DAVID PAPINEAU

Philosophical Devices: Proofs, Probabilities, Possibilities, and Sets

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Contemporary philosophy has a proper language, a dense and technical vocabulary that has been created along the years by philosophers themselves or imported from other areas. 'Analytic/synthetic', 'a priori/a posteriori', 'contingent/necessary', 'possible worlds', 'rigid designators', 'alethic modalities', 'conditional probability', 'conditionalization', 'denumerability' and 'incompleteness theorem' are some of the terms in the philosophical agenda. So much technicism could lead one to believe that contemporary philosophy is a world unto itself. The semantic of possible worlds, to cite just one example, is an idiom as fundamental to understand contemporary philosophy as the evolutionary biology is fundamental to understand contemporary biology. Thus, it is not possible to understand how philosophy is currently made without mastering this technical vocabulary. 'Philosophical Devices' is a book that aims to present this vocabulary to philosophy undergraduates.

Papineau selects some of the most important and fundamental concepts used in contemporary philosophy and present them in an accessible way, but without lack of rigour. The book is divided into four parts; each composed by three chapters with corresponding exercises. The first part, 'Sets and Numbers', presents the basic vocabulary of set theory, Russell's paradox (the set of all sets that does not include themselves), transfinite sets, denumerability, and the continuum hypothesis.

The second part, 'Analyticity, a prioricity, and necessity', presents the main concepts involving possible worlds and modalities, such as semantic modalities (analytic and synthetic), epistemic modalities (a priori and a posteriori), alethic modalities (necessary and contingent), as well as discussions about the necessary a posteriori, rigid designators, the

contingent a priori, the nature of necessity, and the causal theory of reference.

The third part, 'The Nature and Uses of Probability', presents basic notions of probability and their application in philosophy. Some of the notions presented are objective and subjective probability, Kolmogorov's axioms, conditional probability, Bayes' theorem, probabilistic independence, expected utility, Dutch books, correlations, causality, and Simpson's paradox.

The fourth part, 'Logics and Theories', presents some fundamental distinctions such as logic and metalogic, syntactic and semantic consequence, soundness and completeness, and Gödel's incompleteness theorem. Apart from the indispensable references, the book contains a list of bibliographical suggestions, solutions to exercises and a good index.

Papineau's choice of concepts and topics included in the book is reasonable given the wide range of contemporary philosophy. One of the main virtues of the book is that Papineau presents the chosen topics and concepts in a philosophically interesting manner, informing the context, and telling the reader of some disagreements about what he just presented. Papineau uses plain language and dispenses formalisms or technical details that are not strictly necessary to an elementary understanding of what is presented. This option for skipping some details could be seen as a slip or lack of rigour by some specialists used to more formal investigations, mainly those who also have a mathematical training. But any reaction of that type would be misplaced. We should have in mind that the main target readers of the book are freshmen making their first contact with these notions, and not specialists who are willing for more substantial materials.

Of course, the book is not perfect. One flaw is its size. Its short dimension forces the author to present some concepts way too fast, sometimes in a manner that is superficial even to the standards of a textbook. In chapter seven, for instance, Papineau does not explain trivialities such as the manner to determine the value of the probability of p & q when p and q are propositions about independent events. Of course that this is a truism for one who already mastered the basics about the subject, but the whole purpose of the book is precisely to explain these truisms in an accessible manner to students who still do not know the basics. The explanation of the Gödel's theorem presented in the last chapter is also very brief and can let some readers disappointed[1]. I am not saying that the book should be longer in

[1] A clearer explanation can be found in Ernest Nagel and James Newman's book, 'Gödel's Proof'.

order to explore more complicated topics, but that the book should be longer in order to explain some basic topics in a clearer and accessible way.

The book could also have been more informative in some points. In chapter 8, for instance, the author introduces some concepts about conditionals (conditional probability, material conditional, the distinction between indicative and subjunctive conditionals), but mentions without going into further details that the conditional probability of a conditional cannot be its probability of being true. What happens is that in the beginning of the seventies some philosophers started to conjecture that the probability of a conditional being true should be measured by its conditional probability – this conjecture is usually known as 'Stalnaker's hypothesis'[2]. At first sight, this seems true. The probability of 'the match will light if you struck it' is the same probability than 'if you strike the match, it will light'.

Against our intuitions, David Lewis (1976; 1986) showed that this is not possible: there is no proposition that can fulfil this requirement. To be more precise, he showed that a proposition to which its truth probability is correspondent to its conditional probability would have so trivial probabilities distributions that it would be too simplistic or unrealistic to represent human beliefs[3]. There are still some controversies about this proof, but most philosophers nowadays accepted it. Since the author uses three sections of the chapter eight explaining only notions involving conditionals he could have easily created an entire chapter about conditionals, thus having the necessary space to explain in an accessible way not just Lewis' proof but other important topics.

In any case, these problems do not make the book less worthy to philosophy undergrads or less recommendable. Rather, it is a very important textbook either for doing an introductory exposition of important technical notions that normally would require different textbooks to comprise them, as for providing the most recent developments in philosophy. It is a book that should be a mandatory reference to aspirant philosophers who want to do their first steps in the field. It is a reading not to be missed.

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[2] See Stalnaker (1970). It is also known as 'the equation'.

[3] The reader can find an accessible presentation of Lewis' proof in Bennet (2003).

References

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