Structural realism and the Dependency Account of Explanation - Jim Woodward

Abstract:

This talk will explore some of the connections between a dependency relation/what-if-things-had- been-different (w)-account of explanation of the sort I have defended elsewhere, and a version of structural realism understood in terms of finding effective theories. Dependency relations are laws and causal relationships that can figure in answers to what-if-things-had-been- different questions and it is these that I propose to identify with "structure" in my version of structural realism. In the mathematicized sciences, dependency relations are typically described mathematically but we can extend the notion of structure to causal relations in disciplines like molecular biology which are largely not formulated mathematically. I will argue that in both mathematicized and non-mathematical sciences explanation is an important goal of science and that getting the dependency relations right in some domain is more important to successful explanation than getting the ontology or entities in that domain right. The result is arguably a kind of realism but realism about dependency relations, and less so about ontology. (I called this "instrumental realism" years ago. The idea is that we should be realists about the dependency relations-- what so-called instrumentalists tend to focus on and perhaps less so about the ontology. A pleasing feature of this view-- to me-- is that it is contrary to the views of many philosophers. Which suggests there is likely some truth in it.) Indeed, it is well-known that the “same” theory individuated in terms of a set of claims about dependency relations often can be associated with apparently very different ontologies, highlighting the derivative character of the latter for purposes of explanation. Moreover, we can often learn important facts about dependency relations while getting the ontology fundamentally wrong, at least from the perspective of later developments. (These claims are among the "structural realism" friendly commitments of the account I will propose.) Time permitting, I will also discuss the implications of this picture for the common philosophical project of "interpreting" scientific theories by finding a unique ontology (often with the expectation that this will be describable in ordinary or at least classical language) to associate with them. Even more time permitting, I will discuss the implications of this picture for claims about the role of "idealization" in science and the contention that scientific theories are full of "falsehoods".