

Section 6

Current Trends in Neurophilosophy

Organizer: Mario Günther (Research Center for Neurophilosophy and Ethics of Neuroscience/
GSN/MCMP, LMU Munich)

Participants: Ophelia Deroy (Chair of Philosophy of Mind/GSN/MCN, LMU Munich), Stephan Sellmaier (Head of the Research Center for Neurophilosophy and Ethics of Neuroscience/GSN, LMU Munich), Sachith Cheruvatur (Research Center for Neurophilosophy and Ethics of Neuroscience, GSN, LMU Munich), Mario Günther (Research Center for Neurophilosophy and Ethics of Neuroscience/GSN/MCMP, LMU Munich)

Abstract:

The Symposium addresses current trends in neurophilosophy with a focus on methodological problems in neuroscience with respect to representations, explanations, and causation.

Titles and Abstracts of the talks

1.

Ophelia Deroy: The Distribution of Errors

Predictive models of the brain consider that the mismatch between predictions and incoming sensory signals, generate error signals which are used to revise predictions upstream. In the case of multisensory perception, if there is for instance a mismatch between the predicted occurrence of an audio-visual event (a low-pitched dog bark) and the actual signals, it is not clear how error signals should be distributed across vision and audition. I will discuss three options, and argue that the multisensory challenge helps us refine our understanding of how predictions are updated.

2.

Sachith Cheruvatur: Neurophilosophical Analysis of Semantic Memory

I aim to conduct a metaphilosophical analysis of the debates found in both cognitive neuroscience and philosophy of mind surrounding the ontology of conceptual semantic memory - particularly surrounding questions about how much of the representation of a concept is constituted by each, perceptual data and non-perceptual abstract information. Drawing from analyses of neural circuits and a characterization of neuroscientific experiments, I attempt to predict the limits to which neuroscientific data can contribute to this debate, even after granting a 'God's eye view' or access to all the real-time activity of all the neurons in the brain. Coupled with the unreliability of introspection, I argue that the current debate surrounding the exact constituents of conceptual semantic memory is most likely unresolvable.

3.

Mario Günther: Interventionist Mental Causation based on Neuroscientific Methods

Can we derive causal relations between brain states and mental states from neuroscientific methods? Baumgartner (2009)'s Causal Exclusion Argument (CEA) denies that Woodward (2005)'s interventionist account allows us to derive causal relations using the neuroscientific methods which manipulate mental states in order to measure changes in neural activity. We modify Woodward's account to bypass the CEA. We then turn to brain stimulation methods, which manipulate brain states in order to investigate the effects on mental states, and find that Baumgartner's CEA does not apply. Hence, Woodward's original account allows us to derive causal relations from brain states to mental states and our modified account allows us to derive both directions. We conclude that interventionism is well suited to study mental causation based on neuroscientific methods.

4. Stephan Sellmaier: Actions, Action terms and Neuroscientific Explanations

Starting with observations on actions and the linguistic role of action terms I will argue that neuroscientific explanations of human behavior and actions presuppose intentional and mental terms which are not reducible to purely neuroscientific vocabulary.