

Controlling Complex Phenomena with the Help of Opaque Models

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Abstract

Simulations may manage to control complex phenomena while at the same time the models invoked remain epistemically opaque. Considering cases from astronomy and meteorology, it will be argued that simulation is characterized by a twofold replacement: structure and mechanisms are replaced by model behavior and theoretical insight by acquaintance with that behavior. Thus epistemic lucidity partly resigns as a fundamental characteristic of mathematical modeling.

Keywords: simulation, complexity, modeling, epistemic opacity

Subjects: [General Issues: Models and Idealization](#)

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