74[K].—G. D. BERNDT, "Power functions of the gamma distribution," *Ann. Math. Stat.*, v. 29, 1958, p. 302–306.

If x is a random variable from a gamma distribution with frequency function, $f_0 = f(x; \beta, \nu) = |\beta^\nu \Gamma(\nu)|^{-1} x^{\nu-1} \exp(-x/\beta)$; $\beta > 0$, $\nu > 0$ and $x \geqq 0$; the frequency function for δx with $\delta > 1$ is $f_1 = f(\delta x; \delta\beta, \nu)$. To test the null hypothesis on the mean, $H_0: \mu = \beta\nu$, against the alternate, $H_1: \mu = \delta\beta\nu$, $\delta > 1$, one may use the statistic $\alpha(x)$ with the critical region defined by $\alpha = \int_{\alpha(x)}^{\infty} f_0 \, dx$. Then the power of this test is $\pi_\delta = \int_{\alpha(x)}^{\infty} f_1 \, dx$. The mean of a random sample from a universe whose frequency law is $f_0 = f(x; \beta, \nu)$ obeys a gamma distribution with parameters β/n and $n\nu$. For $\alpha = .01, .05, .1$, charts are given for reading π_δ for $1 \leqq \delta \leqq 4$ and $\nu = \frac{1}{2}, 1(1)5, 7, 10(5)50$.

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75[K].—H. CHERNOFF & L. E. MOSES, *Elementary Decision Theory*, John Wiley & Sons, Inc., New York, 1959, xv + 364 p., 24 cm. Price $7.50.

This book is an elementary approach in the theory of statistics through the theory of the strategy of games, and as such is a refreshing change from the usual run of elementary statistics textbooks. The authors state that only an understanding of high school (U.S.) mathematics is required, which is possibly optimistic. However, it is fair to say that the mathematical content of the book is not excessive, the exposition being mostly by example.

Chapter I gives the principles of decision and an introduction to minimax. Chapter II, entitled Data Processing, turns out to be our old friends graphical representation and means and standard deviations. No mention is made of grouping corrections. There are 38 pages on probability and random variables, both continuous and discrete, followed by a brisk treatment of utility and descriptive statistics. This chapter (IV) will be rather difficult for the beginner.

The authors have now reached a stage where they can, and do, begin to discuss strategies. Chapter V, "Uncertainty due to Ignorance of the State of Nature," gives simple Bayes strategies, minimax, and expected regret. (The reviewer liked the remark, "it is difficult to visualize four-dimensional space.") Further chapters cover further Bayes strategy and the application to problems which might arise in what is termed "Classical" statistics, in testing hypotheses, and in estimation. There is a series of appendices in which some of the statements in the main body of the text are proved.

This is an interesting book and may prove useful to those who see the interpretation of numerical data as just one more decision to take; it is greatly to be doubted whether it is of general utility. In one way, however, it is unique. Fisher and Neyman in their several ways might be said to have contributed to statistical decision theory, but are not deemed worthy of reference.

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