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Why are out-of-body experiences interesting for philosophers? The theoretical relevance of OBE research

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After decades of only sparse scientific interest, we are currently witnessing a renaissance of empirical research into out-of-body experiences (OBEs) and full-body illusions. Being a philosopher of mind, I obviously have only a limited judgment of how good this research actually is from a purely scientific point of view. What I can do, however, is to draw attention to a series of theoretical aspects that make OBEs a particularly *relevant* target of investigation in the ongoing search for the neural correlate of self-consciousness and in the wider context of an empirically grounded theory of the human mind.

Firstly, and most basically, this type of research has a great potential for *conceptual differentiation*. By more clearly distinguishing different types of neurological disorders affecting the sense of self, it will help to improve the taxonomy of self-related disorders. Introducing more fine grained conceptual distinctions will have diagnostic, and perhaps also therapeutic value, because it contributes to our taxonomy of hallucinations and deviant forms of self-modeling (see Metzinger, 2003, chapter 7) involving dimensions like ''self-location'' and ''self-identification''. The four main types are autoscopic hallucination, heautoscopy, OBE, and the feeling of a presence – all due to multisensory disintegration and damage to temporo-parietal and temporo-occipital cortex (Blanke and Mohr, 2005; Blanke and Castillo, 2007). Autoscopic phenomena show that not only identification with and localization of body parts, but also of the *global* conscious representation of the entire body can be disturbed. In autoscopic hallucinations and heautoscopy patients see a second own illusory body in extrapersonal space, but the two phenomena differ in terms of self-identification and self-localization with respect to this illusory body. Whereas in autoscopic hallucinations patients do not experience any change in the usual, body-centered visuospatial first-person perspective (weak 1PP; for terminology see Blanke and Metzinger, 2009; Metzinger, 2007, 2008), such a change may transiently occur during heautoscopy when patients may experience their self as being localized in the illusory body and their visuospatial 1PP appears to be centered on the reduplicated image. Typically, these changes are also associated with self-identification with the illusory body (Brugger et al., 1997; Blanke et al., 2004, patients 2, 4). The visuospatial 1PP, localization, and identification of the self with an illusory body at an extracorporeal position is complete in an OBE. Here the self and the visuospatial 1PP are localized outside one's body and people have the subjective experience of seeing their body from this disembodied location. Finally, the feeling of a presence is conceptually relevant – it is not a visual own body illusion, but an illusion during which a second illusory body is *felt* but not seen in extrapersonal space (Critchley, 1955; Brugger et al., 1996; Arzy et al., 2006).

Second, OBE research contributes to a better understanding of the *functional architecture underlying the phenomenal self-model* of *Homo sapiens* (Blanke and Mohr, 2005; Blanke and Castillo, 2007; Lenggenhager et al., 2007). We learn more about the different components underlying the conscious experience of being an embodied self. Which of these causal elements can be dissociated? Which ones are strictly necessary for a robust sense of self? Which ones are perhaps only sufficient or merely causally enabling? This

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leads to the theoretical core-issue: What are the *constitutive conditions* for the emergence of a conscious self in human beings?

The third, and perhaps most important, point is that this kind of research is directly relevant to a much more comprehensive project, namely an interdisciplinary theory of self-consciousness. Neuroscience can make a decisive contribution, by answering the following question: What is the *simplest* form of the target phenomenon i.e., ''minimal phenomenal selfhood'' (see Blanke and Metzinger, 2009), and what are the *necessary and sufficient neurofunctional conditions* for a phenomenal self to appear in a human brain?

Fourth, and slightly more theoretical, the core issue in current consciousness research (see Metzinger, 2000) is the emergence of a richer version of the 1PP (strong 1PP) in the human brain: What exactly is it that enables the appearance of what Damasio (1999: 11) has called the ''self in the act of knowing'', i.e., a conscious global self-representation of the organism as a whole *as currently representing* the world? If we could understand the mechanism by which a phenomenal ''self-as-subject'' is represented on the level of conscious processing, then this would shed light on a number of traditional philosophical problems like the allegedly irreducible ''subjectivity'' or ''privacy'' of conscious experience or the existence of irreducible ''first-person facts''. Methodologically, consciousness is a very special research target in that it seems to be inextricably bound to individual 1PPs. But what exactly is a 1PP? Research into OBEs helps in differentiating a weak 1PP (which is a purely geometrical feature of a visuospatial or multimodal model of reality) from the strong 1PP in the theoretically more interesting sense of the emergence of a supramodal, cognitive and conceptually mediated point of view.

Today, a related keyword is ''embodiment'': Recent years have seen a strongly revived interest in the bodily foundations of self-consciousness (Bermúdez et al., 1995; Gallagher, 2005). In philosophy of mind, there is widespread agreement that the challenge consists in understanding the pre-reflective bodily foundations of phenomenal selfhood. What is important are all those levels of processing, which are independent of explicit cognition and linguistic abilities, but later function as enabling conditions for the evolution of a conceptually mediated, cognitive 1PP and high-level social cognition (Bermúdez, 1998; Gallagher and Meltzoff, 1996; Metzinger, 2003, 2008). I believe that it is quite obvious how OBE-research can contribute to our knowledge about dynamic body representation in the human brain, and also help to distinguish between different *levels of embodiment*.

Fifth, rigorous and systematic research on OBEs can also support a research strategy I would like to call the ''neuro-phenomenological reduction of paranormal belief systems'' see the recent special issue of Cortex on the neuropsychology of paranormal experiences and beliefs. The conscious brain is an ''ontology engine'', it creates a model or reality constructed from assumptions about what exists and what doesn't (see, e.g., Metzinger and Gallese, 2003). It seems plausible that many reports about ''paranormal'' events and experiences are absolutely sincere reports about specific and highly realistic phenomenology – e.g., of moving outside one's body – which can now be explained in a more parsimonious manner.

The last point I want to mention is once again related, but of a more general and speculative nature: If one looks at the history of ideas, one sees that contemporary philosophical and scientific debates about the mind developed from a proto-concept—an animist, quasi-sensory theory about what it means to have a mind. Having a mind meant having a soul, an ethereal, second body. This mythical idea of a ''subtle body'' that is independent of the physical body and is the carrier of higher mental functions, such as attention and cognition, is found in many different cultures and at many times—for instance, in prescientific theories about a ''breath of life.'' Examples are the Hebrew *ruach*, the Arabic *ruh*, the Latin *spiritus*, the Greek *pneuma*, and the Indian *prana*. The subtle body is a spatially extended entity that was said to keep the physical body alive and leave it after death. It is also known in theosophy and in other spiritual traditions; for instance, as the ''resurrection body'' and ''the glorified body'' in Christianity, ''the most sacred body'' and ''supracelestial body'' in Sufism, ''the diamond body'' in Taoism and Vajrayana, ''the light body'' or ''rainbow body'' in Tibetan Buddhism.

First-person reports of OBEs are available in abundance, and they, too, come from all times and many different cultures. I propose that the functional core of this kind of conscious experience is formed by a culturally invariant neuropsychological potential common to all human beings (Metzinger, 2005). Under certain conditions, the brains of all human beings can generate OBEs. We are now beginning to understand some key properties of the functional and representational architecture involved. Examining the phenomenology in OBE reports will help us to understand not only these properties as such but also their neural implementation: There may well be a spatially distributed, but functionally distinct neural correlate for the human self-model in the OBE state. OBE research now makes it an empirically plausible assumption that this subtle body does indeed exist, but it is not made of ''angel stuff'' or ''astral matter.'' It is made of pure information, flowing in the brain. The subtle body is the embodied brain's self-model, and scientific research on the OBE shows this in a particularly striking way. For anybody interested in consciousness, self-consciousness, and embodiment and in a deeper interdisciplinary cooperation between philosophy of mind, neuropsychology, and cognitive neuroscience there are interesting times ahead.

REFERENCES

Arzy S, Seeck M, Ortigue S, Spinelli L, and Blanke O. Induction of an illusory shadow person. *Nature*, 443: 287, 2006.

Bermúdez JL. *The Paradox of Self-Consciousness*. Cambridge, MA: MIT Press, 1998.

Bermúdez JL, Marcel A, and Eilan N. *The Body and the Self*. Cambridge, MA: MIT Press, 1995.

Blanke O and Mohr C. Out-of-body experience, heautoscopy, and autoscopic hallucination of neurological origin. Implications for neurocognitive mechanisms of corporeal awareness and self-consciousness. *Brain Research Reviews*, 50: 184–199, 2005.

Blanke O and Castillo V. Clinical neuroimaging in epileptic patients with autoscopic hallucinations and out-of-body

experiences. Case report and review of the literature. *Epileptologie*, 24: 90–96, 2007.
Blanke O and Metzinger T. Full-body illusions and minimal phenomenal selfhood. *Trends in Cognitive Sciences*, 13: 7–13, 2009.
Blanke O, Landis T, Spinelli L, and Seeck M. Out-of-body experience and autoscopy of neurological origin. *Brain*, 127: 243–258, 2004.
Brugger P, Regard M, and Landis T. Unilaterally felt ''presences'': the neuropsychiatry of one's invisible doppelgänger. *Neuropsychiatry, Neuropsychology, and Behavioral Neurology*, 9: 114–122, 1996.
Brugger P, Regard M, and Landis T. Illusory reduplication of one's own body: phenomenology and classification of autoscopic phenomena. *Cognitive Neuropsychiatry*, 2: 19–38, 1997.
Critchley M. The idea of a presence. *Acta Psychiatrica et Neurologica Scandinavica*, 30: 155–168, 1955.
Damasio AR. *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. New York, NY: Harcourt Brace & Company, 1999.
Gallagher S. *How the Body Shapes the Mind*. Oxford: Oxford University Press, 2005.
Gallagher S and Meltzoff AN. The earliest sense of self and others: Merleau-Ponty and recent developmental studies. *Philosophical Psychology*, 9: 211–233, 1996.
Lenggenhager B, Tadi T, Metzinger T, and Blanke O. Video ergo sum. Manipulating bodily self-consciousness. *Science*, 317: 1096–1099, 2007.
Metzinger T (Ed), *Neural Correlates of Consciousness*. Cambridge, MA: MIT Press, 2000.
Metzinger T. *Being No One. The Self-Model Theory of Subjectivity*. Cambridge, MA: MIT Press, 2003.
Metzinger T. Out-of-body experiences as the origin of the concept of a ''soul''. *Mind and Matter*, 3: 57–84, 2005.
Metzinger T. Self models, *Scholarpedia*, http://www.scholarpedia.org/article/Self_Models; 2007. p. 24066.
Metzinger T. Empirical perspectives from the self-model theory of subjectivity: a brief summary with examples. *Progress in Brain Research*, 168: 215–246, 2008.
Metzinger T and Gallese V. The emergence of a shared action ontology: building blocks for a theory. In Knoblich G, Elsner B, von Aschersleben B, and Metzinger T (Eds), *Self and Action*. Special issue of *Consciousness & Cognition*, 12; 549–571, 2003.

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