The Annals of Statistics
1995, Vol. 23, No. 6, 2292

CORRECTION

ANOMALIES OF THE LIKELIHOOD RATIO TEST FOR TESTING RESTRICTED HYPOTHESES

BY J. A. MENÉNDEZ AND B. SALVADOR

Annals of Statistics (1991) **19** 889–898

In a personal communication, Wang-Haidong pointed out three mistakes in the paper.

Page 890, Definition 1.1: To be precise in the definition of "strictly acute cone," $x \neq 0$, $y \neq 0$ and y $\not\subset L_{ij}$ must be added.

Page 891, Lemma 2.1: In order to get $p(x/K_B) \neq 0$, whenever $x \neq 0$ and C is strictly acute, the condition $B \neq (1, \ldots, n\}$ must be added.

As Wang-Haidong pointed out, there is a mistake in the proof of Theorem 2.1, since the statement $y' - z^{(m)} \in C^{(m+1)}$ is not clear. We propose a proof, given to us by Wang_Haidong, which substitutes the following for every argument in the proof on page 892, line 16 from the bottom, where it is said "We deal with two situations: . . . " until " . . . In both (a) and (b) situations," on page 893, line 4:

We have noted in the last paragraph that $y^{(m)} - z^{(m)} \in C^{(m)} \cap U_m^{\perp}$.

From Lemma 3.4 in Cohen, Kemperman and Sackrowitz (1993), $y^{(m)} - z^{(m)} \in -(C^{(m)})^p \oplus U_m$, since $y^{(m)} - z^{(m)} \in C^{(m)}$. Also we have $y^{(m)} - z^{(m)} \in U_m^{\perp}$, hence $y^{(m)} - z^{(m)} \in -(C^{(m)})^p \subset -(C^{(m+1)})^p$. Then $y^{(m)} - z^{(m)} \in -(C^{(m+1)})^p \oplus U_{m+1}$.

By decomposing $y^{(m)} = z^{(m)} + (y^{(m)} - z^{(m)})$ and applying Lemma 3.5 in Cohen, Kemperman and Sackrowitz (1993), $\|y^{(m)} - p(y^{(m)}/U_{m+1})\|^2 \geq \|z^{(m)} - p(z^{(m)}/U_{m+1})\|^2$, but $p(y^{(m)}/U_{m+1}) = p(z^{(m)}/U_{m+1})$, therefore $\|y^{(m+1)}\|^2 \geq \|\mathbf{z}^{(m+1)}\|^2$.

The main results in the corrected paper are given under more general conditions in a paper by Menéndez, Rueda and Salvador (1992).

REFERENCES

COHEN, A., KEMPERMAN, H. B. and SACKROWITZ, H. B. (1993). Unbiased tests for normal order restricted hypotheses. *J. Multivariate Anal.* **46** 139–153.

MENÉNDEZ, J. A., RUEDA, C. and SALVADOR, B. (1992). Dominance of likelihood ratio tests under cone constraints. *Ann. Statist.* **20** 2087–2099.

WANG-HAIDONG (1994). Character of the acute cone and its applications. Personal communication.

DEPARTAMENTO DE ESTADISTICA
FACULTAD DE CIENCIAS
UNIVERSIDAD DE VALLADOLID
47071-VALLADOLID
SPAIN

Received July 1995.