Tuesday, 11 October 2:00-4:00pm

POPPER SEMINAR

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Representation, Inference, and the Dynamics of Model-Building

Abstarct

I defend the inferential conception of scientific representation by developing a case study in quantum state diffusion theory. I show that the application of the quantum state diffusion equation for a localisation process is driven by a two-fold dynamical equilibrium involving the two key conditions of the inferential conception: representational force, and inferential capacities. Consequently, attention is directed alternatively from the source of the representation to its target, and vice-versa. This dynamics seems a general feature of model-building in science, and I suggest that a number of other well-known cases in the modelling literature also exemplify it. I then argue that the similarity, resemblance and isomorphism conceptions of scientific representation cannot account for this two-fold dynamics, while the inferential conception has it built in from the start.