No. 942

Correction of the Proof of Theorem 1 in D. P. S. No.913

by

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Abstract.

The author corrects the proof of Theorem 1 in Section 2 of D. P. S. No. 913.

Correction.

Proof.) Let $y_1 = \theta_0 - r$ and $y_2 = \theta_0 + r$. Since $d\psi(\theta)/d\theta = g_Y(y_2|\theta) - g_Y(y_1|\theta)$, we have that

(1) $[d^2\psi(\theta)/d\theta^2]_{\theta - \theta_0} = [dg_Y(y_2|\theta)/d\theta]_{\theta - \theta_0} - [dg_Y(y_1|\theta)/d\theta]_{\theta - \theta_0}$.

On the other hand, by (4) in D. P. S. No. 856 we have that

(2) $dg_Y(y|\theta)/d\theta = kmf(y|\theta)(dF(y)/d\theta)(F(y))^{m-1}(1-F(y))^{m-1}(1-2F(y))$

$+ k(F(y))^m(1-F(y))^m(df(y|\theta)/d\theta)$.

Since $[F(y_1)]_{\theta - \theta_0} = [1-F(y_2)]_{\theta - \theta_0} = \beta(\alpha/2)$ and $dF(y)/d\theta = -f(y|\theta)$ and since $[df(y_2|\theta)/d\theta]_{\theta - \theta_0} = -[df(y_1|\theta)/d\theta]_{\theta - \theta_0} = \frac{2r\pi}{\xi}(f(y_2|\theta_0))^2$, and $f(y_1|\theta_0) = f(y_2|\theta_0)$, putting these together leads to

$[dg_Y(y_2|\theta)/d\theta]_{\theta - \theta_0} = k(f(y_2|\theta_0))^2(1-\beta(\alpha/2))^{m-1}(\beta(\alpha/2))^{m-1}\{m(1-2\beta(\alpha/2)) +$

$\frac{2r\pi\beta(\alpha/2)(1-\beta(\alpha/2))}{\xi}\}$ (>0)

and $[dg_Y(y_1|\theta)/d\theta]_{\theta - \theta_0} = -[dg_Y(y_2|\theta)/d\theta]_{\theta - \theta_0}$. By (1) $[d^2\psi(\theta)/d\theta^2]_{\theta - \theta_0} > 0$.

(q. e. d.)