the definition of g, we have $g'' < F(1 - F)x_0 - 4x_0f^2 < -2x_0f^2 < 0$, which is impossible. Hence, g is nonnegative for all positive x, which completes the proof.

LEMMA 2. *$F(1 - F) \geqq \pi f^2/2$ for $0 \leqq x < \infty$ with equality at 0 and ∞.*

PROOF. Let $h = F(1 - F) - \pi f^2/2$. Then,

$$h' = f(1 - 2F) + \pi x f^2, \qquad h'' = f^2(\pi - 2 - 2\pi x^2) - xf(1 - 2F). \tag{2}$$

It may be shown that h is continuous with derivatives of all order, $h(0) = h(\infty) = 0$, $h'(0) = 0$, and $h''(0) > 0$. Let y_0 be an extremum of h. Then, from (2) $h'' = f^2(\pi - 2 - \pi y_0^2)$ at the point y_0. Hence, $y_0 \leqq (\pi - 2)^{\frac{1}{2}}/\sqrt{2}$ if y_0 is a minimum and $y_0 \geqq (\pi - 2)^{\frac{1}{2}}/\sqrt{2}$ is y_0 is a maximum, so that if a minimum and a maximum both exist, the minimum must precede the maximum. In view of this circumstance it is evident from the above mentioned properties of h, h' and h'' that a minimum cannot exist, and therefore that h is nonnegative for all positive x.

The results of Lemmas 1 and 2 can be rewritten respectively as

$$\left(F + \frac{f}{x} - \frac{1}{2}\right)^2 \geqq \left(\frac{f}{x} - \frac{1}{2}\right)^2 + \frac{f}{x}, \tag{3}$$

$$\left(F - \frac{1}{2}\right)^2 \leqq \frac{1}{4} - \frac{\pi}{2}f^2. \tag{4}$$

For $x \geqq 0$ the upper bound of the theorem is obtainable from (3) and the lower bound from (4).

REFERENCES

[1] R. D. GORDON, "Values of Mill's ratio of area to bounding ordinate of the normal probability integral for large values of the argument," *Ann. Math. Stat.*, Vol. 12 (1941), pp. 364–366.

[2] Z. W. BIRNBAUM, "An inequality for Mill's ratio," *Ann. Math. Stat.*, Vol. 13 (1942), pp. 245–246.

[3] W. FELLER, "*An Introduction to Probability Theory and Its Application*," John Wiley and Sons (1950), p. 145.

CORRECTION TO "SOME NONPARAMETRIC TESTS OF WHETHER THE LARGEST OBSERVATIONS OF A SET ARE TOO LARGE OR TOO SMALL"*

BY JOHN E. WALSH

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This note calls attention to the fact that Theorem 4 of this paper (*Annals of Math. Stat.*, Vol. 21 (1950), pp. 583–592) is only partially correct. The results $\lim_{\Phi \to -\infty} P_1(\Phi) = 0$ and $\lim_{\Phi \to -\infty} P_3(\Phi) = 1$ as well as the monotonicity properties

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are not necessarily satisfied on the basis of the conditions stated in the theorem. The error arose from an incorrect and unstated assumption which was used in the derivations. This incorrect assumption was that

$$x(n) - \theta, \cdots, x(n + 1 - r) - \theta, x(n - r) - \varphi, \cdots, x(1) - \varphi$$

represent a set of statistically independent observations.

Test 3 of this paper can be interpreted as a method of deciding whether the largest observations are too small or as a test of whether the smallest observations are too small. An unpublished analysis shows that only the latter interpretation is of practical interest. Similarly, the appropriate interpretation for Test 1 is as a method of deciding whether the largest observations are too large. With these interpretations, both tests are of the "outlying observation" type. The unpublished analysis shows that Tests 1 and 3 are consistent under conditions much more general than those considered in Theorem 4 if these interpretations are adopted. Copies of this analysis can be obtained by writing the author at the U. S. Naval Ordnance Test Station, China Lake, California. One place where Tests 1 and 3 may have practical value is where differences of paired observations are being considered. Then the symmetry assumption often can be accepted.

CORRECTION TO "ON THE STRUCTURE OF BALANCED INCOMPLETE BLOCK DESIGNS"*

By W. S. Connor

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In the paper under the above title (*Annals of Math. Stat.*, Vol. 23 (1952), pp. 57–71) the number of blocks of type 1 given in Lemma 4.2 should be $(k - \gamma)(k - \gamma + 1) + k\gamma - \frac{1}{2}k(k + 3) + 1$. I am indebted to Dr. W. H. Clatworthy for bringing this error to my attention.

CORRECTION TO "ON A TEST FOR HOMOGENEITY AND EXTREME VALUES"

By D. A. Darling

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In reference to the above paper (*Annals of Math. Stat.*, Vol. 23 (1952) pp. 450–456) Professor Herbert Solomon has kindly pointed out an ambiguity in the last paragraph of Section 2. It is stated there that the table of reference [9] "appears

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