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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"

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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

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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.

RÉSUMÉ. – Dans cette note nous donnons une version corrigée du Théorème 2 de notre article *Ann. Inst. Henri Poincaré*, Vol. 30, n° 2, 1994, p. 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] (wich 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* σ*-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*

$$P\left(\sum_{i=1}^{n} y_i \geq x\right) \leq AP\,(Z \geq x)$$

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

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

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

[1] Y. S. CHOW and H. TEICHER, *Probability Theory.* Springer-Verlag, New York, 1978.

[2] V. H. de la PEÑA, A bound on the moment generating function of a sum of dependent variables with an application to simple random sampling without replacement. *Ann. Inst. Henri Poincaré*, Vol. **30**, n° 2, 1994, pp. 197-211.