Theory of Rank Tests, by J. Hajek and Z. Sidak. Academic Press, 1967. 297 pages. $8.00.

This book is an excellent comprehensive treatment of the theory of rank tests. The level of abstraction is fairly high; much of the book would be difficult for a reader without measure theory.

The small sample theory of rank tests and modified rank tests is treated in full detail for the usual null hypotheses. The large sample, or asymptotic theory is discussed both for null hypotheses and for alternatives which are asymptotically close to the null hypotheses. Principles for selection of modifications of rank tests which are asymptotically optimum for particular classes of alternatives are given in forms which are both very general and easily applicable.

C. Kraft, Université de Montréal

A selection of early statistical papers of J. Neyman. University of California Press, 1967. ix + 429 pages. $14.95.

This volume contains 28 papers of J. Neyman which were written between 1923 and 1945. (A bibliography of 156 publications of Neyman is included). The following quotation is from the cover's excellent description of the subjects of the works in this volume.

"The group of papers gives a clear and consistent view of the general objective approach to statistical inference introduced by J. Neyman in the formulation and treatment of problems of estimation and (with E.S. Pearson) in the treatment of tests of statistical hypotheses.

The papers also give an indication of Neyman's general approach to practical statistical problems. This consists of constructing appropriate stochastic models reflecting the essential features of the phenomenon under study and then deriving definite and specific optimal statistical procedures adapted to the problem, instead of relying on standard methods.

Neyman's fundamental papers on the formulation of the theory of estimation and the construction of confidence intervals are included with papers discussing the relations of this theory to the then prevalent methods of fiducial inference proposed by Sir Ronald Fischer. On the theory of testing hypotheses, the volume contains Neyman's papers on the construction of locally optimal similar or unbiased tests of composite hypotheses and a number of papers indicating, in particular, the relations of the Neyman-Pearson approach to the Bayesian approach.

The papers on contagious distribution, on the dilution method and similar subjects present interesting approaches to practical problems. Neyman's famous papers on sampling of human populations and on the representative method are also included. Papers on the "smooth" test

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of goodness of fit and on the theory of the χ^2 test describe asymptotic methods, and, in particular, the "best asymptotically normal estimates" which have been found very valuable in a large variety of applications."

C. Kraft, Université de Montréal

Joint statistical papers, by J. Neyman and E.S. Pearson. University of California Press, 1966. 299 pages. Selected papers $6.75.

This volume contains ten joint papers of J. Neyman and E.S. Pearson which were published between 1928 and 1938. The publication of this volume permits a study of Neyman's and Pearson's ideas leading to, and associated with, their basic and, now, classic theory of testing hypotheses. The papers include their proposal and application of the likelihood ratio test, the Neyman-Pearson lemma and its extension to similar tests, relations between tests and sufficient statistics; and regions of types A, A_1, and C. One paper, written in 1933 and which treats the problem of tests and a priori probabilities, contains a discussion of how a testing problem with a well-defined loss function (i.e. a decision-theoretic problem) can be solved for a given a priori distribution.

C. Kraft, Université de Montréal

Topics in algebra, by I.N. Herstein. Blaisdell, 1964/1965. 342 pages. $9.50.

This is a superb book. It is a first course in abstract algebra, introducing students to groups, rings, modules, and fields, and it puts most other books in this area deep into the background.

The first edition was ridden with misprints, but these have almost completely been corrected and one can enjoy the full pleasure of this giant uninterruptedly.

On the surface it looks like any other book on abstract algebra and one does not savour all its goodness until it is used in class. I have had an opportunity to actually use it and though I don't understand exactly why it works beautifully, I can say that it does.

Herstein has a free and easy style. He faces difficult parts squarely and honestly but does not fall into the trap of trying to show off his mathematical know-how to his colleagues. The book is for students, not for professors - a rare achievement.

There are often two or more streams of students taking courses in abstract algebra. One of these, the weakest stream, may have trouble with this text and should perhaps continue to feed off a book like Marie Weiss' "Higher algebra". Though I would like to see how they fare with this book.

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