PROCEEDINGS B

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Retraction

Cite this article: *Proceedings B* Editor-in-Chief. 2021 Retraction: Individual personalities shape task differentiation in a social spider. *Proc. R. Soc. B* **288**: 20210335. https://doi.org/10.1098/rspb.2021.0335

Retraction: Individual personalities shape task differentiation in a social spider

Proceedings B Editor-in-Chief

Proc. R. Soc. B **280**, 20131407. (Published Online 22 September 2013). (doi:10.1098/rspb.2013.1407)

The Editor-in-Chief and the Royal Society are retracting the article 'Individual personalities shape task differentiation in a social spider' by Lena Grinsted, Jonathan N. Pruitt, Virginia Settepani and Trine Bild [1].

Two of the authors, T Bilde and L Grinsted, have drawn the journal's attention to an overlap between the data on boldness in this paper and in the supplementary material of a paper published in *Animal Behaviour* by Pruitt, JN, Grinsted L and Settepani V [2] (now retracted [3]). Very high levels of duplication between datasets were confirmed upon inspection of the data as downloaded from Dryad [4] or supplied, separately, by JN Pruitt and L Grinsted (the data are identical). 74% of the unique values in the Pruitt *et al.* [2] dataset also appear in the Grinsted *et al.* [1] dataset. On this basis, co-authors L Grinsted, V Settepani and T Bilde requested a retraction of the paper.

Subsequent investigation by the editors has determined that the nature of the boldness data collected in the Grinsted *et al.* [1] study is very different from the impression created by reading the paper and inspecting the associated data in Dryad. The initial impression is that spiders were tested individually, with high precision (to the nearest hundredth of a second) and repeatability (presented in the Pruitt *et al.* [2] supplementary material). In fact, spiders were tested in groups of up to 20 at low precision, with concomitant recording of identical values of latency (boldness) for individuals moving at similar times (JN Pruitt, personal communication). Moreover, spiders used to generate the two data sets (Grinsted *et al.* [1], Pruitt *et al.* [2]) were intermingled in these test groups. This design would allow for some level of duplication within and between the data sets. We carried out simulations to estimate the timing accuracy necessary to account for the very high frequency of duplicate values. These simulations suggest that spiders must have been scored, on average, as having the same time if they moved within 15 to 20 s of each other. Therefore, the boldness data are not independent, but may reflect aspects of their testing group, and we cannot rely on the estimates of repeatability.

Without the support of the repeatability analysis in Pruitt *et al.* [2], we cannot determine whether the single boldness value used in the Grinsted *et al.* [1] analysis is an accurate characterization of an individual spider's stable behavioural phenotype. If we have no confidence that 'boldness' is repeatable in this population of spiders then two out of the three *a priori* hypotheses in Grinsted *et al.* [1] can no longer be definitively tested. The first ('variation in individual personality trait values can predict task differentiation…') and third ('standardized personality assays, devoid of social context, can be used as predictors of individual behaviours in natural settings…') hypotheses, as stated in the final paragraph of the introduction, both rely on the existence of ecologically-relevant levels of personality variation in these spiders. Without evidence of reliable repeatabilities in boldness, the findings of this study are reduced to a correlation of a single behavioural measure in captivity (that could reflect some unmeasured, ecologically-arbitrary influence) with behavioural outcomes in the field.

On this basis, we are retracting the paper.

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