CORRIGENDUM

'SOME ASYMPTOTIC RESULTS FOR THE PERIODOGRAM OF A STATIONARY TIME SERIES'

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1. The proof of Theorem 8 (p. 123) requires the additional condition that $g'(\omega)$ be continuous in $[0, \pi]$ to ensure the validity of equation (64), p. 124, which should read

$$\sum_{j=1}^{m} e^{-c_n g_j} = (n/2\pi)\int_0^{\pi} e^{-c_n g(\omega)}\,d\omega + (2\pi c_n/n)\int_0^{\pi} g'(\omega)P_1\left(\frac{n\omega}{2\pi}\right)e^{-c_n g(\omega)}\,d\omega + o(1).$$

This condition would usually be satisfied in any application of the theorem, but can be dispensed with by modifying the argument between equations (63) and (66) as follows.

Write

$$\sum_{j=1}^{m} e^{-c_n g_j} = \Sigma_1 + \Sigma_2,$$

where Σ_1 denotes the sum of terms for which j is such that $|\omega_j - \omega_0| \geqq \delta$, and Σ_2 the sum of the remaining terms for which $|\omega_j - \omega_0| < \delta$, δ being defined as on p. 124, so that $g''(\omega)$, and therefore also $g'(\omega)$, is continuous in $(\omega_0 - \delta, \omega_0 + \delta)$. Now for $|\omega_j - \omega_0| \geqq \delta$, $g_j \geqq (1+\lambda)g(\omega_0)$, where $\lambda > 0$, and, from (61), for sufficiently large n, $c_n g(\omega_0) > (1+\lambda)^{-\frac{1}{2}} \log m$, so that $\Sigma_1 \leqq m \exp\{-(1+\lambda)^{\frac{1}{2}} \log m\}$, and therefore must tend to zero when $n \to \infty$. Also, applying the Euler-Maclaurin sum formula to Σ_2 we obtain

$$\Sigma_2 = (n/2\pi)\int_{\omega_{j_1}}^{\omega_{j_2}} e^{-c_n g(\omega)}\,d\omega + o(1)$$

where

$$j_1 = \min\{j : \omega_j > \omega_0 - \delta\}, \quad j_2 = \max\{j : \omega_j < \omega_0 + \delta\},$$

and from this it easily follows that $\Sigma_2 = I_{2n} + o(1)$.

Thus

$$\sum_{j=1}^{m} e^{-c_n g_j} = I_{2n} + o(1).$$

2. In line 2 above equation (66), p. 124, read $o(1)$ for $O(1)$.