The Annals of Statistics
1978, Vol. 6, No. 5, 1170–1171

NOTE

CORRECTION TO "ASYMPTOTIC EXPANSIONS FOR THE POWER OF DISTRIBUTIONFREE TESTS IN THE ONE-SAMPLE PROBLEM"

BY W. ALBERS, P. J. BICKEL AND W. R. VAN ZWET
University of California, Berkeley and University of Leiden

In the above paper published in *Ann. Statist.* **4** (1976), 108–156, it was claimed on the basis of numerical computation (formula (4.25) on page 130) that for $N \to \infty$

$$\int_0^{\Phi^{-1}(1-1/2N)} \frac{(2\Phi(x)-1)(1-\Phi(x))}{\phi(x)}\,dx = \tfrac{1}{2}\log\log N + \tfrac{1}{2}\log 2 + 0.05832\cdots + o(1)\,, \tag{4.25}$$

where ϕ, Φ and Φ^{-1} denote the density, the distribution function and its inverse for the standard normal distribution. The number $(\frac{1}{2}\log 2 + 0.05832\cdots)$ is wrong and should be replaced by $0.288608\cdots$. In fact one can show that (cf. Bickel and van Zwet (1978), formulas (5.54) and (5.55))

$$\int_0^{\Phi^{-1}(1-1/2N)} \frac{(2\Phi(x)-1)(1-\Phi(x))}{\phi(x)}\,dx = \tfrac{1}{2}\log\log N + \tfrac{1}{2}\gamma + o(1)\,,$$

where γ is Euler's constant

$$\gamma = \lim_{k\to\infty}\left\{\sum_{j=1}^{k}\frac{1}{j} - \log k\right\} = 0.577216\cdots.$$

As a consequence, the number $(\frac{1}{2}\log 2 + 0.05832)$ should also be replaced by $\frac{1}{2}\gamma = 0.288608\cdots$ in (6.8) on page 138.

In the introduction to the paper we stated that the asymptotic expansion for the power of Wilcoxon's signed rank test for Cauchy location alternatives provides an approximation which is as bad as the normal approximation or even worse. In the light of new numerical evidence we retract this statement.

On page 147, line 6 should be replaced by

$$|\tilde{p}(Z_j, \theta) - E_0\tilde{p}(Z_j, \theta)| \leqq \theta|\tilde{p}_{0,1}(Z_j, 0) - E_0\tilde{p}_{0,1}(Z_j, 0)| +$$

and on line 10 the mth power should be outside the curly brackets. In (A1.24) on page 145, ψ should be ψ_3.

Received November 1977.