

Toward a Mechanistic Interpretation of Probability

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Abstract

I sketch a new objective interpretation of probability, called "mechanistic probability", and more specifically what I call "far-flung frequency (FFF) mechanistic probability". FFF mechanistic probability is defined in terms of facts about the causal structure of devices and certain sets of collections of frequencies in the actual world. The relevant kind of causal structure is a generalization of what Strevens (2003) calls microconstancy. Though defined partly in terms of frequencies, FFF mechanistic probability avoids many drawbacks of well-known frequency theories. It at least partly explains stable frequencies, which will usually be close to the values of corresponding mechanistic probabilities; FFF mechanistic probability thus satisfies what in my view is a core desideratum for any objective interpretation. However, FFF mechanistic probabilities are not single case probabilities, and FFF mechanistic probability explains stable frequencies directly rather than by inference from combinations of single case probabilities.

Keywords: probability "causal structure" determinism "sensitive dependence" frequency

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