Correction

Kristin P. Lennox, David B. Dahl, Marina Vannucci, and Jerry W. Tsai (2009), "Density Estimation for Protein Conformation Angles Using a Bivariate von Mises Distribution and Bayesian Nonparametrics," 104, 586–596.

The full conditional distribution for the mean parameters (μ, ν) of a bivariate von Mises sine model is incorrectly specified in Section 4.1 and the Appendix. Rather than a five parameter bivariate von Mises sine model with correlation parameter $\tilde{\lambda}$, the full conditional distribution is an eight parameter bivariate von Mises distribution. Using the representation from Mardia, Taylor, and Subramaniam (2007), the correct full conditional distribution can be expressed as

$$\begin{aligned} f(\mu, \nu | \boldsymbol{\phi}, \boldsymbol{\psi}) \propto \exp\big\{ & \tilde{\kappa}_1 \cos(\mu - \tilde{\mu}) + \tilde{\kappa}_2 \cos(\nu - \tilde{\nu}) \\ & + [\cos(\mu - \tilde{\mu}), \sin(\mu - \tilde{\mu})] \\ & \times \tilde{A} [\cos(\nu - \tilde{\nu}), \sin(\nu - \tilde{\nu})]^T \big\}, \end{aligned}$$

where $\tilde{\mu}$, $\tilde{\nu}$, $\tilde{\kappa}_1$, and $\tilde{\kappa}_2$ are specified correctly in the paper, and

$$\tilde{A} = \sum_{i=0}^{n} \lambda_i \begin{bmatrix} \sin(\phi_i - \tilde{\mu}) \sin(\psi_i - \tilde{\nu}) & \\ -\cos(\phi_i - \tilde{\mu}) \sin(\psi_i - \tilde{\nu}) & \\ -\sin(\phi_i - \tilde{\mu}) \cos(\psi_i - \tilde{\nu}) & \\ \cos(\phi_i - \tilde{\mu}) \cos(\psi_i - \tilde{\nu}) & \end{bmatrix}.$$

We wish to acknowledge Professor Kanti Mardia, who also independently discovered the error and the correct distribution (Mardia 2009).

In making this correction, we found the five parameter von Mises sine model given in our paper to be a good proposal distribution for a Metropolis–Hastings update of (μ, ν). For our corrected analysis of the whole and half position data the mean and median for the acceptance rate were around 60%, and our results were not substantially affected. For example, Figure 4 showed almost identical minimum divergence values, and thus the same improvement for the half position estimates with respect to the whole position estimates. More details on the corrected derivation and results are provided in a supplemental file for the *Journal of the American Statistical Association*.

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REFERENCES

Mardia, K. V. (2009), "Statistical Complexity in Protein Bioinformatics," in *LASR 2009 Proceedings*, eds. A. Gustano, K. V. Mardia, and C. J. Fallaize, Leeds: Leeds University Press, pp. 9–20.

Mardia, K. V., Taylor, C. C., and Subramaniam, G. K. (2007), "Protein Bioinformatics and Mixtures of Bivariate von Mises Distributions for Angular Data," *Biometrics*, 63, 505–512.

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