

MODELING AND JUSTIFYING INDUCTION

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Krystyna Misiuna
University of Warsaw

ABSTRACT

The fact that induction is informative has not been questioned by anyone. Inductive inference transcends available evidence in such a way that hypothesis (conclusion), amplifies the evidence (Popper and Miller 1987, 569). The informativness of induction is accepted as its generic property which is regarded as responsible for problematic conclusivness of inductive reasoning. There has been no unique model of induction, and no complete and generally accepted justification of induction by now. A choice of *model* depends on an epistemic conception which underlies it, that is, on your being a subjective or objective Bayesianist, next, on your acceptance of the standard theory of probability, and at last, it depends on your choice of formal modeling methods. A choice of *justification* usually depends on your acceptance, or on your rejection of David Hume's argument against the existence of objective foundations for induction. If you are an *anti-inductivist* claiming that no amount of evidence can provide a hypothesis with inductive support, your goal will not be to give justification for induction. But if your are an *inductivist*, you may choose one of two different directions: either to argue against the 1983 and 1987 Popper and Miller Thesis (PMT henceforth) that a *non-Bayesian* probabilistic support is not inductive support, or to find another measure of inductive support.

We have to do with induction in the case of *confirmation* theory, as well as in the case of the theory of *learning* from experience. Bayesianism in its subjective and objective version is at present the most celebrated theory applicable to these two domains in which we encounter induction. Bayesians in the theory of learning argue that agent's degrees of belief are probabilities (Williamson 2007, 689), whereas Bayesians in confirmation theory tell us that hypothesis is confirmed to a given degree just in case it has a probability equal to this degree (Weisberg 2011, 535). In the Bayesian confirmation theory, a piece of evidence E confirms a hypothesis H relative to a background knowledge B if and only if $p(H|E \wedge B) > p(H|B)$.

In this paper, we shall remind the main contentious points of PMT formulated by Redhead (1985), Howson & Franklin (1985) and Elby (1994), and take up the task of establishing a measure of inductive support making use of the Bayesian theory. We are going to answer also the question “what is the Bayesian induction?” Bayesianism in its subjective version regards consistency with standard probabilistic axioms as the only condition on agent’s beliefs. Following Hawthorne (2005, 287) we shall argue that it is not enough for modelling evidential support.

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