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# The Large-Scale Structure of Inductive Inference

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## Preface

### *The Large-Scale Structure of Inductive Inference*

The analyses of this book began as something of an afterthought in the development of the material theory of induction. My goal in developing the theory was to resolve once and for all how inductive inference works. Its chief concern was the failure of the many competing accounts of inductive inference already in the literature to do justice to how evidence is actually used in science. The mature development of that project is provided by my earlier work, *The Material Theory of Induction*.

When the first sketch of the material theory of induction (Norton, 2003) was in a complete first draft, Jim Bogen pointed out to me that the material theory provides an escape from the problem of induction. The point was added to the final version as something of an afterthought buried in Section 6 of the paper. It was repeated more briefly in the conclusion to Norton (2005). In retrospect, it is clear that my analysis was too hasty. The basic idea of the escape was quite sound, but the details were not well developed.

That this was so was brought home at a Philosophy of Science Association symposium in 2008 organized by Peter Achinstein. Papers by John Worrall and Tom Kelly suggested that a version of the problem of induction still troubled the material theory. They were right. The escape as described was not adequately elaborated. I am grateful to them for pressing me on this point since it proved very productive. As I worked to clarify the situation, it became clear that the escape from the problem of induction involved the bigger project of determining the large-scale structure of relations of inductive support. My first effort to provide a better account was given in Norton (2014). That paper already contains many of the ideas developed in this volume, including especially the non-hierarchical nature of relations of inductive support and the special role of hypotheses.

While that account greatly improved on the earlier versions, it contained a weakness. It did not adequately separate the idea of a logic of induction from an epistemology of belief. The problem of induction resides within the first, the logic of induction, and only has a presence in

the epistemology of belief indirectly, in so far as cognizers draw upon a logic of induction to reason from belief to belief. In failing to separate them clearly, I conformed with the corresponding failure in much of the present epistemology literature.

Critiques of the material escape from the problem of induction continued. Nothing is as assured to attract critical responses as a claim of a solution to the problem of induction. Does not everyone know that it cannot be done? Some of them appeared in a volume of *Studies in History and Philosophy of Science* dedicated to *The Material Theory of Induction*. (My replies are in Norton, 2020, through which the original papers can be identified.) Many of these critiques mislocated the material theory of induction as within the epistemology of belief and, as a result, conflated issues that should have been kept separate. This alerted me to the need to distinguish the two contexts more clearly.

In the present volume, I have done my best to distinguish the two. The easy way to discriminate is to note that the two contexts use different relata. The relata of the logic of induction are propositions. Their content and relations are independent of human thoughts and beliefs. The relata of the epistemology of beliefs are beliefs. They are related by psychological processes that may respect some logic, or may not. These issues are laid out as clearly as I can in Chapter 6, “The Problem of Induction,” and in Chapter 5, “Coherentism and the Material Theory of Induction.”

Addressing the problem of induction has been a major stimulus to the ideas developed in this volume. However, tracing a pathway from this origin to these ideas is a poor way of presenting them. For the ideas about the large-scale structure of relations of inductive support are more important in their own right. They tell us how all the relations of inductive support fit together when we look at the entirety of science. They would retain this importance even if they had nothing to say about the problem of induction. Once the problem of induction is mentioned, however, it seems to mesmerize many philosophers so that they are unable to see anything else. For this reason, I avoided all mention of the problem of induction in *The Material Theory of Induction* until the Epilog, lest it distract readers from the substance laid out in its sixteen chapters. For this reason again, I have delayed discussion of the problem of induction until well into the present work. My hope is that this tactic will induce readers to consider the account developed here of the large-scale structure of inductive inference in its own right and not

conceive it as yet another tiresome attempt to solve the problem of induction. No doubt I will fail in these hopes with some readers, but will you, dear reader, not be one of them?

During the writing of this text, I have been helped by colleagues and I have acknowledged their support in the context of the individual chapters. That identifies their assistance more clearly than would a long, generic list here. However, I do now thank participants in my graduate seminar, HPS 2682 Theories of Confirmation, for their reading and critical reflections on Chapters 1, 2, 3, 4 and 6 in meetings of March 31 and April 7, 2021.

The material in this volume was collected over several years. Some of the chapters were written in their earliest forms when I thought it might be possible to include this discussion in the earlier volume, *The Material Theory of Induction*. Later chapters were written subsequently. Many of them were written in the COVID-19 pandemic years of 2020-2021. Immersion in writing them provided a little of the comfort and support needed during this awful time of bad news and isolation.

The greater support was provided by my wife Eve, whose love and companionship brightened each day and to whom this volume is dedicated.

## References

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