

"Inference in Neuroimaging and the problem of cognitive ontology"

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Abstract

Neuroimaging studies attempt to assign function to brain regions. The neuroscientific practice of assigning functions to active brain areas involves two general patterns of inference, so-called "forward inference" and "reverse inference". In this talk, I will evaluate these inferential patterns. Neuroscientists have recognized and discussed the logical problems attending reverse inference, but have viewed forward inference as straightforward. Here I argue that reverse inference is overly maligned, whereas forward inference is even more problematic than previously recognized. Both forms of inference are closely tied to the problem of cognitive ontology. I situate this problem in contemporary views of philosophy of neuroscience, and suggest avenues to address these problems.