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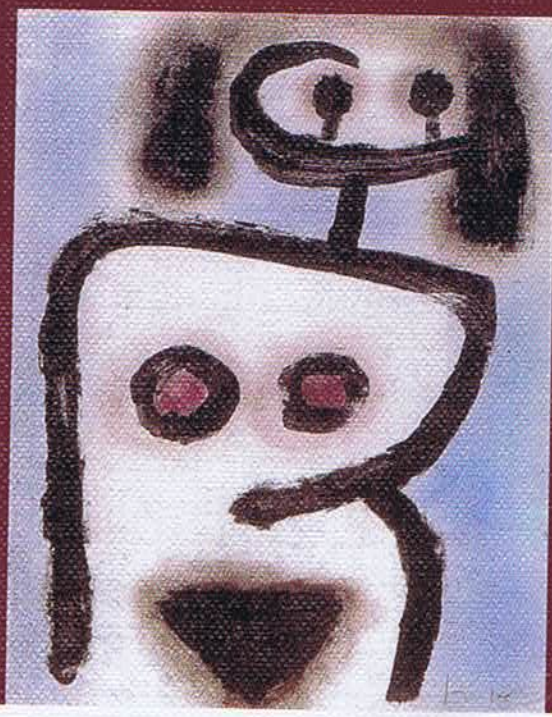

The Embodied Self

Dimensions, Coherence and Disorders

Schattauer

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The Embodied Self

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Preface

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2.2 Comment: Minimal Conditions for the Simplest Form of Self-Consciousness

Adrian J. T. Smith

Often the trick to understanding something complicated is to understand something rather simple at its heart, and progress from there. Blanke and Metzinger's approach is exemplary in this regard. They want to understand something simple: the minimal conditions for the simplest form of self-consciousness, "Minimal Phenomenal Selfhood" (MPS); in order to understand something rather complicated: the minimal conditions for self-consciousness in general (Metzinger 2006, p. 2; see also 2003b, p. 307).

According to Blanke and Metzinger, MPS consists in a weak first person perspective (hereafter a "weak 1PP") *anchored* by a *global* representation of the spatially situated body experienced as a whole (Metzinger 2009; Blanke & Metzinger 2009). This working definition neatly captures an important intuition about the basic phenomenology of conscious experience *qua* subjective experience. That is, a crucial feature our spatial

experience of the world is the experience of being a body in that world. And, as their marshalling of the data masterfully demonstrates, the experimental manipulation of this is becoming a real possibility. So it is all the more important for our understanding of MPS to be conceptually sharp. In what follows, we will probe certain dimensions of MPS. We will suggest some crucial amendments to the notion of a weak 1PP, for we suspect that the notion of anchoring a weak 1PP (or anything similar) might involve the reification of a metaphor. And we will offer avenues for future empirical investigation of multisensory body illusions, in order to reduce certain ambiguities concerning whether global representations are in fact being experimentally manipulated in their generation. Finally, we will conclude with some remarks on whether MPS involves merely "passive" embodiment, or whether MPS is conceptually tied to capacities for bodily agency.

Take the notion of a perspective to begin with. It is commonly assumed that conscious experience is perspectival, and that this is a basic instance of self-consciousness. In a *strong sense*, talk of perspective might connote a capacity to conceive of oneself as oneself; as distinct from others and the world that one perceives; as capable of entertaining a variety of attitudes to a variety of objects; and as intentionally related to particular objects (Metzinger 2003b; Baker 1998; 2000). Call this a strong 1PP, and note that it is exactly what Blanke and Metzinger are not currently interested in (although see Metzinger 2003a).

In a *weak sense*, all that perspectival experience connotes is that the immediate spatial contents of perception are organised in an egocentric field. Often egocentric perceptual fields are understood in terms of an egocentric frame of reference (e.g. Peacocke 1992; Campbell 1994; Cassam 1997). Objects in the field are located by reference to a point of origin, and differentiated by egocentric terms such as *here*, *there*, *nearer*, *farther*, *above*, *below*, *to the right*, *to the left*, *in front*, *in back* etc. In perception, all this would be in relation to the perceiver: in perceiving the world, the perceiver perceives objects as bearing particular relations to herself; thus, the perceiver is the point of origin for an egocentric frame of reference. So, a natural reading of the notion of a weak 1PP is just this (weak) sense in which perception is often held to be perspectival, *in virtue of being geometrically structured on an egocentric frame of reference* (Blanke & Metzinger 2009; Metzinger 2003b; 2009).

Let us set aside a *prima facie* tension. At the very least it seems that what MPS attempts to capture is that the *phenomenology* of perception is *embodied*. It might be argued that employing the notion of an egocentric frame of reference delivers much less: as an account of egocentric perceptual field *qua* egocentric frame of reference is only licensed to construe the perceiver (*qua* point of origin) as merely *co-incident* with a body (Witness, e.g., the dialectic in Cassam 1997).

Actually this is a rather uncharitable (and perhaps confused) interpretation. But it points to a constraint of some significance: at minimum, one must construe the perceiver *qua* point of origin as conceptually tied to a perceiver *qua* bodily subject. What we need, then, is a sense of "a point of origin" that makes an *intrinsic reference to bodies*. Furthermore, this would be a legitimate interpretation of the notion of *anchoring* a weak 1PP, insofar as the egocentric frame of reference is anchored in the body. For instance, one could understand the notion of an egocentric frame of reference as a special case of an object-centred frame of reference, viz. a body-centred frame

of reference. Using certain described axes of the body one could set up a system of spatial relations according to which one might locate objects in reference to the body as a privileged locus (Campbell 1994; Peacocke 1992).

Take a human body, for instance. It can be described as exhibiting certain natural axes. One could cast a horizontal plane extending perpendicular to its length, splitting it into superior and inferior regions. A frontal plane might extend vertically along its length, dividing it into anterior and posterior regions. A sagittal plane could also extend vertically, dividing the body into left and right regions. These spatial planes would enable us to provide a substantive definition to the axes of orientation up/down, left/right, forward/backward. As each of these three planes lie orthogonal to one another, one could rotate the body around the point at which they cross (in the torso) and still keep these axes of orientation constant. That is, the spatial planes form the fundamental axes for an egocentric space anchored to a point of origin in the torso, in the sense that the spatial relations they characterise cannot be reduced to axes providing co-ordinates for another frame of reference. So even if, for instance, the body in question is inverted relative to an extrinsic frame of reference (such as that defining the gravitational field) there is still an intrinsic frame of reference, defined by its natural axes, according to which there is still a determinate up/down, left/right, forward/backward (thus it is "upside down", so to speak). Thus, having established these bodily axes and a bodily origin we are then able to locate objects relative to that origin, and in doing so we are locating objects in an egocentric space.

The problem here, however, is that the origin seems to be in the wrong place, at least if we are to characterise the spatial phenomenology of vision in these terms. On the present definition the point of origin lays somewhere in the torso. Whereas it seems rather more faithful to our *visuo*-spatial phenomenology to say that the point of origin ought to be somewhere in the head, perhaps just behind our eyes. One could suggest an *ad hoc* amendment, such as having the very same spatial planes run through a point in the head. But an obvious difficulty with this is just the fact that it is an *ad hoc* solution. And furthermore, it would be a puzzle to account for the phenomenological difference between perceiving an object that is directly in front of the torso and directly in front of the head and eyes, and perceiving an object that is to the right of the torso and yet in front of the head and eyes (compare Peacocke 1992; Tye 2003).

Indeed, it is not as if vision is the only sense modality through which a perceiver can enjoy spatial phenomenology. Tactual perception, for instance, seems to involve egocentric spatial phenomenology. This might motivate yet another *ad hoc* definition of an egocentric reference frame, perhaps centred upon the palm. But this only leaves us with the problem of what to say when one is touched in another part of one's body, let alone what one should say when one sees and touches the same object simultaneously.

Essentially the problem is the fact that egocentric space seems unified in ways that resists neat characterisation in terms of a privileged point of origin. Thankfully it is possible to account for this unity by taking seriously the role of body movement in spatial perception. The approach would be to say that there is nothing more to experiencing x as at egocentric location e beyond a perceiver being disposed to perform potential orientating actions φ with regard to x. Thus in specifying objects located in a subject's egocentric perceptual field, egocentric terms such as *up*, or *down*, *to the*

right or *to the left*, *in front* or *behind*, or *over there* etc., derive their meaning from their connections with bodily action (Evans 1985).

For Evans this was first and foremost an *informational* connection between perceptual input and behavioural output, such that "we must say that having the (spatial) perceptual information at least partly consists in being disposed to do various things" (Evans 1985, p. 383). This is a powerful analysis on that level of description, as it provides a substantive means of accounting for the *co-ordination* of the sub-personal effector/sensor centred frames of reference (see Grush 1998; 2000; 2007; Smith 2009; Holmes & Spence 2004 for a review of relevant literature). But what we are after is the phenomenological significance of this connection, which is simply that the egocentric perceptual field is "structured as a field of potential action" (Taylor 1978, p. 155). This avoids all the problems of our earlier analyses rather simply: by not identifying the egocentric perceptual field with any particular egocentric frame of reference. It brings a new set of constraints also. For the φ concerned are channelled through the overall structure and mobility of the body. The situation of individual parts constrains their movement dynamics as parts of an interlocked whole. And these constraints on movement dynamics set the range of φ.

Note that if we discard the notion of centering, or anchoring, or any literal point of origin to a perceptual field (and thus any substantive notion of an egocentric frame of reference structuring the perceptual field), we will not be throwing out the baby with the bathwater. For this does not force us to discard the idea that the egocentricity of perceptual experience is systematic. The structure of the perceptual field is still systematic in a way that admits of egocentric terms: up/down, left/right, in front/in back are still the natural axes of orientation. But this is not a consequence of the natural axes of the body *per se*, but rather a consequence of the situation and mobility of the perceptual apparatus that these axes help us track. In this regard, the body exhibits symmetry along the lateral plane in contrast with asymmetry along the frontal plane. Such basic facts highlight systematic constraints on φ: e.g. the situation of the perceiver's eyes dictate that in order continue looking at an object she passes on her right she will eventually need to move her head, and then her torso, turn her hips, and eventually her whole body. Seeing the object as *on the right* in any one of these instances consists in being disposed to φ in this manner, whether or not one does in fact φ.

Now, remember that MPS is supposed to consist in at least a weak 1PP and an experience of the spatially situated body as a whole. What we have criticised so far is the idea that a weak 1PP is structured by a formal frame of reference coincident with the body, or even a body-centred reference frame necessarily anchored in the body. Furthermore, we have offered an account of egocentric perceptual fields as structured by potential orientating actions, as an amendment to the notion of a weak 1PP. We will now move on to the idea that MPS also involves a global representation of the spatially situated body experienced as a whole (Blanke & Metzinger 2009; Metzinger 2003a; 2009).

It is sometimes assumed that experience of the body as a whole involves representation of the body as a whole (Tye 2003; Metzinger 2003; 2007; 2009; Blanke & Metzinger 2009; for a basic account of why representation of global properties of the body might be superfluous, see Smith 2009). This might seem to gain support from experimental induction of so-called "full-body illusions". Unfortunately, the question

of whether or not there *are* full-body illusions is empirically under-determined, as putative full-body illusions are difficult to isolate from illusions involving composite parts that do not constitute a "full" or "whole" body. That is to say, a plausible alternative is that only representations of the body parts directly stimulated become subject to the experimentally induced bias, whilst other parts remain relatively (perhaps even completely) unaffected.

To see this we need a little recap on the experimental paradigm, and then its antecedents. In a series of studies Blanke and colleagues presented participants with a virtual image of a full-size body (or a body-sized cube in control conditions) being visibly stroked on the torso, whilst synchronously or asynchronously being stroked at the same location on their own torso (Lengennhager et al. 2007; 2009; Aspell et al. 2009). Their aim was to introduce a conflict between vision and touch, in order to induce a sense of ownership for the virtual body that they see being touched and to create an error of perceived location relative to their actual location. A questionnaire was used in order to measure the extent to which a sense of ownership was induced. In the synchronous condition answers were consistent with the claim that subjects experienced a sense of ownership for the virtual body that they saw. There is a slight tension here for the stipulated nature of MPS. The concept is meant to capture the "prereflective bodily foundations of phenomenal selfhood" defined as an implicit cognitive process functioning independently of any conceptual or linguistic abilities (Blanke & Metzinger 2009, p. 7). If that is the right characterisation of MPS then the questionnaire is of no use in demonstrating its manipulation. But we can set this aside, for measurement of perceived location was more implicit. For instance, in one study participants were blindfolded and passively walked backwards a few steps, and then asked to return to what they perceived as their original location. In the synchronous condition participants' perceptual judgements of their original location were significantly closer to the location of the virtual body than their actual location during the experiment. We can assume, then, that this is a *bona fide* manipulation of an MPS-level process. The difficulty is that there is little assurance that this is a manipulation of a global representational process. In particular, the issue arises because there is no measure of the extent to which the effect is localised to particular parts. For claiming that the illusion is a full-body illusion surely involves the assumption that it is *not* localised to particular parts.

Compare recent work on the rubber-hand illusion (RHI), of which the "full-body illusion" paradigm is a modification. In the RHI paradigm, multi-sensory conflict is established by stroking a presented rubber or virtual hand and synchronously stroking a participant's own hand (hidden from sight); an implicit measure of perceived location shift is conducted by passively moving the participant's hand (still hidden) and asking them to replace it to the original location (Botvinick & Cohen 1998). With issues of localisation in mind, Tsakiris and colleagues hypothesised that "if RHI is entirely localised, then the perceptual shift for a non-stimulated finger should be zero. If the RHI transfers fully from the stimulated finger to other non-stimulated fingers, then the perceptual shift should be equal for both fingers" (Tsakiris et al. 2006, p. 427). Tsakiris and Haggard 2005 and Tsakiris et al. 2006 found a pattern of localised perceptual shifts where "the perceived location of the stimulated" finger shifted towards the video image location in the same way as in the original RHI ... when participants

judged the proprioceptive position of another finger which had not been stimulated, the shifts were significantly reduced" (Tsakiris et al. 2006, p. 427). The crucial issue then is whether a similar pattern of partial localisation would be found in the "full-body illusion" paradigm. Until this possibility is ruled out, naming the illusion a "full-body illusion" is a misnomer.

We have already proposed that the best way to understand an egocentric perceptual field is in terms of the perceiver's dispositions for bodily agency. *Contra* Blanke and Metzinger (2009, p. 12) this suggests that even at the level of MPS, subjective experience involves more than merely passive embodiment, i.e. bodily agency is as constitutive a condition for phenomenal selfhood as anything else worthy of that title. Interestingly, it might also be the case that one can only manipulate full body illusions in active circumstances. For instance, Tsakiris et al. 2006 found that in conditions were subjects actively moved their fingers during the generation of the multisensory conflict, perceptual shifts occurred for *both* stimulated and non-stimulated fingers. If that is right, then this would be an even stronger reason for thinking that potential explanations of MPS ought to be conceptually tied to a subject's capacity for bodily agency. For on our proposed modification of a weak 1PP, it is the perceiver's *dispositions* to φ that are crucial. But in Tsakiris et al.'s 2006 study the actual performance of bodily movements seems required. We are faced then, with a well supported alternative to the passive embodiment story that Metzinger and colleagues seem to favour. To our mind, further investigation of how one ought to conceive of perceptual experience as egocentric, and how one might manipulate part-whole relations in body representation will be decisive on this issue.

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DISCOS
Disorders and Coherence of the Embodied Self

Progress of scientific research into the foundations of human self-experience is fascinating, but it also poses serious questions:

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