

The concluding chapter, Chapter twelve, is devoted to a collection of sparsity issues aside from the solution of sparse linear systems. Notable inclusions in this chapter are the Curtis-Powell-Reid algorithm for efficient calculation of sparse Jacobian estimates and an algorithm of Toint for updating sparse Hessian approximations for quasi-Newton calculations. (Unfortunately, positive definiteness of the approximate Hessian is not retained.) The open question of sparsity-constrained backward error analysis is also discussed.

Direct Methods for Sparse Matrices will be a valuable addition to the bookshelf of every reader interested in the solution of large sparse problems.

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4[62-04].—PETER LANE, NICK GALWAY & NORMAN ALVEY, *Genstat 5—An Introduction*, Clarendon Press, Oxford, 1987, xii+163 pp., 25 $\frac{1}{4}$ cm. Price \$45.00.

GENSTAT is a general statistics program designed to analyze data with the help of a computer. It combines the advantages of a programming language like FORTRAN with those of specialized “canned packages” like SAS or SPSS.

The Genstat 5 introduction by Lane, Galway & Alvey is designed to help the beginner getting started. It covers only the basic features and a few selected statistical methods like plots of data, linear regression, tabulation of data, and analysis of designed experiments. The reader is carefully guided from the first steps of reading and writing data to the actual statistical analyses and to the writing of more complicated Genstat programs. The numerous examples and exercises provide ample opportunity to gain experience with Genstat. I liked particularly the refreshing, nontechnical style in which the book has been written, and I am sure that students will find pleasure in learning to analyze data using this introductory guide. My only criticism of the book is its relatively high price.

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5[62Q05, 62E15, 62F07, 62J15, 62H10].—R. E. ODEH, J. M. DAVENPORT & N. S. PEARSON (Editors), *Selected Tables in Mathematical Statistics*, Vol. 11, Amer. Math. Soc., Providence, R.I., 1988, xi+371 pp., 26 cm. Price \$46.00.

This volume includes tables constructed by R. E. Bechhofer and C. W. Dunnett of selected percentage points of the central multivariate Student t distribution in which there is a common variance estimate on ν degrees of freedom in the denominators of the variates, and the numerators either are equicorrelated (Tables A and B) or have a certain block correlation structure (Tables C and D).

Tables A and B (which practically cover the volume) provide in the equicorrelated (ρ) case one-sided and two-sided equicoordinate 80, 90, 95, and 99 percentage