Body phantom as bodily self-consciousness

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Abstract

According to Peter Halligan, [...] it is important to consider that the experience of our body is largely the product of a continuously updated „phantom" generated by the brain. (Halligan 2002: 266). Next, he adds: I will argue (not withstanding pathology to the physical body) that the prevalent common sense assumption of phantom experience as pathological is wrongheaded and largely based on a long-standing and pernicious folk assumption that the physical body is necessary for experience of a body. (Halligan 2002: 252).

These two remarks can serve as a backdrop for a discussion of the problem of bodily self-consciousness presented in the article. If experiencing a phantom of an amputated limb is indeed not pathological, and if normal bodily experience is *de facto* based on the body phantom constructed by the brain, then our conception of this very phantom should prove relevant when trying to explain bodily self-consciousness.

In the article, I propose that the body phantom is a phenomenal and functional model of one's own body. This model has two aspects. On the one hand, it functions as a tacit sensory representation of the body that is at the same time related to the motor aspects of body functioning. On the other

hand, it also has a phenomenal aspect as it constitutes the content of conscious bodily experience. This sort of tacit, functional and sensory model is related to the spatial parameters of the physical body[1]. In the article, I postulate that this functional model or map is of crucial importance to the felt ownership parameters of the body (de Vignemont 2007), which are themselves considered as constituting the phenomenal aspect of the aforementioned model. In other words, one aspect of the body phantom is constituted by the spatial, functional model of the body (realized by emulators, see Grush 2004); and the second, phenomenal aspect is based on the spatial model that includes both conscious spatial content as well as felt ownership component. This content is coarse-grained and relatively inaccurate. Furthermore, the phenomenal bodily experience is considered to be placed in the "prereflective – marginal – center of attention" spectrum. This means that the body is either (a) outside the center and periphery of attention, or (b) on the periphery of attention, or (c) in the centre of attention. Also, one has to distinguish this type of bodily experience from the visual consciousness of one's own body (the latter being kinesthetic/proprioceptive rather than visual). Finally, this experience is local: one cannot experience whole body this way, only a part of it.

To tackle the problem of bodily self-consciousness, the following issuess are discussed in the article: (1) the problem of what is specific for post-amputation phantoms and what distinguishes them from other kinds of phantoms; (2) the role specific sensory modalities play in constructing phantoms, with special attention given to the function of visual information; (3) specificity of bodily consciousness of blind persons; (4) providing the description of the conscious experience of post-amputation phantoms. The article proposes an emulation (Grush 2004) theory of the functional basis of phantoms and of the role this basis plays in constituting the phenomenal experience of phantom limbs.

[1] This thesis follows from the results of certain empirical studies (Longo and Haggard 2010; Haggard and Jundi 2009; Schutz-Bosbach et al. 2009, although in these studies the body model is not regarded as strictly sensory in nature).

Literature

1. De Vignemont, F. 2004. The marginal body, w: L. Embree, red. *Gurwitsch's relevance for cognitive science*. Kluwer Academic Publishers, p. 131-149.
2. De Vignemont, F. 2007. Habeas Corpus: the Sense of Ownership of One's Body. Mind and Language 22(4), p. 427-99.
3. Gallagher, S. 1986. Lived Body and Environment. *Research in Phenomenology* 16, p. 139-170.
4. Grush, R. 2004. The emulation theory of representation: motor control, imagery, and perception. *Behavioral and Brain Sciences* 27, p. 377-442.
5. Haggard, P., Jundi S. 2009. Rubber hand illusions and size-weight illusions: Self-representation modulates representation of external objects. *PERCEPTION* 38(12), p. 1796-1803.
6. Halligan P. W. 2002. Phantom limbs: The body in mind. *Cognitive Neuropsychiatry*. 7(3), p. 251-69.
7. Kinsbourne, M. 1995. Awareness of one's own body: An attentional theory of its nature, development, and brain basis. w J. L. Bermudez, A. J. Marcel, N. M. Eilan, red. *The Body and the Self*. Cambridge: MIT Press.
8. Legrand, D. 2007. Pre-reflective self-consciousness: on being bodily in the world. *Janus Head* 9 (1), Special Issue: *The Situated Body*, p. 493-519.
9. Longo, M. R., Haggard, P. 2010. An implicit body representation underlying human position sense. *Proceedings of the National Academy of Sciences of the USA* 107(26), p. 11727-11732.
10. Schütz-Bosbach, S., Musil, J. J., Haggard, P. 2009. Touchant-touche: The role of self-touch in the representation of body structure. *Consciousness and Cognition* 18(1), p. 2-11.