

Models and Formats of Representation

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Abstract

Models are generally used by scientists to obtain predictions and to provide explanations about phenomena. Their predictive and explanatory power is generally thought of as depending on their representative power. It is still not clear, though, in virtue of which features models allow scientists to draw inferences about the system they stand for. In this paper, I focus on a special kind of models, namely imaginary models (I-models) such as the simple pendulum. The main question I address is: how do scientists use I-models in representing target systems? First, I propose a clarification of the very notion of representation, by emphasizing the importance of what I call the format of a representation to the inferences cognitive agents can draw from it. Then, I analyze the various representational relationships that are in play in the use of I-models. I finally conclude that there is no special semantics to be applied to I-models, and that the study of the representational power of models in general should instead focus on the variety of the formats that are used in scientific practice.

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