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.

It may not be enough just to look the book through. Give it a try in class and you, too, will be delighted.

N. Divinsky, University of British Columbia

Computation: Finite and infinite machines, by Marvin Minsky. Englewood Cliffs, N. J., Prentice Hall. xvii + 317 pages. $12.00.

"The main goal of this book is to introduce the reader to the concept of effective procedure". The concepts effective procedure, algorithm, computability and decidability are studied using three different approaches: machines performing certain actions, recursive functions and symbol manipulation (Post) systems.

The book is self-contained and includes a number of exercises with partial solutions to the harder problems. It provides a good text-book at the undergraduate level. Formal language is reduced to a minimum throughout. This is admirably achieved without apparent loss of conciseness or rigor. Thus the beginning student is introduced to a surprising variety of results and proofs in a leisurely but convincing manner.

Summarizing, the book is an excellent introduction to computability theory. A more detailed discussion of the contents of the book follows.

Part I (Finite-state machines): Finite-state machines are discussed from three points of view: as deterministic devices with a finite amount of memory whose behaviour is characterized by a transition function and a response function, as neural networks (1) built from a small number of basic parts, and as defining sets of words which can be described using regular expressions. The equivalence of the three approaches is demonstrated. The author discusses various alternatives for the basic parts which can be chosen to form a neural network. Part I is not an introduction to finite-state machines as such (thus basic ideas such as minimal state machines are not mentioned) but provides a foundation for further examination of the concept of effective procedure.

Parts II and III (Infinite machines and symbol-manipulation systems): Turing machines are introduced followed by an explanation and discussion of Turing's (Church's) Thesis that Turing machines can be used for adequately defining the concept of algorithm. A universal Turing machine is constructed. The halting and related problems for Turing machines are proved undecidable. Primitive recursive functions are introduced. The reason for their limitation is pointed out, leading in a natural manner to general recursive functions. McCarthy's conditional expressions are discussed as an alternative approach. A simple computer-like machine, the program machine (having only 4 types of instructions and 4 registers, each able to hold one positive integer)