

Corrigendum to “Exact risk improvement of bandwidth selectors for kernel density estimation with directional data”

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The author wants to report the following three typos present in García-Portugués (2013):

- i.* Before equation (3), in the numerator of $d_q(L)$, $\int_0^\infty L^2(r)r^{\frac{q}{2}} dr$ should read $\int_0^\infty L^2(r)r^{\frac{q}{2}-1} dr$.
- ii.* In expression (5), $h^{-1/2}$ should read h^{-2} in the four instances.
- iii.* In Proposition 2 and its proof, $(2+q)\mathcal{I}_{\frac{q+3}{2}}(2\kappa)$ should read $(2+q)\kappa\mathcal{I}_{\frac{q+3}{2}}(2\kappa)$ in the expression for $R(\Psi(f_{\text{vM}}(\cdot; \boldsymbol{\mu}, \kappa), \cdot))$. Analogously, $(2+q)\mathcal{I}_{\frac{q+3}{2}}(2\hat{\kappa})$ should read $(2+q)\hat{\kappa}\mathcal{I}_{\frac{q+3}{2}}(2\hat{\kappa})$ in the general expression for h_{ROT} given in Proposition 2 (before equation (6)).

These typos do not have implications in the subsequent theoretical or numerical results of the paper. In particular, the expression of h_{ROT} for a von Mises kernel (equation (6)), as well as the value of $d_q(L)$ for such kernel, are correct. These kernel-specific expressions were employed in the implementation of the ROT, AMI, and EMI bandwidth selectors, now available in the `DirStats` package (García-Portugués, 2020).

As a side comment, note that the square integrability of f (on Ω_q) in assumption **D1** is not required, as it is implied by the previous conditions stated in **D1**.

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References

- García-Portugués, E. (2013). Exact risk improvement of bandwidth selectors for kernel density estimation with directional data. *Electron. J. Stat.*, 7:1655–1685.
- García-Portugués, E. (2020). *DirStats: Nonparametric Methods for Directional Data*. R package version 0.1.6.

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