Local, General and Universal Prediction Strategies: A Game-Theoretical Approach to the Problem of Induction

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Abstract

In this paper I present a game-theoretical approach to the problem of induction. I investigate the comparative success of prediction methods by mathematical analysis and computer programming. Hume's problem lies in the fact that although the success of object-inductive prediction strategies is quite robust, they cannot be universally optimal. My proposal towards a solution of the problem of induction is meta-induction. I show that there exist meta-inductive prediction strategies whose success is universally optimal, modulo short-run losses which are upper-bounded. I then turn to the implications of my approach for the evolution of cognition. In the final section I suggest a revision of the paradigm of bounded rationality by introducing the distinction between local, general and universal prediction strategies.

Keywords:	Problem of Induction, Meta-Induction, Prediction Method, Optimality, Universality, Bounded Rationality, Take the Best, Evolution of Cognition
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