The Annals of Statistics
2007, Vol. 35, No. 6, 2815–2817
DOI: 10.1214/009053607000000370
Main article DOI: 10.1214/009053606000000164

CORRECTION

STRONG INVARIANCE PRINCIPLES FOR SEQUENTIAL BAHADUR–KIEFER AND VERVAAT ERROR PROCESSES OF LONG-RANGE DEPENDENT SEQUENCES

The Annals of Statistics (2006) **34** 1013–1044

BY MIKLÓS CSÖRGŐ, BARBARA SZYSZKOWICZ AND LIHONG WANG

Carleton University, Carleton University and Nanjing University

Rafał Kulik of University of Sydney and Wrocław University has brought to our attention that Assumption A does not help in the proof of our Proposition 2.2, for what is really used in our method of proof is, actually, the uniform boundedness of $J_\tau(y)$ and that of its derivatives. However, if $X_i = \eta_i$ (cf. Remark 2.1), then $J_1(y) = -\phi(\Phi^{-1}(y))$, and thus, we have $J_1'(y) = -\Phi^{-1}(y)$, $J_1''(y) = -(\phi(\Phi^{-1}(y)))^{-1}$, and both are unbounded functions over the unit interval. One arrives at a similar conclusion in the case of $X_i = \eta_i^2$, that is, when $G(x) = x^2$ (cf. Remark 1.1) and $\tau = 2$. Consequently, the proof of Proposition 2.2 is not valid, unless we restrict ourselves to:

(R) intervals $y \in [a, b]$, $0 < a < b < 1$ instead of $y \in [0, 1]$,
or assume that F has finite support.

Hence, we conclude, for further use as well, the following observation.

REMARK. Instead of Assumption A being assumed in Proposition 2.2, for the validity of its present proof, we must assume the above restriction (R).

This Remark now automatically applies also to Propositions 2.3, 2.4 and 2.5, as well as to Theorems 2.2, 2.3 and 2.4.

We note in passing that Theorem 2.1 continues to hold true as stated, that is, under the assumptions of Corollary 2.1.

As a consequence of our comments so far, and due to the definition of the sequential uniform Vervaat error process $V_n(\cdot, \cdot)$ as in (1.10), we conclude that Theorem 3.1, as well as Proposition 3.1, continue to hold true, provided that F has finite support. The same holds true for Theorems 3.2 and 3.3, in which the constant $2^{5/2}$ should be replaced with $2^{3/2}$. The reason for this is that there is a mistake in Proposition 3.2, as stated. The correct version is as follows.

Received December 2006; revised February 2007.