

analysis, and mathematical theory. The main text is complemented by three appendices supplying some statistical theory, theory of linear difference equations, and theory of partial differential equations. The appendix on statistics is restricted to classical parametric theory (multinomial likelihood, likelihood ratio tests, sufficiency, Neyman's factorization theorem) on fewer than seven pages. One wonders whether this can be regarded as sufficient for the statistical work in the text. Strictly speaking, it is not; after all, the bootstrap idea occurs twice in the text.

According to the author, the book is suitable for a two-semester course. Presumably, the special pedagogical strategy will teach the student at an early level to relate theory and applications. For a full understanding, however, supplementary courses concentrating on probability theory and statistics will be needed.

P. J. Bickel, Ch. A. J. Klaassen, Ya'acov Ritov, J. A. Wellner: Efficient and adaptive estimation for semiparametric models, The Johns Hopkins University Press, Baltimore and London, 1993, XIX/560 pp., \$114.00

Reviewed by H. Strasser, Vienna

In the past three decades, the mathematics of the theory of statistics has been come a long way. However, there are only a few books that show the power of the theory by interesting and nontrivial models. This book gives a rich overview of how parametric and semiparametric models can be analysed and proceed by modern concepts of asymptotic statistics. The authors of the book are a leading research group in this field.

The main topic of the book is the construction of information bounds for the estimation of parameters, where both the finite dimensional case as well as the nonparametric case are considered. The mathematical theory is developed to such an extent as is necessary to cover all models discussed in the statistics literature in recent years. The mathematical theory of information bounds is more or less complete, but its application to special cases often leads to interesting and challenging mathematical problems. A final chapter in the book deals with the construction of estimators. A universal recipe for this problem is not available. The book gives an overview of the basic ideas which have been discussed recently. The appendix contains some mathematical facts which are necessary for the theory.

Working through this book is a fast way to follow up the present research in the field of mathematical statistics. However, the book is not a convenient introduction to mathematical statistics, but rather a compact presentation of the state of the art. Reading this book requires a lot of mathematics and considerable experience in dealing with theoretical statistical literature.