

Handbook of the History and  
Philosophy of Logic:  
Inductive Logic

Volume 10

edited by Dov M. Gabbay, Stephan Hartmann, and John Woods



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## PREFACE

While the more narrow research program of inductive logic is an invention of the 20th century, philosophical reflection about induction as a mode of inference is as old as philosophical reflection about deductive inference. Aristotle was concerned with what he calls *epagoge* and he studied it, with the same systematic intent with which he approached the logic of syllogisms. However, it turned out that inductive inferences are much harder to evaluate, and it took another 2300 years to make substantial progress on these issues. Along the way, a number of philosophical and scientific turning points were achieved, and we can now look back on the excitingly rich history that this handbook covers in considerable detail.

After Aristotle, our history took off in the 18th century with the ingenious insights and contributions of two philosophers: David Hume famously formulated the problem of induction with tremendous clarity. This problem (also called *Hume's Problem*) kept philosophers busy ever since; many responses have been put forward and, in turn, criticized and variants of a major philosophical claim ("scepticism") have been defended on its basis. At around the same time, Blaise Pascal and the philosophers of the School of Port Royal developed probability theory and laid the groundwork for decision theory. Both developments eventually lead to a much better understanding of inductive inferences, and it would be difficult to see how their impact on philosophy and science could be overestimated.

The strong bond between developments in science and philosophy (as far as they can be separated) can also be observed in the later course of this history. Think, for example, of the work by Carnap, Hintikka, Ramsey and de Finetti and the contemporary endeavours in learning theory and Bayesian inference. The close interaction between science and philosophy is obvious here, which makes the field of inductive logic rather special. While there are many examples where a science split from philosophy and became autonomous (such as physics with Newton and biology with Darwin), and while there are, perhaps, topics that are of exclusively philosophical interest, inductive logic — as this handbook attests — is a research field where philosophers and scientists fruitfully and constructively interact.

A final development should be noted: While much of deductive logic has been developed in an anti-psychologistic spirit (an exception is van Lambalgen and Stenning's *Human Reasoning and Cognitive Science*, MIT Press 2008), inductive logic profits considerably from empirical studies. And so it is no wonder that contemporary cognitive psychologists pay much attention to inductive reasoning and set out to study it empirically. In the course of this work philosophical accounts (such as Bayesianism) can be critically evaluated, and alternatives might be inspired.

It is to be hoped that philosophers and psychologists will interact on these issues more closely in the future, and that the new trend in experimental philosophy will prove a beneficial good.

It was our intention to include a chapter on the Port Royal contributions to probability theory and decision theory. For reasons of space, we decided to avoid duplication with Russell Wahl's excellent chapter, "Port Royal: The Stirrings of Modernity", which appears in volume two of the Handbook, Mediaeval and Renaissance Logic.

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