Erratum / Correction to: “A bound on the moment generating function of a sum of dependent variables with an application to simple random sampling without replacement”


<http://www.numdam.org/item?id=AIHPB_1995__31_4_703_0>
ERRATUM

Correction to:

A bound on the moment generating function of a sum of dependent variables with an application to simple random sampling without replacement

by

Victor H. de la PEÑA
Department of Statistics, Columbia University, NY, NY 10027, USA.

ABSTRACT. – In this note we provide a corrected statement for Theorem 2 of our article Ann. Inst. Henri Poincaré, Vol. 30, n° 2, 1994, pp. 197-211.


1. In this note we correct an error found in [2]. We are thankful to Amir Dembo for pointing us to the problem. First of all, due to a transcription oversight, we gave incorrect bounds on $P (|Z| \geq t)$, where $Z$ is a standard normal variable. We refer the reader to page 49 of [1] for the correct bounds. The statement of Theorem 2 of [2] (which is not used anywhere else in that paper) should be replaced by the following similar statement.
THEOREM 2. – Let \( \{x_i\} \) be an arbitrary sequence of random variables. Assume that for a \( \sigma \)-field \( \mathcal{G} \), \( \{y_i\} \) is a \( \mathcal{G} \)-conditionally independent sequence tangent to \( \{x_i\} \). Let \( Z \) be a normal random variable with mean zero and variance 1. Then, the inequality

\[
P \left( \sum_{i=1}^{n} y_i \geq x \right) \leq A P \left( Z \geq x \right)
\]

for some universal constant \( 0 < A < \infty \), and all \( x \geq 0 \), implies that for all \( x \geq 0 \),

\[
P \left( \sum_{i=1}^{n} x_i \geq x \right) \leq \sqrt{A} \exp \left( - \frac{x^2}{4} \right).
\]

The proof of this is easy and follows in spirit the original proof given, after eliminating the use of the bounds on \( P (|Z| \geq t) \) and using Corollary 1 instead of Corollary 2.

REFERENCES