

MARJORAM, D. T. E., *Exercises in Modern Mathematics* (Pergamon Press, 1964), xiii + 250 pp., 15s.

This book provides an elementary treatment of sets, logic, linear programming, scales of notation, groups, matrices, vectors, probability and statistics, and topology along with a plentiful supply of simple exercises on these topics. The very elementary standard sustained throughout the text and in the exercises would suit sixth-form pupils who have been reared on the more traditional school mathematics and who desire an elementary introduction to the above topics before leaving school.

However, there are blemishes in terminology which would be liable to confuse the reader unfamiliar with the basic ideas of abstract algebra. If these were corrected the book would be a useful introduction to some of the newer topics coming into school mathematics syllabuses.

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LINDLEY, D. V., *Introduction to Probability and Statistics from a Bayesian Viewpoint* (Cambridge University Press, 1965), Vol. I, xii + 260 pp. 40s.; Vol. II, xiv + 292 pp. 45s.

There is by now a fairly well established pattern for introductory books on probability and statistics. On the probability side, an axiomatic treatment of probability and some discussion of probability calculus is followed by a rather dull and unmotivated section on random variables and distributions which sets up the apparatus used later in inference problems. On the inference side there is more variability in presentation, depending on the emphasis which the author lays on principle and general methods as opposed to the derivation of the classical procedures, largely based on the assumption of normal distributions, which are still the most widely used tools of the practising statistician.

One might have expected Professor Lindley's book, written from the unorthodox Bayesian viewpoint, to have departed considerably from this traditional pattern and the immediate reaction is one of disappointment that it does not do so. One point of departure is the publication of the book in two volumes and it is convenient to treat these separately.

Part 1 deals with probability. Apart from a twelve-page section in the first chapter discussing probability as a degree of belief, and a final chapter on simple stochastic processes, this part follows very closely the traditional pattern outlined above. The axiomatic structure adopted is one based on conditional rather than absolute probabilities and the treatment of this is excellent. Axioms are well motivated and there is no measure-theoretic fuss which is irrelevant for a book at this mathematical level.

Chapters 2 and 3 which comprise the bulk of Part 1 are concerned with random variables and distributions and all the apparatus associated with these which is necessary in the subsequent study of statistics. Everything that one could reasonably expect is included here. The mathematical level adopted enforces the separate study of discrete and continuous cases, as no knowledge of measure theory is assumed. Explanations are careful and detailed. As mentioned above, this aspect of the subject tends to be rather dull and while the author has made some attempt to relieve the monotony of definition upon definition by the introduction of the Poisson process and the simple random walk, the overall impression left by this section is that it is extremely competent but unexciting.

The final chapter of Part 1 uses the apparatus previously developed in an introduction to stochastic processes, and includes discussion of immigration-emigration processes, queuing theory, renewal theory and Markov chains. This, of course, is basically much more interesting and it seems a good idea to include it as it helps to give point to Chapters 2 and 3. Again explanations are extremely clear and proofs