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## Embodiment, Transparency and the Disclosiveness of Failure

### Abstract

In this paper, I want to argue that embodiment is characterised by a plasticity which entails that it can include both the biological limb and the 'artificial' tool, as evidenced by recent research in cognitive science. Moreover, I want to claim that it is only in failure that the embodied limb and tool are phenomenologically distinct. I will go on to argue that this claim is essential for understanding the phenomenon of failed embodiment, such as that found within the clowning tradition, before concluding with a short provocation regarding the social and political implications of such a view.

### Rethinking Embodiment

I want to begin by being explicit in a distinction that I am making between the body - broadly speaking the lump of matter studied by scientists - and embodiment, its phenomenological correlate.<sup>1</sup> A key claim that I want to make is that whilst the former is delimited by the epidermal boundary - that is, the body ends at the surface of my skin - embodiment has a plasticity which allows its boundary to extend beyond and retract behind the epidermal one.<sup>2</sup> I will be using literature in cognitive science to support my claims, before moving on to the phenomena of failure in embodiment, characterised by a sudden retraction of this boundary.

In their paper, 'When Pliers Become Fingers in the Monkey Motor System', Umilta and colleagues (2008) describe an experiment in which they trained monkeys to use a pair of pliers and then tested neurons in the primary motor cortex during such skillful tool use. Their finding is perhaps a surprising one, which I feel merits quotation.

In addition to being incorporated into the body schema, the tool, after learning, is coded into the motor system as if it were an artificial hand able to interact with the external objects, as the natural hand is able to do.  
(Umilta et al., 2008: 2211)

It is perhaps worth clarifying what precisely the term 'body schema' refers to. Broadly speaking, the body schema is usually construed in contrast to the body image, along the faultline of an action/perception dichotomy. The body schema pertains to sensorimotor 'representations', the body image to perceptual representations. This is a simplification, as the two interact to a great extent, but at the moment I don't feel we need go into that. One thing that is crucial to note is that the body schema is fundamentally a non-representational state of 'bodily awareness'. An account of the critical role that the body schema has in our being in the world is brought out forcefully by Taylor Carman in the following passage.

The body schema [is not] an image of the body, for images are objects of awareness, whereas schemata sketch out in advance and hence structure our awareness of objects. The body schema is not a representation of the body, then, but our ability to anticipate and (literally) incorporate the world prior to applying concepts to objects. This ability, which Merleau-Ponty calls "habit", is not objective knowledge, nor is it internal to the mind, for "it is the body that 'understands' in the acquisition of habit".  
(Carman, 2008: 106)

I want to claim that the body schema is intimately connected to the prereflexive understanding, or know-how, which shapes our skillful coping in the world. Moreover, I want to agree with Merleau-Ponty (2009) in asserting that the body schema is more fundamental than the body image, and it is only on the basis of our having a body schema that we can have 'objects of awareness' and representational knowledge. However, for my purposes I want to delve into the issue of 'incorporation', and the possibility that an object can be incorporated into both the body image and the body schema. Building on the distinction between the body image and body schema, Frederique de Vignemont claims that there is a crucial difference between motor-embodiment (relating to the body schema) and perceptual-embodiment (relating to the body image), and she argues this by contrasting tool use with the rubber hand illusion.

In the rubber hand illusion, the experimenter hides the volunteer's hand behind a screen whilst getting them to look at a rubber hand. The experimenter gently brushes the volunteer's hidden hand and the rubber hand synchronously. After about one to two minutes, the volunteer will report having feeling in the rubber hand. This effect is a classic case of the body image incorporating an object.

The tool use, by contrast, is related to 'motor embodiment', as the phenomenon is not that you have feeling in the tool, but rather your sensorimotor system expands to include the equipment. Frederique de Vignemont's paper, (2010b) 'Widening the Body to Rubber Hands and Tools' gives a good overview of the experimental data, and in it she argues that the tool is 'motorically' embodied (that is, part of the body schema) and the rubber hand is perceptually embodied by way of an example. When I want to stir a pot of boiling soup, I am more likely to use a spoon than my biological hand, and some people argue that this is indicative of the fact that I do not think of the spoon as 'part of me'. In response to this, de Vignemont claims that we need to understand the body image as encompassing body affect as well as percept. A number of rubber hand illusion studies have shown that if you threaten the rubber hand with a hammer then the subject responds just as you would expect them to if their biological hand was threatened. However, despite tools being motorically embodied, the subjects do not react affectively to the tool being threatened in the same way, suggesting that 'motor embodiment' is dissociable from the feeling that an embodied object is 'part of me'. My suggestion, and the point at which I suspect I diverge from de Vignemont, is that when the object is both motorically and perceptually embodied we get the same sense of ownership that we are accustomed to having with our biological limbs. A paradigmatic case of this is prosthesis - I would suggest that the prosthetic limb eventually becomes perceptually and motorically embodied and from this arises the sense of ownership that is often reported.<sup>3</sup>

So, we are able to integrate equipment into our body schema in accordance with the requirements of the concrete task at hand, and we are also able to integrate objects into the body image so that they are perceptually embodied. My suggestion is that a sense of ownership emerges out of these two forms of embodiment. This is a complex picture which is not simplified by the clinical literature on body disownership. □Alien hand□ syndrome is a denial of ownership towards a part of the body which is entirely dissociable from cases of the patient motorically neglecting it. By this I mean the patient may well still use the limb, yet deny that it belongs to him. The opposite view would be the patient without use of a limb who nevertheless maintains a sense of it being part of him, a view which is prevalent in the literature.<sup>4</sup>

In short, a limb being part of the body necessitates neither that it is embodied (motorically or perceptually) nor that it is experienced as owned. Similarly, the object's artificiality precludes neither ownership nor embodiment. What is needed now is a phenomenology to frame these claims in order to understand what the consequences of this are in terms of my inquiry, and this phenomenology of embodiment must be able to accommodate the plasticity outlined above. In the next section, I will attempt to draw out such an account, influenced by Sobchack and Merleau-pony with respect to our sense of embodiment and by Heidegger with respect to the nature of failure.<sup>5</sup>

## The 'Disclosiveness' of Failure

According to Heidegger (1996), we need to understand that the most fundamental relationship that we have with objects is what he calls 'readiness-to-hand'. The ready-to-hand object is the one which is fulfilling its function optimally, and in doing so it is 'transparent' - I don't really 'register' it on a conscious level, and my attention is focussed on the activity with which I am immersed.<sup>6</sup> When I use a pair of scissors to cut a piece of paper, the phenomena is not that I hold a 'thing' which cuts the paper but simply I cut the paper. My claim is that this transparency is a crucial characteristic of the embodied object, a claim that is supported by Sobchack's description of her experience as a prosthesis user.

Those who successfully incorporate and subjectively live the prosthetic...sense themselves neither as lacking something nor as walking around with some "thing" attached on to their bodies. Rather, in most situations, the prosthetic as lived in use is transparent; that is, it is as "absent"... as is the rest of our body when we're focused outward to the world and successfully engaged in the various projects of our daily life ... The prosthetic becomes an object only when there is a mechanical or social problem that pushes it obtrusively into the foreground of one's consciousness (Sobchack, 2009: 283)

So, according to Sobchack, the prosthetic and the 'biolimb' are experienced as 'absent' - insofar as our focus is on the activities with which we are immersed, the limbs are not really present as part of our phenomenological experience. That such transparency is necessary for us to be immersed in a project is highlighted when the limb fails - the failed prosthetic or biolimb suddenly becomes a 'thing' which gets in the way as it is 'pushed obtrusively into the foreground of one's consciousness'. This failure is a transition from 'transparent' to 'salient', and in the case of the object which is embodied (for example, pliers, prosthetic or rubber hand), this transition results in a sudden shift in our embodiment. When the embodied object or limb fails it suddenly ceases being embodied and the 'boundary of embodiment' shrinks.

As a caveat, I feel I should be explicit that I am not claiming that all objects that we use become embodied - many objects, such as the clock on my bedroom wall, are not embodied because they do not need to be. My claim is that our experience of the embodied object's failure is phenomenologically distinct from the failure of the clock or other non-embodied objects. When the pliers or prosthetic limb fails, this failure entails a sudden retraction of the 'boundary of embodiment', something which does not happen when my clock malfunctions. In this way, there is a commonality between the failure of the embodied object and that of the 'bio-limb' - both cases are characterised by this sudden retraction. In order to elucidate this commonality, and the aspects in which the failure of bio-limb and embodied object differ, we need to look at what Heidegger (1996) claims about the object, summarised concisely by Dreyfus as follows.

How does the activity of hammering make sense? Equipment makes sense only in the context of other equipment; our use of equipment makes sense because our activity has a point ... To take a specific example: I write on the blackboard in a classroom, with a piece of chalk, in order to draw a chart, as a step towards explaining Heidegger, for the sake of my being a good teacher.  
(Dreyfus 1997: 92)

Similarly, the ready-to-hand scalpel, for example, is part of a 'referential totality' in which the scalpel, the operating table and the surgeon's goal of transplanting a kidney all relate to one another. This referential context forms the unnoticed and taken-for-granted background which underpins our activity. The referential context structures our understanding and is very seldom itself an 'object of awareness'. However, in moments when the object fails this is precisely what happens - the failure discloses this referential context and makes us aware of it. We are suddenly made to stand back from the activity in which we were previously immersed and pay heed to this context.

If the scalpel breaks, the surgeon can try to repair it, search for a replacement or resign himself to the fact that Mr. Patterson is not getting his new kidney. What he can't do is continue the same relationship to the equipment, at least not until the problem is resolved. In this way, he is suddenly aware of the contexture of equipment upon which his activity is dependent. What, by contrast, would it be like if his arm failed him? If we imagine a situation in which the surgeon's arm 'goes dead', it is not clear to me that it discloses the referential context in the same way as the failed scalpel does. If we assume that he is not ambidextrous, he can't just 'replace' it (in the sense that he can't use another limb), and despite being a physician it is unlikely that he would be in a position to repair his arm (not least because it is the main limb he uses in acts of repairing). It seems that resignation is the only option - if nobody else can perform the operation, Mr. Patterson has to return to the ward without his new kidney. However, let's focus on the precise status on the arm. There are probably countless operations in which the surgeon's limb was unproblematic - it was fully embodied, both motorically and perceptually. As such, when he was 'in flow', he didn't really notice it and the focus of his attention was the operation underway. It is a necessary feature of the embodied limb (and all embodied items, including prosthesis) that we can 'see through' it - we can just get on with the task without needing to attend to the limb at all.

Although I can perceive my body in the same way that I perceive other things - I can see it, touch it, taste it, etc. and, in these cases, it is the object at which some state of awareness is directed - there is another form of bodily awareness. It is what can be called an "adverbial" form of awareness. Rather than being aware of my body, I am simply aware in my body.  
(Romdenh-Romluc, 2011: 105)

Simon Critchley (2002) claims that humour of the body exploits the gap between being a body and having a body. In my view, the latter case - having a body - occurs when embodiment retracts behind the epidermal boundary so that the body part becomes reified as a 'thing' outside of myself. That is, the limb loses its transparency and becomes a problematic thing which stands in opposition to my intentions. However, I would go further and claim that whilst the object failing discloses the contexture of equipment and concrete activity surrounding what I was trying to do, the failed body discloses my limitedness. When one slips up on the way to collect an award, it serves as a reminder that both the nobel laureate and the local postman are subject to the same limits - gravity always wins.

Classicists might be reminded of Socrates' talking of Thales, a man who falls into a ditch because he is busy looking at the sky, with the local bystanders having a laugh at his expense. In this way, I would argue that this conception of embodiment has implications for performance studies - the key to understanding the phenomenon of object and bodily failure, such as one finds in clown performances, is understanding the way in which the failure entails a retraction of the boundary of embodiment. Crucially, I want to claim that it is only in failure that the embodied objects and limbs are distinct, and this distinctiveness is defined by what precisely the failure discloses - the referential context on the one hand, one's limitedness on the other.

Clearly there are important implications for contemporary technological performance practices which ostensibly blur the boundaries between man and machine. Unfortunately, there isn't sufficient space in this paper to explore those practices in the detail that they deserve, but it is something that I intend to do in the future and I would very much welcome discussion on this topic. However, I feel I should clarify that I do not think the plasticity of embodiment that I have outlined is a particularly new or modern phenomenon - it is a trait that we share with at least some other primates (as indicated by Umilta's research), and there is no reason to think that it didn't exist in at least some primitive form in our prehistoric ancestors. Nevertheless, I suspect we are more adept at embodying our equipment than other animals due to a couple of uniquely human adaptations (specifically, bipedalism and the opposable thumb) and the plethora of equipment which built upon those developments.<sup>7</sup>

## **Embodiment and Normativity**

The view that I have outlined regarding embodiment has important social and political implications which I want to address briefly in the final part of this paper. It has to be noted that this conception of embodiment runs counter to the 'common sense' view of the body, which was expressed brilliantly by one of my students. Upon my asking 'what do you mean by 'body'?', she responded by slapping her leg and saying 'this'. I believe that this view is tacitly upheld by most people but very seldom articulated - at least linguistically. The articulation of this view can instead be found in our architecture and city planning, even in the tools which have evolved alongside our social structures. Of course, I am referring to the very structures analysed within disabilities studies.

In designing a building with stairs but no ramp, or very narrow corridors, the designer assumes a notion of the 'normal body' - a template of which can be found on the door of most public lavatories. Until recently, it was assumed that anyone who didn't conform to this template was an 'invalid' (a horrid term when one thinks about it), and was prevented from accessing certain social institutions because of this. However, the 'social model of disability' tried to challenge this assumption, and claimed that 'that people with accredited or perceived impairments, regardless of cause, are disabled by society's failure to accommodate their needs' (Barnes 2002: 5). This was a revolutionary idea which highlighted the normativity surrounding embodiment.

However, as Hughes (2002) argues, this idea was also problematic. For the social model, like the 'medical model' that preceded it, the claims were steeped in a nature/culture dichotomy which, in my view, does not hold much water. The notion that 'impairment' and 'disability' can be neatly defined in terms of the former being 'physical' and the latter being 'social' is, I would claim, deeply misleading. We need to resist the idea that 'the body' is presocial and fundamental, and realise that our understanding of it is inseparable from the social and medical institutions which shape the way we relate to it. This is not to deny the

fact of our corporeality, but rather to argue that we understand it through our social structures of knowledge.

The greatest figure in modern architecture, Le Corbusier, argued 'that all men have the same organism and same functions...the same needs.' Such a universal claim - typical of liberal modernity - cuts across bodily difference and suggests a homogenous aesthetic of the built environment which will, by definition, exclude disabled people.  
(Hughes, 2002: 72)

What this quotation brings out forcefully is that insofar as one conflates embodiment with 'the body' as represented on the door of the public lavatories, our society will necessarily have a disabling effect on its citizens. In that regard, I feel my conception of embodiment is more progressive. When we regard embodiment with respect to its essential 'plasticity', that is when we take account of the way in which equipment can be embodied, we have a better understanding of why it is so incredibly inappropriate for a police or security officer to remove a man from his wheelchair. Moreover, we are better positioned to understand what we ought to be doing to make our social institutions so that we minimise their disabling potential.

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<sup>1</sup> I feel I should add a small caveat regarding how I want to understand the body. I think we should resist the notion that the body is something fundamentally 'prior to' our worldly understanding of it. Rather, it is better understood as a reification of the embodiment which I will outline shortly. As such, the concept of the body is inseparable from our socially informed, and (in modernity) scientifically framed understanding of it. In short, it is a fallacy to equate the body with a mythical 'presocial' lump of flesh.

<sup>2</sup> It is not the only distinguishing characteristic between the two and it might not be the defining one, but it is one which I wish to focus on.

<sup>3</sup> There is, of course, a very important question of 'priority'. That is the question of which comes first, perceptual or motor embodiment. My personal position is that, both ontologically and developmentally, the body schema is more fundamental than the body image. The implication of this is that the 'motor embodiment' is similarly more fundamental. However, as there is a great level of interaction between the two, and as distortions of the body image leads to serious pathological conditions, I don't think that this priority necessitates that either are 'more necessary'.

<sup>4</sup> It might even be the usual response to losing use of a limb, if indeed there is such a thing as a 'usual response' to that happening.

<sup>5</sup> My primary reason for using these theorists is simply that their claims resonate with my own lived experience. Moreover, I would uphold that their claims have been supported by recent empirical studies in cognitive science (see De Vignemont, Dotov et al., Dreyfus (2007) and Umiltà et. al. in the bibliography).

<sup>6</sup> Indeed, I don't even need to bring conceptual representations into it and I just relate to the world in a prereflexive manner.

<sup>7</sup> Raymond Tallis (2003) has developed a 'philosophical anthropology' in which he champions a hand-centric view of human evolution. Although I don't agree with the author on every point, I broadly agree with the central thesis of the book.

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## **Biography**

Shaun is undertaking a Ph.D at the Central School of Speech and Drama in which he applies Heideggerean phenomenology to anthropomorphism and failure. He is the Artistic Director of Square Moon, a company with which he has written and directed several productions, and a freelance theatre practitioner. He recently worked with the Rare Theatrical on the final production of their Leverhulme Fellowship at the Royal Academy of Music and with the Dummy Company on several productions including a residency at the University of Cambridge. As a producer, he specialises in site-specific work with his credits including Flatpack, an opera in Ikea. For more information about his work, visit [www.sh Shaunmay.co.uk](http://www.sh Shaunmay.co.uk).