

Motivating Structural Realist Interpretations of Spacetime

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Abstract

Motivated by examples from general relativity and Newtonian gravitation, this essay attempts to distinguish between the dynamical structure associated with a theory in physics, and its kinematical structure. This enables a distinction to be made between a structural realist interpretation of a theory based on its dynamical structure, and a structural realist interpretation of spacetime, as described by a theory, based on its kinematical structure. I offer category-theoretic formulations of dynamical and kinematical structure and indicate the extent to which such formulations deflect recent criticism of the radical ontic structural realist's conception of structure as "relations devoid of relata".

Keywords: structural realism, spacetime, category theory

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