the very idea of belonging and not belonging, itself perpetuates the "myth of the inner and outer," struggles with its own myth – what Haraway refers to as the "sacred image of the same." In other words, to belong to a class of monsters is to count monsters as a sort of *kind*; and just as there is no 'we' to which all women or all men belong, it is hardly likely that all monstrous figures fall under one totalizing type. As Haraway (1992) argues elsewhere, "*Who am I?* is about (always unrealizable) identity; always wobbling it still pivots on the law of the father, the sacred image of the same. [W]ho are "we"? – that is an inherently

more open question, one always ready for contingent, friction-generating articulations. It is a remonstrative question (324). Furthermore, to posit monsters as an "identity" is already to assume a juxtaposed category of non-monster. Just as Stryker (2006) and Butler (2004) argue that monsters establish the limits of what counts as normal, it works the other way around as well – what we call normal, natural, and not queer work to establish that which does not get to be included among those borders. Hence, even the distinction between monstrous and normal is one in which the two opposed identities – natural and unnatural – are themselves neither entirely real, nor entirely mythical. As Sullivan remarks, "nature, in this sense, is the truth-effect- both fiction and fact- of a reproductive optics, of historically and culturally specific technologies (humanism, equality feminism, radical feminism, and so on) that reproduce the "sacred image of the same."[50]

Likewise, she argues, the image of 'the human' is already structured by the high-tech mythology of "the same" and as such, 'we' and our 'machines' are never entirely dissociable. In fact, Haraway claims, we *are* our technology. "The machine is us, our processes, an aspect of our embodiment" (180). And in this sense, speaking of cyborgs as coupled systems is slightly misleading because they are never really de-coupled, not even in imagination. On the other hand, a cyborg is by definition a hybrid, a chimera, so it is not a simple and undifferentiated being either. This helps explain the rather curious passage we find in the *Cyborg Manifesto:*

> To be One is to be autonomous, to be powerful, to be God; but to be One is to be an illusion, and so to be involved in a dialectic of apocalypse with the other. Yet to be other is to be multiple, without clear boundary, frayed, insubstantial. One is too few, but two are too many [1989; 177].

[50] http://scan.net.au/scan/journal/display.php?journal_id=83

For Haraway, encoding the self as one that transcends the dualisms of inner/outer, animal/human, human/machine, nature/culture, and myth/reality, is the "double vision" socialist feminists must adopt in order to finally escape the demining identity politics plaguing feminism generally. This is an explicitly intended aim of her work. In addition to Haraway's own insights regarding her work, I think a case can be made for locating, among passages such as these, the convergence of Queer Theory, Transgender Studies, and Cognitive Science. The payoff of doing so, is, as I will argue in this final section, that we can achieve a more holistic understanding of embodied cognitive subjectivity, one that is aware of the co-constitutive nature of minds and machines.

6.6 The Sociotechnological Hybridization of Gender and the Construction of Human Nature

Although the stated aims of adopting the image of the cyborg are, for Haraway, different than the intentions Clark (2003) has for thinking cognition as a hybrid of organism and machine, the overarching themes that emerge are not so far apart. Consider the question Haraway poses:

> Why should our bodies end at the skin, or include, at best, other beings encapsulated by skin? [1991; 178].

Likewise, the original thesis of Extended Cognition (Clark and Chalmers, 1998) was that cognitive processes are not bound to the organism, nor are they encapsulated by "skin and skull," a claim that is furthered in Clark's (2003, 2008) argument that we are always coupled to our technology, whether opaquely or transparently. An always already hybridized being, 'the body' therefore becomes one among many tools utilized in *embodiment* – the bodily-cognitive comportment to and interaction with the world.

Moreover, we see the body-as-prop motif carried out in TGS and QT; namely, when 'the body' is treated as a costume among many others to be utilized for performance purposes. We are always acting out a gender or a sex. We might likewise say that for Clark, the cyborg is always performing as well. It is acting out the role of *human*. In fact, it is precisely this coupling capability that allows us to successfully "pass" as human, whereas other beings, such as those artificially constructed minds we saw in Chapter 1, fail to pass in this regard, continually falling short of meaningful environmental interaction and incorporation. In a similar vein, those of us who do not engage properly with the 'mechanisms of gender' – clothing, mannerisms, sexuality, and even linguistic cues, the ultimate "soft technology" – are desubjugated, pushed to the margins, or even beyond the bounds of comprehensibility.

We find therefore, an underlying theme running through each of these movements regarding embodiment, subjectivity, and technology; namely, that 'we' are never entirely separated from our tools. Nevertheless, as I have argued in the previous sections, Haraway goes a step further than Clark by subverting even the coupling of human and machine. "These machine/organism relationships are obsolete, unnecessary. For us, in imagination, and in other practice, machines can be prosthetic devices, intimate components, friendly selves" (178). Much like the discussion in Chapter 5 concerning the body image formed by transsexuals and how this imagined being conjures up a body that goes beyond the literal body – i.e. the *embodiment* of this coupling – Haraway's claim that the relationship between human and machine is a contrived one echoes the idea that even in our imagined embodiment, we are always already hybridized. Thus, even though we find similar claims being made by philosophers of mind like Clark, Queer Theorists

such as Sullivan, and Transgender Theorists like Stryker – that being human, being female, being male, and so forth are all technologically mediated modes of subjectivity – nowhere among these texts do we find it stated as strongly as Haraway presents it. Coupling is too much focused on the duality of machine and organism, and the notion of a literal versus figurative or normal versus monstrous subjectivity also relies too heavily on a dualism that, according to Haraway, will always fail to capture the truly fluid nature of cyborg identity. Hence, she claims:

> One is too few, and two is only one possibility…The machine is not an *it* to be animated, worshipped, and dominated. The machine is us, our processes, an aspect of our embodiment. We can be responsible for machines; *they* do not dominate or threaten us. We are responsible for boundaries; we are they [1991; 180].

I agree, and in addition to Haraway's critique I will add that the notion of a 'coupled system' perpetuates the idea that *decoupling* is always a possibility, such that there is always a naked, non-technologically mediated 'me' once I have disrobed myself of all my tools. To be sure, some tools – hard technologies, like cellphones and prosthetics – can and do get detached from our bodies, but this does not imply that all technologies are so easily decoupled, nor does it entail that is possible to be embodied in an entirely *non-technological* way.

As perplexing as this passage of Haraway's is, it is important because it exemplifies the very confounding nature of *being human*, which, as we have seen so far, can only be understood through the lens of technology. At the same time, because 'the human,' is always already technological and as such, to 'understand humans *through* technology' does not quite capture the inextricability of 'us' and our tools – such a view, in other words, still treats technology itself as detachable, non-necessary, and 'other-to'

us. The nature of technology is not simply that it is a means by which we come to understand ourselves – it is in a very real sense *who we are.* And yet, to fully understand the nature of technology, we must have some idea of 'the human' behind its production, consumption, and most importantly its bodily incorporation, a comprehension which can only take place *through technological mediation.* This circularity makes it difficult to talk about a body, a self, or an individual as detached or decoupled. Attempting to imagine such a being only propels one into conceiving yet another technologically mediated image. 'The Biological Body' is a scientific (i.e. technological) body; 'Who I am' is always a matter of my involvement in or with some sort of sociolinguistic context (and hence, 'the self' is always a soft-assembled gathering of both hard and soft technologies; and embodied subjectivity is always already sociotechnologically hybridized.

In terms of sexed and gendered embodiment, as we have seen, these are inextricable modes of imagining our bodies and ourselves and yet, much like what Clark claims of cognition generally, these aspects of our embodiment are not skin-skull bound. Neither are sex and gender wholly other-to us; indeed, 'they' are machines of a sort, but not the kind of hardware from which we can more readily detach. Instead, sex and gender are soft technologies or, as Kline's (1985) terminology might allow, "sociotechnical systems of use," because they represent a dynamic web of relationships between human, hardware, production, and utilization. To be female, male, transsexual, gay, straight, or any other type of *human* just is to be hybridized in this way; in other words, to be caught up in a complex system of sociotechnologicality. This is why Haraway's cyborg is not a coupling of machine and organism so much as a hybrid – a being that transcends wholeness, refuses duality as its only possible subjectivity, and yet remains constantly

chimerical. More importantly, as was discussed earlier, being a cyborg means dispensing once and for all with the hope that 'I' can ever be a stable and fixed referent. 'I', according to Haraway is an "always unrealizable identity," one that depends on the sacred image of the same. Thus, 'we' as a collective whole – i.e. *us* qua human, women, queers, and so forth – "is an inherently more open question, one always ready for contingent, friction-generating articulations" (1992; 324). The only reason 'we' show up as a stable or category is, to articulate Merleau-Ponty's claim once again, through repetition. Or, to use Butler's (1992) terminology, by repeatedly citing gender, we make it necessary. As Butler also claims, while reproduction is a mode of copying, the 'original' for which the copy is made does not exist. To reproduce forms of 'the human,' 'the woman,' or 'the transsexual' is to copy an image of something that was never and will never be whole, but will instead always be *in performance*, transitioning from this role to that. In a move that resonates with Prosser's (1998) claim that "transition is necessary for identity's continuity" (3), the same notion of a never-stable gender identity is put forth by transgender theorists like Judith Halberstam (1995), who argue, like Haraway, for the simultaneous universality and categorical non-existence of transsexuality:

> We are all transsexuals except that the referent of the *trans* becomes less and less clear (and more and more queer). We are all cross-dressers but where are we crossing from or to what? There is no 'other' side, no 'opposite' sex, no natural divide to be spanned by surgery, by disguise, by passing. We all pass or we don't…There are no transsexuals [1995; 212].

The phenomenon of passing, according to Halberstam, implies that the notion of transitioning from one sex to the other is not a matter of finally arriving somewhere and resting there. We are always performing, always trying to pass, and as such, transition is

an eminent possibility. Thus, there are no 'real' transsexuals, and yet people like Prosser (1998) interpret Halberstam's statement to mean that "Trans-R-Us" (14). Because there is no stable *where* to which all of us who are transitioning are traveling, it makes little sense to differentiate between the static (or non-trans) and the transsexual when talking about sex and gender. Each time any of us passes as this or that identity, which is every time we allow ourselves to be subsumed under the "sacred image of the same" – in other words, to be denoted by a personal pronoun, captured by inclusion in a unified group, or labeled as a particular gender or sex – we obscure this transitory nature of identity. It appears as a necessary, static, and unitary category. Nevertheless, even as Clark (2003) argues, we are, all of us, a "shifting coalition of tools" and so, to understand human nature, if this is even possible, we must return to the notion that 'we' are never 'the same.' For Clark, this means articulating cognition as an ever-expanding and altering, albeit organism-centered phenomenon. Although he does not fully realize the ramifications of his position for cognitive subjectivity, in particular, in terms of gendered embodiment, his claim that 'we' are never skin-bound and are always incorporating, exploiting, constituting and constituted by our tools, is an essential step to take in reaching a theory of 'mind' that actually pays heed to the fundamentally necessary lessons we have gleaned from Queer Theory and Transgender Studies.

Hence, rather than take these boundary-blurs as a hindrance to any productive research in cognitive science or gender theory, it is my contention that the "pleasure in confusion" of which Haraway advocates is an essential next step in developing a comprehensive and interdisciplinary story about the meaning of being human. It is a story of the sociotechnological hybridization that makes us who 'we' are, allows us to conceive

ourselves as otherwise, and *to be* otherwise, and frees the mind from the confines of a boundary that has been artificially erected. Once this boundary is usurped, as Clark claims, we can begin to "better appreciate what we already are: *creatures whose minds are special precisely because they are tailor-made for multiple mergers and coalitions*" (2003; 7, emphasis original).

Conclusion: Post-Cyborgs?

The preceding project has attempted to draw together two otherwise disparate areas of inquiry regarding cognition, embodiment, and subjectivity. By bringing into discourse philosophy of mind and feminist theory, I hope to have convinced you of at least these three things:

- The two seemingly unrelated fields have a lot more in common than might be assumed and therefore have a lot to offer each other
- Much of what the each field can do to supplement, improve upon, and even methodologically alter the other has been overlooked, an oversight that is hindering genuine progress in determining *who, what,* and *where* we are
- By focusing on the ways in which technology – both in the form of hardware and software, such as gender – is a constantly penetrating facet of our embodiment, the cyborg is not only a fitting image to depict humanity, but it helps us overcome some of the traditional difficulties in explaining how the mind works, in what it is realized, how we ought to explain bodily pathologies, gender identity disorder, and above all, embodied subjectivity generally.

In order to get to this last point in particular, I have provided an account of the last fifty years of failed attempts in philosophy of mind, cognitive science, and artificial intelligence to properly explain and replicate human thinking. It is not until theories such as Clark and Chalmers' *Extended Mind* come into play that, as I argued in chapter 2, we have a real shot at truly appreciating just how complex 'we' really are. This 'we,' even in Clark's (2008) "Supersized Mind" however, has been shown to be too centered on our biological bodies and brains. While these components are indeed important, and are most assuredly necessary causal constituents of cognitive subjectivity, it is better not to think of the brain and body as "senior partners" in cognitive processing, but rather as "equal

partners," coupled to non-biological machinery at all times in creating 'the mind.' Moreover, any story of *who* we are must, I argue, take account of our inherently sexed and gendered subjectivity. Like cognition, my sex and gender are not located *in my body*, although the body remains an essential site for identification. Nevertheless, through the use of the 'tools' of gender – language being chief among them – we can see, particularly in cases of transgender and intersexed embodiment, that what we mean by 'male,' 'female,' 'feminine,' and 'masculine,' does not refer solely to a biological organism, nor do these terms pick out essentially the same process across time and location. How we come to imagine our bodies and ourselves as sexed and gendered subjects – an achievement made possible only through the coupling of our biological bodies to the "soft technologies" of language and gender – will in turn shape the way we think and how our embodied interactions take place.

Above all, I think my project furthers an idea Clark (2007) put forth, when he said that what he is "optimistic that we will soon see the end of those over-used and mostly ad hoc appeals to the 'natural.'" By incorporating sexed and gendered embodiment into this story of subverting 'the natural,' especially when it comes to embodied subjectivity, I think Clark's hopes come closer to reality. To be sure, treating human cognizing subjects as cyborgs does introduce its own set of difficulties in terms of delimiting, as Rupert (2004) points out, precisely *what* the subject of cognitive science ought to be. As I hope I have shown however, first, we cannot reject a proposal simply because it forces us to consider just how complex the phenomenon in question is, and second, by examining what goes into making us cognitive subjects, all signs point toward a messy, biomechanical, gender-queered, linguistic, and sociotechnological hybrid of a being.

Taking seriously this cyborg image of who we are and using it to go beyond current theories of embodied subjectivity both in philosophy and gender studies is, I suggest, the key to solving some of the most protracted problems in defining and delimiting ‘us’ as ‘thinking things.’

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