

Dynamics of Inductive Inference in a Unified Framework¹

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Abstract

We present a model of inductive inference that includes, as special cases, Bayesian reasoning, case-based reasoning, and rule-based reasoning. This unified framework allows us to examine, positively or normatively, how the various modes of inductive inference can be combined and how their relative weights change endogenously. We establish conditions under which an agent who does not know the structure of the data generating process will decrease, over the course of her reasoning, the weight of credence put on Bayesian vs. non-Bayesian reasoning. We show that even random data can make certain theories seem plausible and hence increase the weight of rule-based vs. case-based reasoning, leading the agent in some cases to cycle between being rule-based and case-based. We identify conditions under which minmax regret criteria will not be effective.

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