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An introduction to probability theory and its applications, Vol. I, by William Feller, Wiley, New York, 1950, 12 + 419 pp., $6.00

This is the first volume of a projected two-volume work. In order to avoid questions of measurability and analytic difficulties, this volume is restricted to consideration of discrete sample spaces. This does not prevent the inclusion of an enormous amount of material, all of it interesting, much of it not available in any existing books, and some of it original. The effect is to make the book highly readable even for that part of the mathematical public which has no prior knowledge of probability. Thus the book amply justifies the first part of its title in that it takes a reader with some mathematical maturity and no prior knowledge of probability, and gives him a considerable knowledge of probability with the necessary background for going further. The proofs are in the spirit of probability theory and should help give the student a feeling for the subject.

Probability theory is now a rigorous and flourishing branch of analysis, distinguished from, say, measure theory, by the character and interest of its problems. It is true that probability theory, like geometry, had its origin in certain practical problems. However, like geometry, the theory now concerns itself with problems of interest per se, many of which are very idealized, and have only a remote connection or no presently visible connection, with practical problems. At the same time the development of the science is continually stimulated by challenging problems arising in the various fields of application. This book contains a huge number of examples illustrating almost every aspect of the theory developed. These examples are very interesting and not at all of the ad hoc variety. It is no mean feat to present so many interesting examples between two covers. They enhance the interest of the theory even for the pure mathematician, except perhaps for the extreme diehard of the "God save mathematics from its applications" school.

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The outline given above of the book's contents is very bare and grossly inadequate. Since the book is not a unified treatment of just a few topics it is, however, difficult to do otherwise in a reasonable compass. To sum up, this is a superb book, and a delight to read. The gathering together of so much material in so brilliant a manner represents a prodigious amount of labor for which the mathematical public is greatly indebted. The reviewer congratulates the author; he has set a lofty standard for would-be writers of similar books to attain.

J. Wolfowitz

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