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Comment

Autoepistemic limitation and the brain's neural code

Comment on “Neuroontology, neurobiological naturalism, and consciousness: A challenge to scientific reduction and a solution”

by Todd E. Feinberg

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Todd Feinberg mentions in his remarkable article [1] on neuroontology reciprocal relationship between experiencing and observing persons. The person experiencing qualia has no experience of its own neurons while the outside observer has no access to the qualia. How can we epistemically specify the limitation in our cognition and knowledge of the brain? In addition to the Third-Person Perspective (TPP), our (i.e., humans') epistemic design can also be characterized by First-Person Perspective (FPP). For example, we can access our mental states in FPP in that we experience ourselves as such within the environment. In contrast, no one has ever subjectively experienced one's brain as one's brain and its neuronal states as such in FPP – subjective experience remains “blind” to the own brain which never appears as such, e.g., as one's brain and neuronal states, in FPP. I call this inability to directly access the brain in one's skull as one's brain in FPP ‘autoepistemic limitation of our own brain’ (ALB). I define ALB as the epistemic inability to subjectively experience and thus to directly access one's brain as brain in First-Person Perspective (FPP) (see [3] for details).

What are the neuronal mechanisms preventing us from accessing our own brain's neurons as neurons in our experience? While Feinberg's assumption of a nested hierarchy may certainly be central, it though leaves open the exact neuronal processes. The philosopher Thomas Metzinger [2, pp. 163, 169, 175] assumes that the brain's ‘earlier processing stages’ are unavailable to our cognitive processes like attention amounting to ‘attentional unavailability’. What exactly are these “earlier processing stages” and more specifically what kind of empirical processes are going on in these “earlier processing stages”? While Metzinger associates them with cognitive function like attention, I assume here the brain's resting state activity and its transition to stimulus-induced activity, i.e., rest–stimulus interaction, to be central. The rest–stimulus interaction must be coded in a particular way such that direct access to the neuron's state as neuronal states becomes impossible. Hence, in order to shed some light on the brain's ‘earlier processing stages’,

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we need to understand the neural code the brain applies to its transition from resting state to stimulus-induced activity (see [4–6]).

How is the quest for the neural code related to Feinberg's account of qualia and other mental features like unity and mental causation? I assume the brain's neural code to be a necessary condition of possible qualia. As Feinberg himself says, the constitution of qualia goes along with the prevention of access to the own neuronal activity as neuronal activity, i.e., ALB. This has implications both epistemically and empirically. Epistemically, it means that an epistemic limitation, i.e., ALB, is a necessary condition of the possibility of mental states and hence of phenomenal consciousness. Without autoepistemic limitation, there would be no mental states implying that consciousness would then remain impossible. While empirically, our lack of insight into the neuronal mechanisms underlying ALB tells us also about the kind of necessary neuronal conditions of qualia and mental states we are still lacking. Based on my prior assumptions, I hypothesize here the kind of neural code the brain's applies to its own resting state and stimulus-induced activity [4] to be essential in making possible the transition from the neuronal states of the brain to the phenomenal states of consciousness [5].

References

- [1] Feinberg T. Neuroontology, neurobiological naturalism, and consciousness: A challenge to scientific reduction and a solution. *Phys Life Rev* 2012 [in this issue].
- [2] Metzinger T. *Being no one*. Cambridge, MA: MIT Press; 2003.
- [3] Northoff G. *Neuropsychanalysis in practice*. Brain, objects, and self. Oxford/New York: Oxford University Press; 2011.
- [4] Northoff G. *Unlocking the brain*. Volume I: Neural code. Oxford/New York: Oxford University Press; 2012.
- [5] Northoff G. *Unlocking the brain*. Volume II: Consciousness. Oxford/New York: Oxford University Press; 2012.
- [6] Northoff G, Qin P, Nakao T. Rest–stimulus interaction in the brain: a review. *Trends Neurosci* 2010 Jun;33(6):277–84. Epub 2010 Mar 11. Review.