92[K].—B. M. Bennett & C. Horst, *Supplement to Tables for Testing Significance in a* 2×2 *Contingency Table (Five and One Percent Significance Points for* $41 \leqq A \leqq 50, B \leqq A$), Cambridge University Press, New York, 1966, 28 pp., 26 cm. Price $1.00 (paperbound).

These tables are an extension of Table 2 in D. J. Finney, R. Latscha, B. M. Bennett & P. Hsu, *Tables for Testing Significance in a* 2×2 *Contingency Table*, Cambridge University Press, 1963, previously reviewed here (*Math. Comp.*, v. 18, 1964, pp. 514–515). The notation is that of the earlier publication. The present table gives the 5% and 1% one-tail significant values, $b_{.05}$ and $b_{.01}$, for $41 \leqq A \leqq 50$, $B \leqq A$; the exact probabilities are not given.

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93[K].—F. Zabransky, Masaaki Sibuya & A. K. Md. Ehsanes Saleh, *Tables for Estimation of the Exponential Distribution by the Linear Combinations of the Optimal Subset of Order Statistics*, The University of Western Ontario, London, Canada, undated. 184 computer sheets. Copy deposited in UMT file.

If $Y(1) > \cdots > Y(N)$ is a decreasingly ordered sample from the exponential distribution

$$f(x; \sigma) = \sigma^{-1} \exp(-x/\sigma), \qquad x \geqq 0, \qquad \sigma \geqq 0,$$

then σ can be estimated by linear forms

$$\sigma = B(1)Y(n_1) + \cdots + B(k)Y(n_k),$$

where

$$1 \leqq \nu + 1 \leqq n_1 < \cdots < n_k \leqq N,$$

which implies that ν upper observations are censored.

The first three tables give the ranks n_i, the coefficients $B(i)$, and the inverse of the minimized variance K^* of the minimum-variance unbiased estimator. These tables can be used also for lower and doubly censored samples and for the estimation of both σ and θ for the distribution $f(x - \theta; \sigma)$.

Table 1 (35 pp.) gives K^* and $B(i)$, each to 5D, for $N = 1(1)15$, $k = 1(1)10$, $N - \nu = k(1)N$.

Table 2 (90 pp.) gives 5D values of K^* and $B(i)$ for $N = 16(1)45$, $k = 1(1)10$, $(N - \nu)/N = 0.5(0.1)1.0$.

Table 3 (40 pp.) gives 4D values of K^* and $B(i)$ for $\nu = 0(1)9$, $k = 1(1)8$, $N = (k + \nu)(1)(k + \nu + 23)$.

Table 4 and 5 relate to the asymptotic case ($N \to \infty$). For given k and $p = \nu/N$, they give $p_i = n_i/N$, $B(i)$, and $V(p, k)$, which is determined by the relation: the minimum variance $= N^{-1}V(p, k) + O(N^{-2})$.

Specifically, Table 4 (16 pp.) gives p_i to 4D, $B(i)$ to 4D and $V(p, k)$ to 5D for $k = 1(1)8$, $p = 0.02(0.02)0.98$; while Table 5 (3 pp.) gives 8D values of p_i, $B(i)$, and $V(p, k)$ for $p = 0$ (uncensored) and $k = 1(1)15$.

The data in Tables 1, 2, 3, and 5 are accurately rounded; however, Table 4 contains errors attributable to the discrete approximation in the maximizing process. For $p > 0.8$ the tabulated values of p_i are accurate to 2D; for $0.7 < p \leqq 0.8$, p_i is accurate to 3D; and for smaller values of p, the maximum error in p_i is 5×10^{-4}.

The coefficients $B(i)$ are exact in the sense that they give the minimum-variance unbiased linear combination of the order statistics which are chosen according to the table.

The underlying theory, the algorithms used in the tabulation, and a list of previous publications may be found in a paper by Sibuya [1].

AUTHORS' SUMMARY

1. M. SIBUYA, "Maximization with respect to partition of an interval and its application to the best systematic estimators of the exponential distribution," *Ann. Math. Statist.* (To appear.)

94[L].—V. A. DITKIN, Editor, *Tablitsy Logarifmicheskoĭ Proizvadnoĭ Gamma-funktsii i ee Proizvodnykh v Kompleksnoĭ Oblasti*, Akad. Nauk SSSR, Moscow, 1965, xiv + 363 pp., 27 cm. Price 3.15 roubles.

This volume contains two tables: the first, occupying 320 pages, consists of 7S decimal approximations to the real and imaginary parts of $\psi(x + iy)$, the logarithmic derivative of the gamma function, for $x = 1(0.01)2$ and $y = 0(0.01)4$; the second, occupying 40 pages, consists of 7S values (in floating-point form for positive exponent) of the real and imaginary parts of the derivatives $\psi^{(n)}(x + iy)$ for $n = 1(1)10$, $x = 1(0.1)2$, and $y = 0(0.1)4$. No tabular differences are provided; however, interpolation with second differences is explained and illustrated in the introduction with the aid of a nomogram.

The real and imaginary parts for any argument appear on facing pages, with six tabular columns of 51 lines each on a page, the last column being repeated as the first column on the following page. This format was adopted from that in the tables of Abramov [1] for $\ln \Gamma(x + iy)$, to which the present tables are related, as noted in the preface.

The numerical evaluation of the tabulated functions outside the range of the tabular arguments is discussed, and a number of relevant formulas and series are included.

This reviewer has compared the tabular values herein for $\psi(x + iy)$ when $x = 1(0.01)2$, $y = 0$ with the corresponding entries in the 10D tables of Davis [2], to which reference is made in the bibliographic list of 10 titles at the end of the introduction. It was thereby discovered that, with very few exceptions, there exists a consistent lack of conventional rounding-up of the final digit in the main table under review. On the other hand, this source of error was not observed in the values of the derivatives of $\psi(z)$ for real argument, which occupy the first line throughout the second table.

As a further check, this reviewer also compared the tabulated values of the real part of $\psi(1 + iy)$ for $y = 0(0.01)4$ with the corresponding 10D values in Table II of the NBS tables of Coulomb wave functions [3], and the same general lack of conventional rounding was again observed in the Russian table.

We are informed in the preface that these tables were computed on the electronic