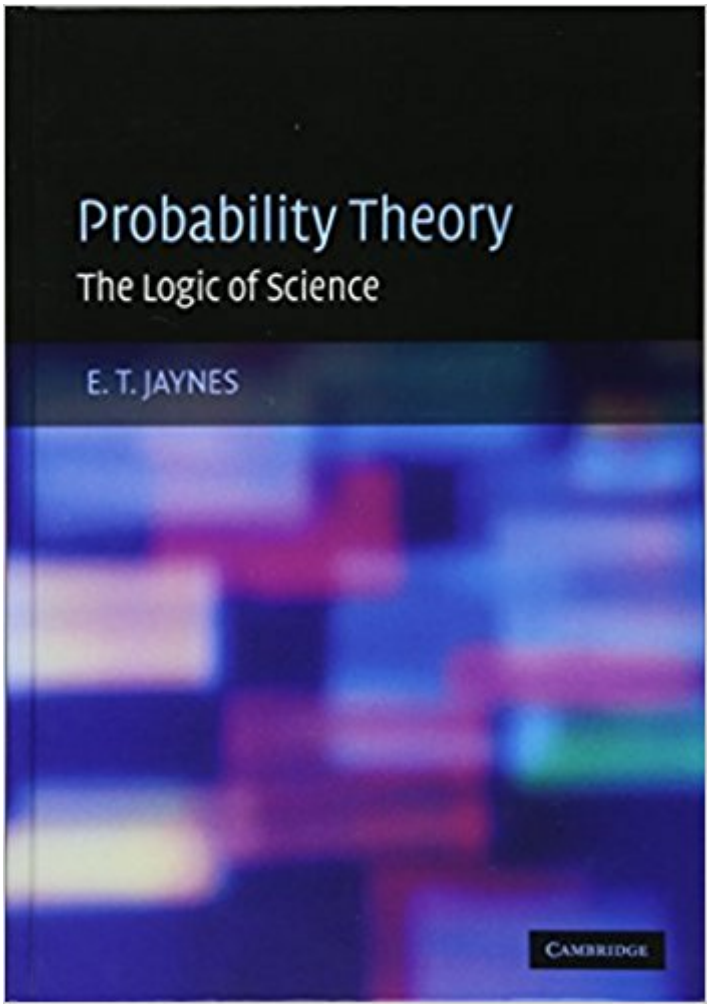
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Probability Theory: The Logic Of Science



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Synopsis

Going beyond the conventional mathematics of probability theory, this study views the subject in a wider context. It discusses new results, along with applications of probability theory to a variety of problems. The book contains many exercises and is suitable for use as a textbook on graduate-level courses involving data analysis. Aimed at readers already familiar with applied mathematics at an advanced undergraduate level or higher, it is of interest to scientists concerned with inference from incomplete information.

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Customer Reviews

Going beyond the conventional mathematics of probability theory, this study views the subject in a wider context. It discusses new results, along with applications of probability theory to a variety of problems. The book contains many exercises and is suitable for use as a textbook on graduate-level courses involving data analysis. Aimed at readers already familiar with applied mathematics at an advanced undergraduate level or higher, it is of interest to scientists concerned with inference from incomplete information.

I haven’t finished reading this book yet, but the chapters I read so far gave me so much understanding of issues that are either obscure or absent in other probability and statistics books - but are of great practical importance - that I decided recommend it here.It is true Jaynes’ style is caustic against positions that are contrary to his owns. But he is very convincing on the reasons he gives to pinpoint the big holes in the so called "orthodox" school of probability and statistics.Besides,

the book is very lengthy, without being prolix, on its explanations, making it very pedagogical. Constrasting with that, nevertheless, Jaynes sometimes proposes examples that I believe only a mathematician or physicist with specific knowledge of the subject mentioned by the author will be able to follow. But those parts do not impact understanding of the main ideas.It must be noted also that "Probaility theory: the logic of science" is mainly a theory book. Its goal is to present probability as an extension of deductive logic. It only brings a small number of exercises.The best thing about this book, at least for me, is having a style that really makes me look forward reading the next page, something very rare for a technical book. In fact, the only other book I came across that had that virtue was the "Feynman Lectures on Physics".

This is a classic - perhaps THE classic exposition of Bayesian statistics for physical scientists. Among other things, Jaynes strove to rediscover and rehabilitate Sir Harold Jeffreys, the geophysicist whose attempts to resurrect Laplacian/Bayesian statistics fell afoul of his fellow Cambridge professor, Sir Ronald Fisher, whose works (including Design of Experiments) were among the most influential of twentieth century statistics. Jaynes's own formidable achievements in adapting Bayesian statistics to physics and chemistry are legendary. There is also some amusing byplay in the form of a running critique (often confined to footnotes) of "Willy" Feller, the Princeton mathematician who authored a major textbook on probability theory.

The book provides an excellent overview of the field of statistics with the old 'frequentist' and the newer Bayesian approach, showing the relationships between the various distributions, all building it up from the two fundamental equations: sum and product law. As a bonus and for a better understanding it describes the historical developments.

This book is having a profound impact on my scientific practices from a fundamental philosophical level. I wish I had known about it years ago, and I hope it gains academic popularity. I'm constantly recommending it to my colleagues and friends.

Great book lots of fundamental ideas making the case for Bayes.

I have rarely learned so much from one book. This book is somewhat unusual among mathematical texts in that it is heavy on prose and (compared to other texts) light on equations. However, don't get the idea that it is any less rigorous! It simply focuses on precisely what most math books

neglect: exhaustive explanation of the concepts...and to very good effect. Jaynes (and his editor) are possibly the most articulate writers of mathematics I've ever read. If you can read equations like English, you may not appreciate this. The rest of us will.Summarizing the content: The book very exhaustively demonstrates how Bayesian statistical approaches subsume rather than compete with "orthodox" (sampling theory-derived) statistics. Importantly, it begins by deriving the sum and product rules (which in other texts are typically presented as axioms) from "common sense" considerations. In other words, what is usually treated as "given" in other statistics texts is shown to, in fact, depend on even more fundamental (and, thus, indisputable) considerations of what constitutes rational plausible reasoning. This places the whole endeavor of statistics on firmer ground than any other text I've seen. The book is worth buying for the first few chapters alone, but it just gets better from there.Jaynes goes on to link Bayes rule to information-theoretic considerations and build up probability as an extended form of logic (as the title implies). In some cases this yields a new and deeper understanding of "orthodox statistical practice." In others it exposes (and explains) the absurdities of strictly frequentist approaches. Again, I have rarely learned so much from one book.One caveat: It does not at all require a statistics background, but, obviously, some of Jaynes (mildly polemical) discourse will, of course, be lost on you without it.

Fantastic book. Changed the way I look at many things. Especially the intuitive way that bayesian updating in estimation is explained was helpful. It is a bit long, but as it is part math part philosophy, i guess that can't be helped

This is a classic and belongs on every serious data scientists bookshelf. It goes beyond just simply teaching statistics and focuses on the thinking one needs to acquire in order to understand underlying principles. As others have said, it is not for beginners since it is not a simplistic how to style reference. It requires concentrated effort to become familiar with the thought patterns one needs to develop to be a serious scientist. There are other books that provide the nuts and bolts of statistics, but this book provides a deep understanding of the usage of the various methods.

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