

A collage of various objects including a mosaic, a plate, and a helmet.

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PHYLLIS ILLARI & FEDERICA RUSSO

# CAUSALITY

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PHILOSOPHICAL THEORY MEETS  
SCIENTIFIC PRACTICE

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# CAUSALITY

## Philosophical Theory Meets Scientific Practice

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## Causality



*To David. A Giuseppe.*



# FOREWORD

Causality has, of course, been one of the basic topics of philosophy since the time of Aristotle. However during the last two decades or so, interest in causality has become very intense in the philosophy of science community, and a great variety of novel views on the subject have emerged and been developed. This is admirable, but, at the same time, poses a problem for anyone who wants to understand recent developments in the philosophy of causality. How can they get to grips with this complicated and often very technical literature?

Fortunately, Part II of this book provides the solution to this problem. In only 171 pages, the authors provide a survey of recent accounts of causality which is clear, comprehensive and accurate. Considering the breadth and complexity of the material, this is a remarkable achievement. The main emphasis in this part of the book is on the research of others, but the authors do include accounts of some of their own work. In chapter 13 (Production Accounts: Information), there is a discussion of Illari's and Illari and Russo's recent work on an informational account of causality. In chapter 15 (Regularity) and chapter 16 (Variation), there is a good presentation of Russo's criticism of Hume's regularity theory of causation, and an exposition of her view that 'variation' rather than 'regularity' is the underlying rationale for causation.

In the remainder of the book (Parts III and IV), the emphasis shifts to the authors' own research, and we find quite a number of interesting and original developments. The authors begin by outlining their approach, which they call: 'Causality in the Sciences'. This is an approach which emphasizes the need for a continual interaction between philosophy and science. It leads to the discussion in chapter 20 of an important, but rather neglected, question about the methodology of philosophy. Should philosophers consider toy examples or examples from science? The literature of the philosophy of causality is filled with the improbable adventures of Billy and Suzy, and one even finds purely imaginary examples such as Merlin causing a prince to turn into a frog. Are such 'toy' examples really of much use for the analysis of causality? Given the authors' Causality in the Sciences approach, one might expect them to prefer examples from science to toy examples, but, in fact, they provide a nuanced account in which there is room for both sorts of example. What is significant here is the consideration of an important topic, which is rarely discussed.

Part IV of the book draws some general conclusions. The authors favour a pluralist view of causality. There is no universal notion of causality, which applies in all

contexts, but each of the various analyses of causality does apply in some particular contexts. In the authors' own words (p. 256):

All we are saying is that the full array of concepts of causality developed within philosophy could very well be of interest to practising scientists . . .

So when trying to apply causality to any particular scientific example, there is a need to construct what the authors call, in a striking phrase, a 'causal mosaic'. They then illustrate the construction of a causal mosaic by considering an example from contemporary science. This is the new research area called 'exposomics' which attempts to find out how exposure to objects of various kinds can cause illnesses. Thus the authors' title *Causality* is not a rhetorical flourish, but a programme, which is actually carried out in the course of the book.

Donald Gillies

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University College London

March 2014

# ACKNOWLEDGEMENTS

We started working on the idea for this book while we were both at the University of Kent, where we shared not only an office but also a flat. This created intensive collaboration between us (and a ‘no causality after 8pm!’ rule that Lorenzo Casini will also remember). Although we have since moved to different institutions—and countries—we are deeply indebted to the information and communication technologies that allowed our weekly meetings to take place anyway.

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We have worked closely together on the structure of the book and then on the contents; writing and re-writing, commenting, manipulating and polishing each other’s work. In the pages you are about to read, it is really hard to identify the work of one or other of us.<sup>1</sup> The result is that writing it has been enormous fun!

Finally, our deepest thanks go to David and Giuseppe. You know why.

<sup>1</sup> Naturally, we had to decide who would write preliminary drafts of chapters. Phyllis was in charge of chapters 3, 6, 9, 12, 13, 14, 17, 18, 19, 20, 21. Federica was in charge of chapters 2, 4, 5, 7, 8, 10, 11, 15, 16, 22, 23. Chapters 1, 24, and the tables in the appendix are the result of many revisions and intensive co-writing.



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## **PART I**

# **Prelude to Causality**

In this part of the book we introduce and illustrate five scientific problems of causality that the accounts, concepts, and methods of Part II have to deal with. We also provide a basic scientific and philosophical toolbox to be used throughout the book.

