Book Reviews

Fahrmeir, L. Hamerle, A. (Eds. in collaboration with W. Häußler, H. Kaufmann, P. Kemeny, Ch. Kredler, F. Ost, H. Paper and G. Tutz): **Multivariate statistische Verfahren**. (Multivariate statistical procedures).

Berlin – New York: W. de Gruyter 1984. XIII, 796 p., DM 198,– ISBN 3-11-008509-7

This is a medium-level introductory text on "multivariate statistical methods" designed for mathematicians, statisticians, and practioners, but simultaneously a valuable reference manual on a large number of classical and more recent methods in this field. These are presented in 12 largely independent chapters where each one introduces the problem, develops the formal basis with definitions, theorems, and proofs (but omitting lengthy derivations by referring to the bibliography), and illustrates the results by a real case example.

The first 5 chapters concentrate on classical topics and general principles which are exemplified mainly in the multivariate normal case; this presentation is more or less concise since these topics are well explained in other books, too. Fully detailed, however, are the 7 subsequent chapters which account for the novelty and pecularity of the book since they present a series of more recently developed multivariate methods which refer to non-classical situations: Categorical, binary, ordinal, or mixed data, as well as exploratory methods like model selection, cluster analysis, multidimensional scaling etc. This is evident from the chapter headings (with some keywords):

§ 1 Introduction (10 p.); § 2 Multivariate random variables and their distributions (e.g. multinomial, normal, Wishart or Wilk's distributions. 30 p.); § 3 Fundamental multivariate testing and estimation problems (likelihood methods, union-intersection principle, simultaneous inference. 34 p.); § 4 Regression analysis (the univariate and multivariate case, nonlinear regression, canonical correlation. 72 p.); § 5 Variance and covariance analysis (one-way and two-way designs, random and mixed effects, MANOVA. 51 p.); § 6 Categorical regression (binary and multistate target variables, conditional methods, ordinal responses, scoring method. 41 p.); § 7 Generalized linear models (univariate and multivariate, variable selection. 38 p.); § 8 Discriminant analysis (normal, categorical, and mixed variables, kernel methods, nonparametrics. 69 p.); § 9 Cluster analysis (simularity and distance, hierarchical and partitioning methods, mixture models, latent class analysis, nonparametric methods. 101 p.); § 10 Association analysis in multidimensional contingency tables and loglinear models (model selection, logit models, ordered categories, missing values. 101 p.); § 11 Factor analysis (identifiability, maximum likelihood method, principal components, factor rotation, structure analysis of covariance matrices, latent structure and profile analysis. 88 p.); § 12 Multidimensional scaling (metric and nonmetric MDS. 26 p.) – Appendices: A. Matrix algebra B. Tables C. Real data. – Bibliography (620 references).

When reading the book I was pleased by its smooth style of presentation, the careful choice and adequacy of notation, the almost negligeable number of (minor) errors, and the excellent lay-out of the text. Personally, I missed some specialities, e.g., some information on the power properties of tests (e.g., in § 3, 4, 5) or some references relating theorems to their original papers (e.g., canonical correlation in § 4.2.5, Menger's and Schoenberg's embedding theorem in § 12.4.2). However, these 800 pages cover such a wide domain that this book can be highly recommended as a standard text and a valuable source of information for students, statisticians and applied researchers which have some background in matrix algebra.

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LORENZ, Bernd: Systematische Aufstellung in deutschen wissenschaftlichen Bibliotheken (Systematic shelving in German scientific libraries). Wiesbaden: Harrassowitz 1985. 101p. = Beiträge z.Buch- u.Bibl.wes.,Bd.21. ISBN 3-447-02493-3

In contrast to the comprehensive title of this article, the contents, in the main, deals with the possibilities and problems of existing shelf-classification systems in the university libraries of the Federal Republic of Germany. In this connection, some general aspects of the pros and cons of open access shelving for universal library holdings are also discussed. As, up to now, a survey in the university libraries of the FRG was non-existent, this attempt at an "outline of the state-of-the-art" is more than welcome. Six classification systems are looked into: namely those of the university libraries in Bielefeld, Bremen, Konstanz, Trier, and of the library networks in Bavaria (UL Regensburg), and in North Rhine Westphalia (Comprehensive University Library System). Apart from the Trier classification system, which is still in an immature state, the selection made is representative of the highly individual use of classification systems in scientific general libraries in Germany, though a comparison with the subject scheme of the UL in Bochum and free classification systems could have rounded off the spectrum of the various possible solutions. The systems chosen are properly characterized by short schematized descriptions and references to the literature.

These classification profiles would, however, be much more graphic if they did not only list the sequence of the main classes, but also showed structuring and notation extracts from the described schemes. The comparative examples that follow touch on some important aspects, such as the subject fields, depth of vision, and subject classification of selected topics. These quantitative arrangements are, however, hardly meaningful as they, in the main, reflect local starting conditions in isolated universities and dispense with a comparison with general criteria for subject-field structuring. On the other hand, the