Mechanisms, Models, and Explanatory Autonomy

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Abstract

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In this paper I argue that, contra initial reports, mechanistic modeling as an explanatory strategy in the mind and brain sciences is not good news for advocates of the explanatory autonomy of those sciences. The reason is that the autonomy-enabling features of mechanistic models arise only in those that lack other features important to understanding the mind and brain sciences.

It is commonly thought that mechanistic explanation is more descriptively adequate to the mind and brain sciences than the standard nomological approaches that have dominated thinking about the special sciences since the early 1970s. But at the same time, the mechanistic approach is widely interpreted as also delivering some of best features of the nomological approach. In particular, it is claimed that explanation in terms of mechanisms secures the multiple realizability of cognitive and psychological entities or regularities by neuroscientific entities or regularities. Consequently the strategy of mechanistic explanation is seen as vindicating the explanatory autonomy of the special sciences in general, and of the mind and cognitive sciences in particular.
The trouble for those who wish to defend the autonomy of the mind sciences on the basis of the mechanistic approach is that it is entirely unclear whether the apparent autonomy arises because of the multiple realizability of mechanisms, or because mechanistic models tend to be highly idealized (Klein; Haug; Piccinini and Craver). And this is a problem because idealization tends to undermine other more realist disiderata that are valued by philosophers of the mind and brain sciences.

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