Correction to 'Bayesian inference on a microstructural, hyperelastic model of tendon deformation'

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There was an error in the implementation of equation (5.2) of [1] in the R package included in the Supplementary Material. When corrected, this led to the following amendments:

- The 95% credible intervals for ϕE for the CDET data using the ST model at the end of section 5.2 and the GT model in paragraph 3 of section 5.3 are now 1360-1380 MPa in both cases.
- Figures 5, 7, 9, 11, 12 and 13 have been updated below. Figures 6, 8 and 10 are also affected, theoretically, but the changes to those figures are imperceptible by visual inspection.
- We have updated the R package and figures 5-8 in the additional mathematical material in the Supplementary Material.

All other results and the conclusions drawn are unaffected.

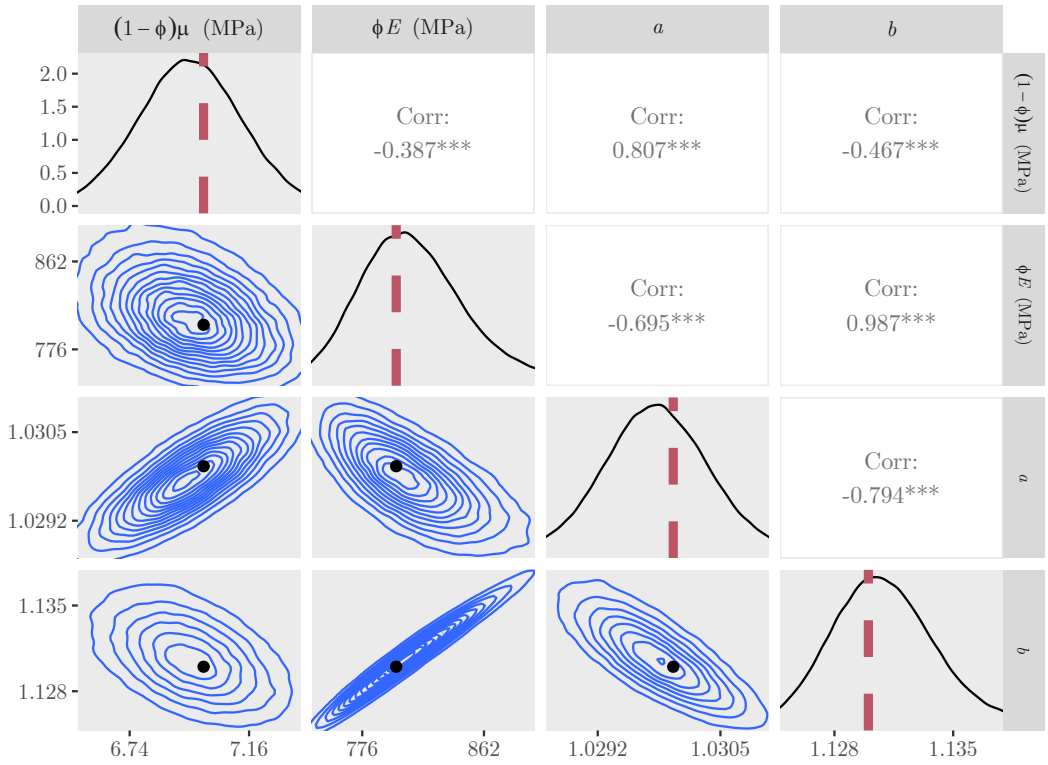

Figure 5: Plots of the posterior distributions calculated using the RWM algorithm on synthetic data. Main diagonal: marginal posteriors. Lower half: twodimensional contour plots of the joint distributions. Upper half: posterior correlations between parameters. The parameter values used to create the synthetic data are represented by a red line on the posteriors and a black dot on the contour plots. For the correlation values, three asterisks represent $p < 0.001$. In order to create this figure, the 1 million samples were thinned by a factor of 10.

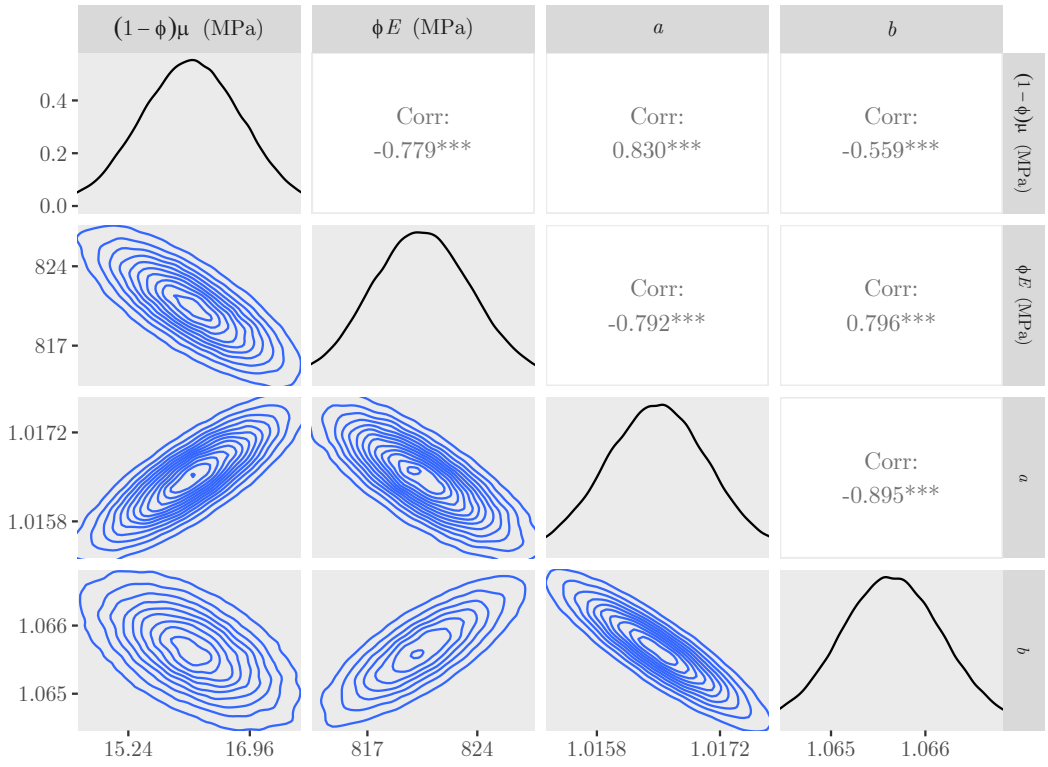

Figure 7: Approximate posteriors and contour plots of the parameters for the SDFT data. Samples were thinned by a factor of 10.

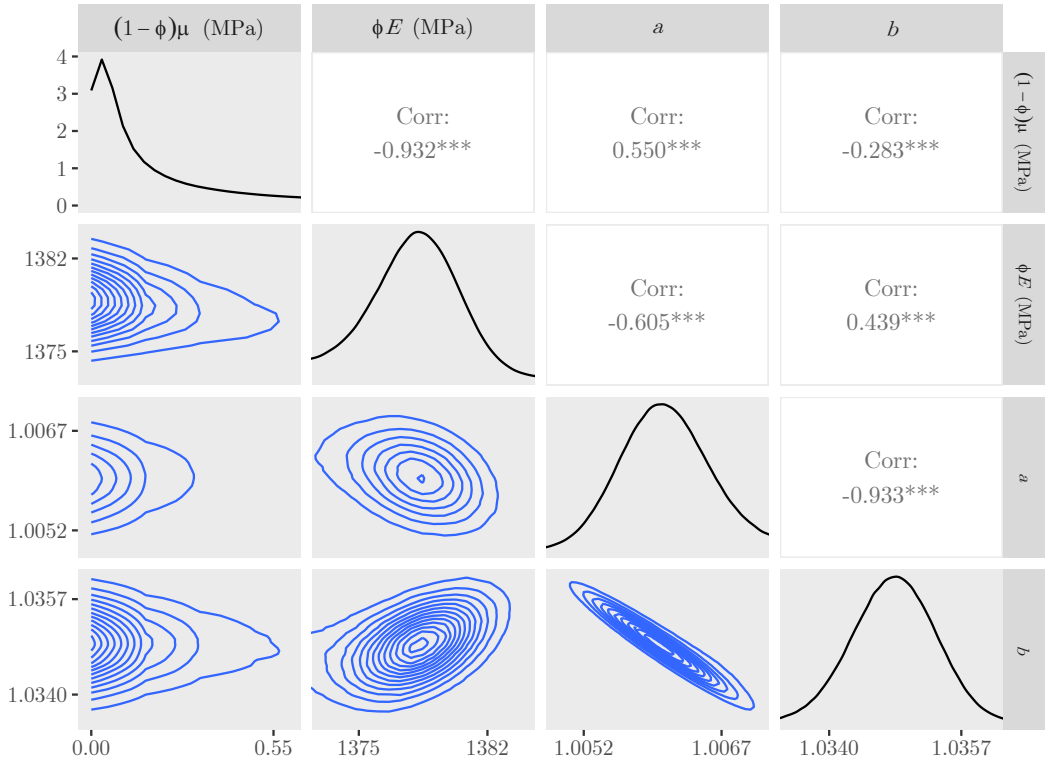

Figure 9: Approximate posteriors and contour plots of the parameters for the CDET data. Samples were thinned by a factor of 10.

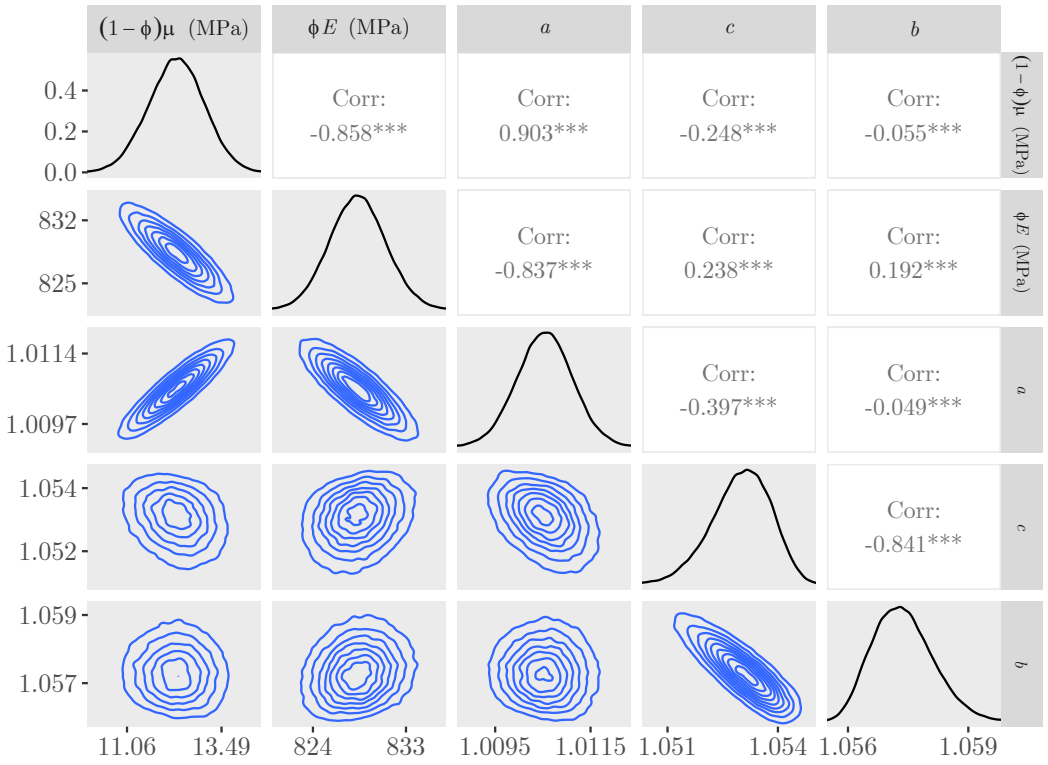

Figure 11: Approximate posteriors and contour plots of the parameters of the GT model for the SDFT data. Samples were thinned by a factor of 10.

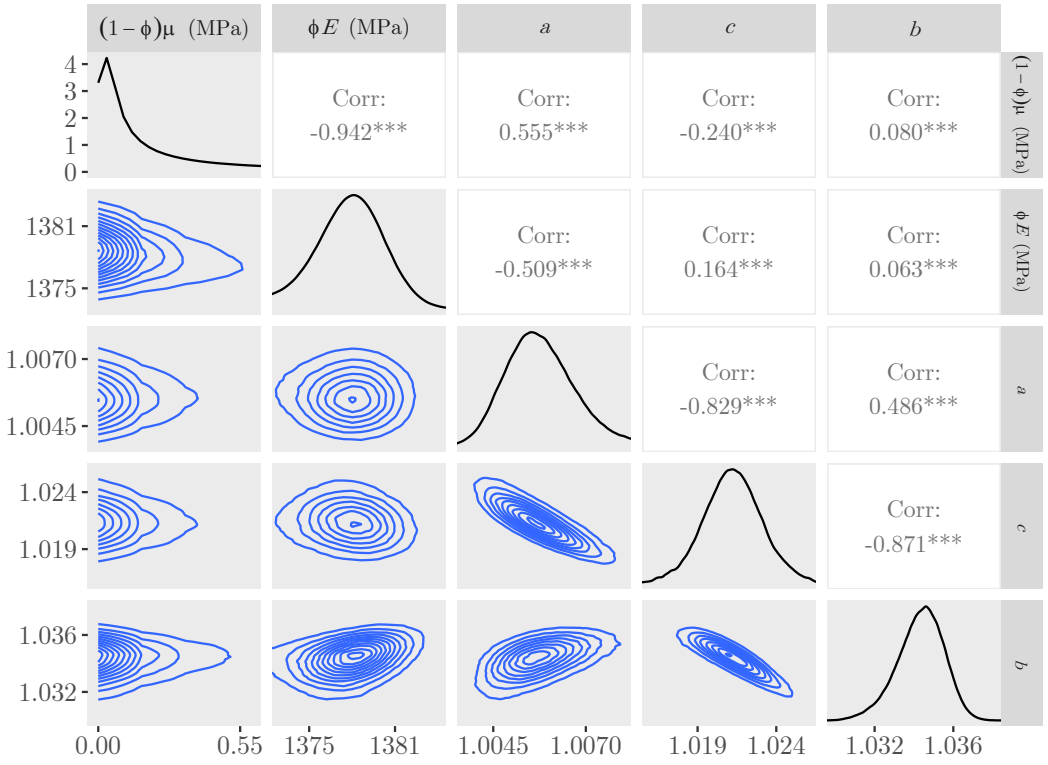

Figure 12: Approximate posteriors and contour plots of the parameters of the GT model for the CDET data. Samples were thinned by a factor of 10.

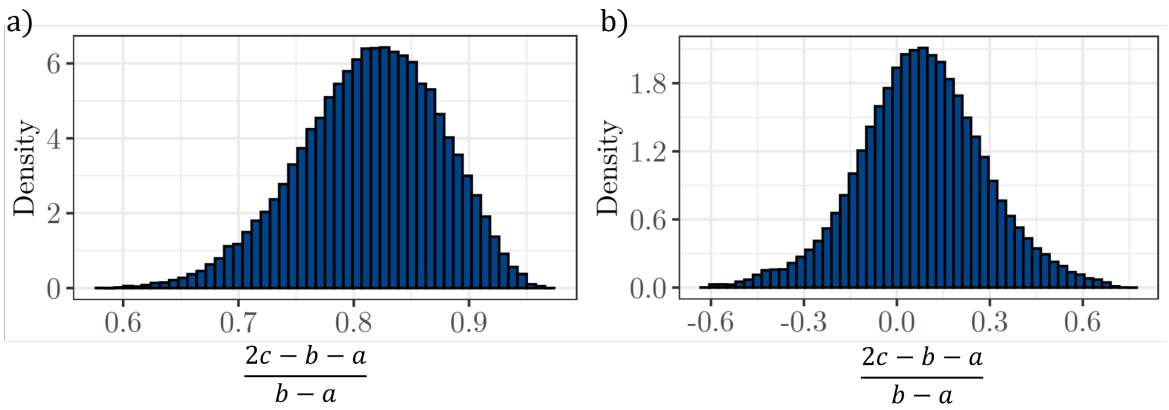

Figure 13: Histograms of $(2c-b-a)/(b-a)$ for (a) the SDFT data and (b) the CDET data; $(2c-b-a)/(b-a)$ ranges between -1 ($c=a$) and 1 ($c=b$) and 0 corresponds to an ST distribution.

References

[1] James Haughton, Simon L Cotter, William J Parnell, and Tom Shearer. Bayesian inference on a microstructural, hyperelastic model of tendon deformation. *Journal of the Royal Society Interface*, 19(190):20220031, 2022.