"A DICTIONARY OF STATISTICAL TERMS"

N.G. Kendall and W.R. Buckland.

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The last 50 years have seen an enormous growth in statistical literature. This dictionary of 3,000 terms offers an invaluable service by standardizing terms and notation that have arisen in this period, up to 1978. This fourth edition is a revised and extended version of the first edition of 1957. Moreover, it is the only manual of its kind.

The major areas of statistics are covered. Terms from probability theory, decision theory, multivariate analysis, stochastic processes, nonparametrics etc. are included. In addition, terms associated with specific applications in the disciplines of economics, psychology etc. are given; thus the entries range from 'least favourable distribution' to 'Laspayres' Index'. The authors have interpreted terms in the broad sense; for instance theorems such as Cochran's theorem, technical terms such as 'variance' and particular concepts such as 'estimation' are included, as well as the usual 'tests of hypotheses' and various statistical distributions.

The manner in which the entries are explained reveals a British rather than an American approach to statistics in that the explanations are mostly given in a non-mathematical context. For instance, percentiles are described as 'The set of partition values which divide the total frequency into one hundred equal parts', rather than in relation to distribution functions. This non-mathematical bias means that terms such as 'probability measure', a Von Mises functional' and 'contiguity' are omitted. Emphasis is on placing the terms in the context from which they arose. As mentioned on the sleeve of the book, 'the authors have tried to attribute terms to those who originally introduced them into the literature'. Thus they appeal to a wide audience as the reader is given access to the concepts involved.

A distinctive feature is that well known terms are treated at great length. There is, for example, a fascinating description of 'degrees of freedom', and of the concept of 'probability' which give a flavour of the historical controversies surrounding these terms.

Some terms largely extinct in the literature are given extensive treatment, for example 'clisy'. On the other hand, the concept of 'permutation distributions' and 'permutation tests' is confined to three lines. Extensive treatment is given to distribution theory and parametric inference while terms from nonparametric statistics such as 'Walsh averages' and 'McNemar's test' are not mentioned. So the treatment is rather uneven, perhaps reflecting the authors' personal biases. Another criticism is that the last ten years have seen a rapid growth in the field of robust statistics. Necessarily, the dictionary cannot be expected to contain all the new terms which have arisen in this field, but those it does contain from the growth in robust statistics are unsatisfactory, in the light of recent developments. An example of this is that in the definition of robustness, the terms qualitative and quantitative robustness are not used.

In conclusion it is clear that this is a very welcome addition to the literature. It should be of great value to graduate students, consultants in statistics and researchers in statistics from other disciplines. It is a useful reference book for statisticians generally, and it is hoped that with future revisions, it will eventually become the guide for all statisticians.

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