Gießener Abendgespräche Kognition und Gehirn

Mittwoch, 18.00 bis 20.00 Uhr im Philosophikum I, Raum F5

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Dazed and Confused?
Neural Origins of Variability in Goal-Directed Behavior

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Goal-directed choices can vary strongly across time, even when the choice options remain constant. Classical behavioral choice models from psychology and economics subsume this variability in unspecific noise terms that have no clearly defined mental basis. In this talk, I propose that the variability of goal-directed choices can emerge naturally from the probabilistic nature of value computations instantiated by neuronal populations in the ventromedial prefrontal cortex, and by the properties of the mechanisms by which these computed values are conveyed to other choice-related areas. I will first show that distributed patterns of neural activity in the vmPFC, as measured with fMRI, encode probability distributions over stimulus values and that this probabilistic information can be used to derive estimates of both the preferences themselves and of the associated uncertainty. I will then present a biologically-grounded model of these computations that allows organisms to access and exploit the uncertainty associated with their preferences in order to optimally guide value-based choices. This model accurately predicts the outcome and response speed of preference-based decisions and is able to explain the emergence of framing-related choice biases. This proposed coding scheme makes it possible for humans to optimally combine multiple sources of information for decisions and may pave the way for mechanistic explanations of puzzling distortions often observed in economic choices.

Alle Interessierten sind herzlich willkommen!