Book Review


There are many books on probability, a subject that is considered to be difficult by many students. One of the reasons is that students are more used to deterministic and linear mathematical problems, whereas probability usually relates to highly non-linear phenomena for which our intuition is often lacking or misleading and thus needs to be developed. Another reason may be the way the subject is taught, not rarely in a dull, rigid theorem-proof style, without much attention for intuition and ideas behind the theory.

This introductory text book is completely different and distinguishes itself in several aspects. It does not follow the theorem-proof style, but rather presents concepts and results in a natural flow, always proceeded by examples and applications to explain and to motivate the theory, and then proofs and problems follow smoothly in the text. Interestingly, mathematical results are typically referred to as Rules, instead of Theorems, maybe to emphasize application. This book shows students why probability is relevant in many fields as diverse as mathematics, physical sciences, biology, engineering, computer science and logistics. It also shows how to develop probability models and how to apply the probabilistic tools and rules. It does so by offering a huge collection of more than 750 instructive examples, problems and solutions, all taken from daily life, the news, sports, gambling, physics, industry and so on. Craftsmanship can only be acquired by hard work! This collection of problems is instrumental in developing and sharpening probabilistic intuition and imagination, and shows that probability is really everywhere in the world around us.

The book is intended for use in an introductory course in probability at undergraduate level for a range of disciplines including applied mathematics, statistics, operations research, computer science and engineering. It covers the standard material to be expected in such a book, including the notion of the basic probability model, random variables, conditional probabilities and expectations, and fundamental results such as the law of large numbers and the central limit theorem, but it also includes more advanced material such as renewal-reward processes and Markov chains in discrete and continuous time, with applications in queueing and Markov Chain Monte Carlo simulation. Surprisingly, topics such as, for example, the law of iterated logarithm, a proof of the strong law of large numbers, importance sampling and the Metropolis-Hastings algorithm are included in this book. This makes the book also suitable for a first-year graduate course.

In this book, Henk Tijms aims at sharing his passion and enthusiasm for the fascinating world of probability with his readers. I can only say that he convincingly succeeded to do so!

Ivo Adan
Department of Industrial Engineering Eindhoven University of Technology, P.O. Box 513, 5600 MB Eindhoven, The Netherlands

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