**On Universal Prediction and Bayesian Confirmation**

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**Summary**
- Bayesian reasoning is consistent but incomplete.
- Solomonoff provides universal choice of model class & prior.
- I show that this solves the long-standing induction problem.

**Abstract**
Bayesian reasoning is a well-studied and successful framework for inductive inference, which includes hypothesis testing and confirmation, parameter estimation, sequence prediction, classification, and regression. But standard statistical guidelines for choosing the model class and prior are not always available or clear, in particular in complex situations. Finding tabi-made solutions to every particular (new) such problem might be possible but cumbersome and prone to disagreement or contradiction. What is desirable is a formal general theory for inductive inference, and for building general purpose intelligent machines, such a theory is not only desirable but indispensable.

Solomonoff completed the Bayesian framework by providing a rigorous, unique, formal, and universal choice for the model class and the prior. This "universal" Bayesian approach differs significantly from the classical objective as well as the subjective Bayesian philosophy. I show that Universal Induction (UB) essentially solves the long-standing induction problem, at least from a philosophical and statistical perspective. More specifically, I show that UB convergence rapidly and in contrast to usual...