

Workshop in Honor of James Bogen, March 28, 2015

ABSTRACTS

Sandra Mitchell (University of Pittsburgh): “Multiple empirical models: How integration helps”

Multiple models of phenomena from data generated by different experimental protocols can agree, disagree or be incommensurable. Research on measurement in philosophy of science has focused on calibration, using multiple results to corroborate or correct errors. I will discuss a different relationship among multiple experimental models – namely that of integration through joint refinement. By explicating the many sources of systematic error in experimentation, I will argue that joint use can lead to a more accurate model than either contributing experimental practice alone. I will illustrate this argument with the case of X-ray and NMR models of protein structure.

Kenneth Schaffner (University of Pittsburgh): “The search for neurobiological ‘simplifications’”

Given the complexity identified in neural and brain science, we desperately need simplifications to make sense of those processes, even in the simplest of the types of processes encountered in the neurosciences -- the generation of action potentials. But the simplifications are in the service of producing results at an emergent level, not a reductionistic level. As one seeks to analyze neural connections related to behavior, even in such simple neural networks as one finds in *C. elegans* and *Drosophila*, the need for simplifications becomes evident (Schaffner 2006). And as one attempts to analyze human neuroscience and psychiatry, strategies for simplifications become all the more urgent (Schaffner 2008 a and b). This paper explores various strategies for achieving such simplifications, including common pathways, emergent simplifications, network motifs, and small-world architectures (Alon, 2007).

James Woodward (University of Pittsburgh): “Some issues concerning explanation in neurobiology: interventionism, mechanism and beyond”

This talk will employ an interventionist framework to elucidate some issues having to do with explanation in neurobiology and with the differences between mechanistic and non-mechanistic explanations.

Laura Ruetsche (University of Michigan): “What is it like to be a woman in philosophy of physics?”

A woman in philosophy of physics is an outlier from other philosophers of physics on account of her gender and an outlier from other women philosophers on account of her AOS. A self-pitying answer to the question posed in my title is: "lonely." More hopeful answers point toward opportunities for communication and alliance across interdisciplinary boundaries. I will try to develop and defend some more hopeful

answers. I will also try to identify continuities between my work on the foundations of quantum field theory and the project of philosophical feminism as I understand it.