# EuroCogSci 2019:
# From a Cognitive Philosophical Point of View

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**Abstract**

Central philosophical debates in, for example, epistemology, philosophy of mind, and philosophy of science, involve phenomena that are grounded in the minds and brains of cognitive agents. Accordingly, these debates ought to be elucidated by models from sciences such as cognitive neuroscience, cognitive ethology, and cognitive psychology. By analysing how agents interpret, represent, and conceptualize the world and themselves via their limited cognitive and neurological capacities, it is possible to show how philosophical investigations are constrained by cognitive limitations and evolutionarily directed interests. A dynamical cognitive philosophical approach can, arguably, help dissolve old philosophical problems and paradoxes, while at the same time provide novel input, interdisciplinary coherence, and overarching understanding to both philosophy and the sciences.

## 1 Cognitive philosophy

For more than two millennia, Western philosophy has strived to understand reality and what it means to be a part of it. However, finding a fruitful way to accomplish this in philosophy has proven to be no trivial matter, as countless disparate practices and traditions have been developed. The inability to unite behind a generative methodology has influenced philosophy's relation to science negatively, or so we argue. In what follows we discuss perspectives that are essential in order to make philosophy more productive by cohering better with science.

We believe that a number of central philosophical debates involve phenomena that are best investigated as mind-centred aspects of cognitive agents. And so, philosophical fields need to address the concepts and phenomena they study with models based on how the mind actually works that are available from cognitive sciences. So, we want to highlight that any philosophical investigation is affected by the cognitive agent taking on the inquiry, since any cognitive agent's limits and affordances will affect how such investigations are carried out and what stimuli it is possible for them to take into account. In other words, by analysing how humans register, interpret, and represent natural phenomena via their existing cognitive and neurological capacities, we stand a better chance

to understand the world, as well as ourselves. Influential precursory theories that we build on have been offered by, for example, Quine (1969), Campbell (1974), Lorenz (1977), Goldman (1986), Giere (1988), Churchland (1989), Hundert (1989), Dennett (1991), Lakoff and Johnson (1999), Kornblith (2002), Friston (2010), Clark (2015), and Frankish (2016) (see also Carruthers, Stich, and Siegal 2002; Thagard 2012).

## 2 Philosophical topics from the perspective of cognitive science

By accepting a metaphilosophical position with mind-centredness as a core principle, it can be recognized that all phenomena stand in relation to the mind, as the mind is what recognizes or constitutes phenomena. Following the cognitive sciences, such an approach ought to be naturalistic, in the sense that empirical evidence is seen to defeat intuitions; it should be pluralistic, in the sense that it is crucial to allow different relevant scientific perspectives, on multiple levels of analysis, in order to better understand and explain natural phenomena, as is frequently done in neuro- and cognitive science (Craver 2007); and it should be dynamical, in the sense of acknowledging the world as being complex, non-linear, and continuous.

Cognitive faculties have evolved over long time scales to reach the form they currently show. An agent's body thus enables and sets limits for how she can perceive the world and her place in it. The brain has a number of specific modules that handle certain aspects of the world and its stimuli. This perspective can be particularly relevant for philosophical questions concerning, for example, innateness, sensation, causality, intelligence, and mind-brain identity. Moreover, many organisms, and in particular humans, are social beings. This means that they have evolved in a way that factors in social aspects such as reciprocity, empathy, kin selection, but also ingroup and outgroup dynamics, social hierarchy, and dominance features, being particularly relevant for philosophical questions about morality and free-will.

Another important point about mind-centredness is how the physical signals a sensory system has developed to receive are all the agent has to go on in constructing her whole understanding of reality. It is thus bottom-up signals that make up the funnel through which an agent lives. Numerous other signals reach the agent but since she does not have the capacities to register them, they remain beyond her immediate comprehension. This perspective thus picks out the idiosyncrasies in the human relation with the world and can be particularly relevant for philosophical questions regarding perception, reality and knowledge thereof, as well as how to implement effective cognitive features into artificial systems.

However, humans, as cognitive agents, are not purely passive canvases for the world to paint impressions on, but have an active role in creating the perceived world. According to the predictive coding framework (Friston 2010; Howhy

2013; Clark 2015), brains maintain accurate and energy-efficient world-models through constantly predicting the incoming sensory input top-down, and evaluating the received sensory signals with the predictions, to produce prediction errors which then propagate upwards to update the models. This perspective, as the previous one, can be seen as particularly relevant for philosophical questions regarding the relationships between perception, reality, and knowledge, and similar philosophical topics such as reflection and self-knowledge. Contextual and situated factors, determined by culture, society, peers, and family, also play an active part in forming an agent's view of reality and herself. In specific, this can involve educational, social, and dominance hierarchical influences that the agent finds herself born into, and brought up within, that establish differences in belief in regards to issues such as criminal code, gender roles, and animal rights. This perspective can be seen as particularly relevant for philosophical questions concerning moral psychology, language of thought, and communication.

As a final example, we highlight the importance of acknowledging the world as being complex, non-linear, and continuous. Events such as the 2008 financial panic, the collapse of insect populations, and the effect of carbon emission on the world's climate indicate the limitation of simplified, linear, and discrete models. In contrast, natural phenomena (i.e., the world, reality, human nervous systems) need to be viewed as dynamical systems, and should accordingly be modeled with differential equations, rather than with discrete logical and language-based models. However, analytical aspects of human System 2 processing (working memory) biases philosophical thinking towards statical models, to the detriment of observational-based dynamical models. Though analytical aspects of working memory can still be used for philosophical thinking, theoreticians need to account for dynamical features when forming their mental models. This amounts to a challenge for the status of traditional Boolean logic as a sufficient tool for doing philosophy and proposes models using coupled differential equations as an improvement.

# 3 Concluding remarks

In summary, investigations of natural phenomena in the world should include an understanding of cognitive agents (seen as dynamical natural phenomena in the world) that have specific cognitive tools that they use when interacting with, and in order to understand, the world. What science can do for philosophy is then to provide a framework that can elucidate topics, as well as dissolve paradoxes and problems, in various philosophical disciplines, given its scientifically grounded input. Where philosophical positions are 'stuck' (where there has been a long historical inability to move forward), the described approach can provide an overview that shows things in a clearer light. This might be done by pointing out biologically implausible interpretations and instead offer more plausible accounts. Concerning what philosophy can do for science, a cognitive philosophical approach could facilitate the creation of types of models that can provide new insights and be scientifically useful, thereby bridging the gap

between philosophy and science, and potentially offering a synthesis that adds value (see e.g. Angere 2010).

The cognitive philosophical approach might thus help elucidate philosophical topics from the perspective of cognitive sciences, dissolve old philosophical problems and paradoxes, while at the same time provide novel input, interdisciplinary coherence, and overarching understanding to both philosophy and the sciences.

# 4 References


Angere, S. (2010). *Theory and reality: Metaphysics as second science*. Doctoral dissertation. Lund: Lund University.

Campbell, D. (1974). Evolutionary epistemology. In P. A. Schilpp (ed.), *The philosophy of Karl Popper* (pp. 413-463). La Salle, IL: Open Court.

Carruthers, P., Stich, S., and Siegal, M. (eds.) (2002). *The cognitive basis of science*. Cambridge: Cambridge University Press.

Churchland, P. S. (1989). *Neurophilosophy: Toward a unified science of the mind-brain*. Cambridge, MA: The MIT Press.

Clark, A. (2015). *Surfing uncertainty: Prediction, action, and the embodied mind*. Oxford: Oxford University Press.

Craver, C. F. (2007). *Explaining the brain: Mechanisms and the mosaic unity of neuroscience*. Oxford: Oxford University Press.

Dennett, D. C. (1991). *Consciousness explained*. New York: Little, Brown.

Frankish, K. (2016). Illusionism as a theory of consciousness. *Journal of Consciousness Studies*, *23*(11-12), 11-39.

Friston, K. (2010). The free-energy principle: A unified brain theory?. *Nature Reviews Neuroscience*, *11*(2), 127-138.

Giere, R. N. (1988). *Explaining science: A cognitive approach*. Chicago: University of Chicago Press.

Goldman, A. I. (1986). *Epistemology and cognition*. Cambridge, MA: Harvard University Press.

Hohwy, J. (2013). *The predictive mind*. Oxford: Oxford University Press.

Hundert, E. (1989). *Philosophy, psychiatry, and neuroscience: Three approaches to mind*. New York: Oxford University Press.

Kornblith, H. (2002). *Knowledge and its place in nature*. Oxford: Oxford University Press.

Lakoff, G., and Johnson, M. (1999). *Philosophy in the flesh: The embodied mind and its challenge to western thought*. New York: Basic Books.

Lorenz, K. (1977). *Behind the mirror: A search for a natural history of human knowledge*. New York: Harcourt Brace Jovanovich.

Quine, W. V. O. (1969). Epistemology naturalized. In *Ontological relativity and other essays* (pp. 69-90). New York: Columbia University Press.

Thagard, P., (2012). *The cognitive science of science: Explanation, discovery, and conceptual change*. Cambridge, MA: The MIT Press.