Philosophy and Neuroscience: A Roundtrip

Marco Viola (IUSS, Pavia) and Gabriele Ferretti (University of Florence)

Philosophers are increasingly employing empirical results from *neuroscience* to investigate *philosophical problems*. In the meantime, philosophical speculation is employed in (re)thinking the *epistemological foundations* of neuroscience.
We aim at sketching an account of how philosophy and neuroscience *really interlock*. To do so, we will build on four case studies that exemplify this roundtrip. Two cases show how neuroscientific evidence can help answering philosophical questions – this is the part of the trip that goes from neuroscience to philosophy (henceforth: NP). The other two cases address the philosophical contribution to foundational neuroscientific– thus going from philosophy to neuroscience (henceforth: PN):

- (NP1) *Molyneux's Puzzle*. Would a man born blind, who has learnt to distinguish shapes by touch, be able to distinguish these objects simply by sight, once he had been enabled to see? Evidence concerning the restoration of the functioning of the visual system offers deep insights into this longstanding philosophical puzzle (Ferretti 2017b).

- (NP2) *Picture Perception*. What perceptual state are we in when we see an object in a picture? A correct answer to this important question requires an analysis of the functioning of our visual system in the case of picture perception (Nanay 2011; Ferretti 2016a, 2016b, 2017a, forthcoming a, forthcoming b).

- (PN1) *Pluripotency of neural structures*. The localization of cognitive functions onto neural structures is complicated by the finding that most neural structures implement multiple functions. Several theoretical strategies have been proposed to deal with this issue (for a review see Viola 2017).

- (PN2) *Individual differences*. Scientists are increasingly aware of individual differences in human brains. Does that condemn neuroscience to become an idiographic science, or are there still general laws to be learnt? (Anderson 2016).

By reflecting upon these cases, we speculate on questions such as (a) whether NP-issues can or should disregard empirical data, (b) how can PN-issues become more relevant to neuroscience.

References

- Anderson, M. L. 2016. Neural Reuse and In-Principle Limitations on Reproducibility in Cognitive Neuroscience. *Reproducibility: Principles, Problems, Practices, and Prospects*.
- Nanay, B. 2011. Perceiving pictures. Phenomenology and the Cognitive Sciences 10: 461-480.
- Ferretti, G. 2016a. Pictures, action properties and motor related effects. Synthese Special Issue Neuroscience and Its Philosophy 193(12): 3787-3817. doi:10.1007/s11229-016-1097-x.
- Ferretti, G. 2016b. Visual feeling of presence. Pacific Philosophical Quarterly. doi:10.1111/papq.12170.
- Ferretti 2017a. Pictures, Emotions, and the Dorsal/Ventral account of Picture Perception, *Review of Philosophy and Psychology*, 8 (3), 595-616, DOI 10.1007/s13164-017-0330-y.
- Ferretti, G. 2017b. "Two Visual Systems in Molyneux Subjects", *Phenomenology and the Cognitive Sciences*, DOI. https://doi.org/10.1007/s11097-017-9533-z.
- Ferretti, G. Forthcoming a. "Are Pictures Peculiar Objects of Perception?", *Journal of the American Philosophical Association*.
- Ferretti, G. Forthcoming b. "The Nature of Pictorial Representations". *Phenomenology and Mind*.
- Viola, M. 2017. Carving Mind at Brain's Joints. The Debate on Cognitive Ontology. *Phenomenology and Mind*, (12), 162-172.