Probabilistic Knowledge

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Preface

This book argues that credences can be knowledge. Say you have .5 credence that a certain coin landed heads, .6 credence that your friend Jones smokes, and .3 credence that your friend Brown smokes. I argue that each of these credences can be knowledge, in just the same way that your full beliefs can be knowledge. Traditional epistemology has focused on the epistemic status of full beliefs in propositions, such as the proposition that you are not dreaming, or that God exists, or that you have hands. But in addition to having knowledge of black and white propositions, we have knowledge that comes in every shade of grey.

This book is about credences, but not just about credences. More generally, it is about probabilistic beliefs. For instance, I argue that you can know that it might be raining outside, where this epistemic modal belief cannot be reduced to full belief in any proposition. Similarly, your conditional beliefs and conditional credences can be probabilistic knowledge. Also, this book is about knowledge, but not just about knowledge—it is also about belief and assertion. There is something common to credences, epistemic modal beliefs, conditional beliefs, conditional credences, and so on. The contents of these attitudes are sets of probability spaces over propositions, or *probabilistic contents*. Just as tradition holds that you believe and assert propositions, I hold that you can believe and assert probabilistic contents. Hence probabilistic contents play a central role not only in epistemology, but in the philosophy of mind and the philosophy of language as well.

Accepting that we can believe, assert, and know probabilistic contents has significant consequences for a wide range of contemporary debates. For instance, my arguments about probabilistic belief support a novel account of the relationship between full belief and credence. As I defend the claim that we can assert probabilistic contents, I develop and defend a formal semantics for epistemic modals and probability operators, as well as a formal semantics for indicative conditionals. Along the way, I give arguments that challenge the celebrated connection between indicative conditionals and conditional probability. In later chapters of the book, I discuss several arguments for the claim that we can perceive probabilistic contents, including arguments informed by Bayesian models of human visual perception. I develop

several knowledge norms governing rational belief and action, including norms that have implications for what you should believe when you find out that you disagree with an epistemic peer. I spell out a precise interpretation of the claim that the resources of standard decision theory are inadequate when it comes to decisions about whether to have transformative experiences. I defend perceptual dogmatism from the objection that it is inconsistent with Bayesian principles of rational updating.

Along with many philosophical questions, probabilistic knowledge also helps us answer questions of interest to broader audiences. For instance, accepting probabilistic knowledge should prompt us to rethink common negative evaluations of stereotypically female speech. Probabilistic knowledge plays an important role in legal standards of proof, such as the standard of proof beyond a reasonable doubt. The fact that legal proof requires probabilistic knowledge explains why merely statistical evidence is insufficient to license a legal verdict of guilt or liability. Finally, probabilistic knowledge can be used to explain why acts of racial profiling violate not only moral norms, but also epistemic norms. I hope that in addition to moving many philosophical debates forward, this book will also help move them outward, by identifying practical and political problems to which my central claims may be usefully applied.

Some readers with limited time may be interested in reading selected portions of the book. Epistemologists will hit many important highlights by reading chapter 1, sections 3.5–6, and chapters 5 through 7. Philosophers of language will find it useful to focus on chapters 1–4, chapter 6, and sections 7.4–5. For anyone wishing to read a condensed version of this book, say for one meeting of a graduate seminar or a reading group, I recommend sections 1.1–2, 2.2, 5.6, 5.8, and 6.2–3, with the possible addition of section 2.1 for readers unfamiliar with the literature on epistemic modals, and sections 5.9 and 10.4–5 for readers interested in practical applications of probabilistic knowledge. The main ten chapters of the book are accessible to readers with no background in formal semantics; the appendix is an additional chapter for linguistically-minded readers who would like this book to turn it up to eleven.

Some of the ideas in chapters 3 and 4 of this book appear in "On the Semantics and Pragmatics of Epistemic Vocabulary," *Semantics and Pragmatics* vol. 8, no. 5 (2015). Some of the ideas in chapter 5 appear in "Epistemology Formalized," *Philosophical Review* vol. 122, no. 1 (2013). The other seven chapters are almost entirely new. I am grateful to have gotten feedback on my book manuscript from a variety

of audiences, including the philosophy departments at Harvard, MIT, Ohio State, Pittsburgh, Princeton, Purdue, Rutgers University–New Brunswick, University of California at Berkeley, University of North Carolina at Chapel Hill, University of Southern California, University of Texas at Austin, University of Wisconsin at Madison, and Yale. I have also benefited from comments from audiences at the 2015 workshop on Bayesian Theories of Perception and Epistemology at Cornell University, the Lofoten Epistemology Conference, the 2016 Northern Illinois University Graduate Conference, the 2014 Philosophical Linguistics and Linguistical Philosophy Workshop, the 2014 Rutgers Semantics Workshop, the 24th Semantics and Linguistics Theory Conference, and the 2014 University of Chicago Linguistics and Philosophy Workshop.

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