

Structural affordances & the embodiment of bodily experience

Adrian Alsmith¹

Abstract. A psychological phenomenon is strongly embodied if it can only be adequately explained by giving a distinctive explanatory role to the body itself; it is weakly embodied if it can only be adequately explained by giving a distinctive explanatory role to representations of the body. My aim is to show that any tension here is superficial. One can hold a strongly embodied view that nevertheless admits the presence of mental representations of the body in the cognitive system. I illustrate one such view, by showing how the notion of a structural affordance, an affordance relation that holds between an agent and its actual body, can play an explanatory role in any account of bodily experience that admits that parts of the body may be represented without a system representing the body as a whole.

Embodiment means many things to many people. Two ways of thinking about explaining the nature of a mental phenomenon by appeal to its embodiment are in *prima facie* tension with one another. For some, a psychological phenomenon is embodied if one can only adequately explain that phenomenon by giving a distinctive explanatory role to the body itself. Call this strong embodiment. For others, a psychological phenomenon may be embodied without there being a distinctive explanatory role for the body in its explanation; it may be embodied only in so far as there is a distinctive explanatory role for representations of the body. Call this weak embodiment.

The suggested tension here is between the representationalist account suggested by weakly embodied views and the non-representationalist account suggested by strongly embodied views. My aim is to show that, in this instance at least, that tension is superficial. One can hold a strongly embodied view that nevertheless admits the presence of mental representations of the body in the cognitive system. In particular, I aim to demonstrate the coherence of such a view on the embodiment of bodily experience. Even if one is committed to there being some degree of mental representation of the body enabling the phenomena of bodily experience, it may nevertheless be the case that such bodily experience is strongly embodied.

A key part of my argument turns on the fact that agents stand in a certain kind of affordance relation to their own bodies, a relation of structural affordance. Structural affordances can be most simply explained by comparison with more familiar agent-environmental affordance relations, such as where an agent sees a tree as climbable. The relation between the agent and the tree that is such that the tree is climbable is a relation between the body (B) of the agent and a part of its environment (E). This relation holds in virtue of a certain range of the causal properties of its body (B1, B2, B3, ... Bn) and those of the environment (E1, E2, E3, ... En). Now consider an instance where an agent

experiences her arm as able to be moved into a particular position. Where such an experience is veridical, here we have an instance of the same general relation, but instead the relation in question holds between an agent's body as a whole and the parts of its body. More fully, here there is a structural affordance relation between an agent's whole body (W) and its parts (P). And this relation holds in virtue of a certain range of the causal properties of its body as a whole (W1, W2, W3, ... Wn) and its parts (P1, P2, P3, ... Pn). A final aspect of the definition of structural affordances is that they are first-order affordance relations that themselves enable agent-environmental affordance relations. Agent-environmental affordances constrain and enable the possibilities of an agent's bodily interaction with its environment. But such possibilities obtain only in virtue of the possibilities provided by structural affordance relations.

The assumption that certain phenomena of bodily experience must be explained in terms of structural affordance relations is one that requires independent defence. My aim is not to defend that assumption here but to show that it allows us to conceive of a robust sense in which bodily experience may be strongly embodied. Structural affordances are relations inherent to the actual structure of the body that constrain and enable the possibilities of an agent's bodily movement. To the extent that an agent's experience of its body is constituted by the actual possibilities of its bodily movement, structural affordances have an explanatory role to play.

There are various ways in which the putative existence of mental representations of parts of the body might be consistent with and even complement such a strongly embodied account of bodily experience. I will describe one such possibility that admits the existence of mental representations of parts of the body but denies the existence of mental representations of the body as whole.

We need first to fix the term 'mental representation' such the explanatory role of mental representations of the body is independently plausible. By stipulation then, mental representations of the body are dynamic models, certain of which have the function of adaptively tracking the spatiotemporal dynamics of that which they represent. On the strongly embodied view suggested here, parts of the body may be represented and relations between parts; what is not represented is the body as a whole.

On a common conception of the reference of a term such as the 'body image', it is thought to pick out a mental representation of the body as a whole and only derivatively a representation of its parts. Such a representation might keep track of the spatiotemporal dynamics of the whole body and its parts. It might thereby contribute to an agent's experience of parts of its body as situated within the whole.

The account suggested here denies the necessity of positing such a representation. The alternative proposal is that a cognitive system might minimise internal representation by exploiting the

¹ Center for Subjectivity Research, University of Copenhagen, Denmark.
Email: adrianjalsmith@gmail.com

causal relations that obtain within the actual body, the causal relations that enable structural affordances. In this way, adaptive representation of the spatiotemporal dynamics of parts of an interlocked structure can occur without representing that structure as a whole. On this strongly embodied view, bodily experience depends on more restricted body representations, none of which keep track of the body as a whole. The fact that parts of the body seem situated in the body's interlocked structure, is simply due to the structural affordance relations that obtain within that structure.