$v = \dfrac{x' + x''}{2}$. When we integrate this joint density function with respect to u, we obtain the density function of $v = \dfrac{x' + x''}{2}$ as given by

$$p(v) = 6\sqrt{2}\phi[\sqrt{2}(v - \theta)]\left[1 + G\left(\frac{\sqrt{2}(v - \theta)}{\sqrt{11}}\right) - 2\int_0^\infty \phi(x)G\left(\frac{3x}{\sqrt{2}} + v - \theta\right) dx\right]. \tag{16}$$

The mean and the variance of the distribution of v are given by θ and $\frac{1}{2} + \dfrac{\sqrt{3}}{4\pi}$ respectively.

It may be remarked that if there is a suspicion that one of the extreme observations in a sample of three does not belong to the normal population under consideration, then the median of the sample is a better estimate than the average of the two closest. The efficiency of the latter compared to that of the former is about 70%, for the variance of the median in this case is given by $1 + \dfrac{\sqrt{3}}{\pi}$ compared to $\frac{1}{2} + \dfrac{\sqrt{3}}{4\pi}$ of v, the average of the two closest. The efficiency is here defined as the ratio of the variances for the two estimates.

ERRATA

By W. Feller

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The author regrets the following inconsequential, but very disturbing, slips in his paper "On the Kolmogorov-Smirnov limit theorems for empirical distributions" (*Annals of Math. Stat.*, Vol. 19 (1948), pp. 177–189):

(1) In equation (1.4) on p. 178, the exponent $-\nu^2z^2$ should be replaced by $-2\nu^2z^2$. The same copying error occurs in the description of Smirnov's table on p. 279. The proof is correct as it stands.

(2) In the formulation of the *continuity-theorem* on p. 180 it is claimed that $u_k \rightarrow f(t)$ whereas in reality the continuity theorem permits only the conclusion that

$$\delta \sum_{r=1}^{k} u_r \rightarrow \int_0^t f(x)\, dx. \tag{$*$}$$

This slip in formulation in no way affects the proofs since only $(*)$ is used. (The assertion that the step functions $\{\xi_k\}$ converge pointwise is not based on a second application of the continuity theorem, but on the obvious fact that(*) implies

$$\delta \sum_{r=1}^{k} q_r u_r \to \int_0^t q(x)f(x)\, dx,$$

where the step function $\{q_r\}$ converges uniformily to a continuous monotonic $q(x)$).

The following corrections apply to the paper, "On the normal approximation to the binomial distribution" (*Annals of Math. Stat.*, Vol. 16, (1945), pp. 319–329).

(1) Equation (27) gives two variants of an estimate for the error ρ. The second should simply restate the first one in terms of the variable x; in other words, the expression $(p^3 + q^3)$ in the second line of (27) should be replaced by $p^3(1 - px/\sigma)^{-3} + q^3(1 + qx/\sigma)^3$.

(2) The estimate $\rho < \sigma^{-6}/300$ given in (28) is not valid over the entire range for which it is claimed. However, the further theory depends only on the fact that $\rho = O(\sigma^{-4})$, and the estimate $\rho < \sigma^{-6}/30$ is both correct and sufficient for our purposes. (Actually, no changes whatever are required in the proofs, since (28) is used explicitly only for a range where it is correct as stated).

(3) On p. 324 it is stated that under the conditions of the main theorem (p. 325) $k \geq 4$, $n - k \geq 4$, whereas in reality the value 3 can occur in extreme cases. Fortunately, the assertion is not used anywhere in the proof, and the error ρ is negligible in all cases.

Accordingly, no changes are required either in the formulation or the proof of the theorems. I am indebted to Dr. W. Hoeffding for calling my attention to the slips.

(4) The first minus sign in footnote 5 should be an equality sign and the second minus in (70) a plus.

ABSTRACTS OF PAPERS

(*Abstracts of papers presented at the Chapel Hill meeting of the Institute, March 17–18, 1950*)

1. A Method of Estimating the Parameters of an Autoregressive Time Series.

S. G. Ghurye, University of North Carolina.

The general autoregressive process of the second order is defined by the equations

$$x_t = X_t + \eta_t,$$

$$X_t + \alpha_1 X_{t-1} + \alpha_2 X_{t-2} = \epsilon_t,$$

where x_t is the value actually observed at time t, X_t the corresponding theoretical value, ϵ_t the disturbance and η_t the superposed variation. The estimates of α_1, α_2 given by Yule's method are biased and inconsistent if η_t is not identically zero, the permanent bias being a function of the unknown variance of η_t. The present paper proposes a method of estimation