Glossa a journal of general linguistics

Kiss, Katalin É., et al. 2019. Correction: Quantifier spreading: Children misled by ostensive cues. *Glossa: a journal of general linguistics* 4(1): 43. 1–3. DOI: https://doi.org/10.5334/gjgl.902

CORRECTION

Correction: Quantifier spreading: Children misled by ostensive cues

Katalin É. Kiss[1], Katalin Mády[1] and Tamás Zétényi[2]

[1] Research Institute for Linguistics of the Hungarian Academy of Sciences, HU

[2] Budapest University of Technology and Economics, Department of Ergonomics and Psychology, HU

Corresponding author: Katalin É. Kiss (ekiss@nytud.hu)

This article details a correction to the article É. Kiss, Katalin & Tamás Zétényi. 2017. Quantifier spreading: children misled by ostensive cues. *Glossa: A Journal of General Linguistics* 2(1). 38. DOI: https://doi.org/10.5334/gjgl.147

Keywords: statistics; binomial generalized linear mixed-effect model

Correction

In the statistical analyses of the article *Quantifier spreading: Children misled by ostensive cues* (É. Kiss & Zétényi 2017), the degree of freedom was incorrectly established. The statistics of both experiments have been rerun, with ANOVA replaced by binomial generalized linear mixed-effect models, as detailed below. The results of the new analyses allow us to maintain the conclusions of the paper.

Method

Responses were encoded as binary data, 1 for "accept", 0 for "reject". The two lists of stimulus and picture type distribution, i.e. whether a certain participant saw a certain image as a drawing or a photography, were also included in the data set. Analysis was carried out separately for the children's and the adults' group. Binomial generalized mixed-effect models with random slopes were run, with response as the dependent variable, picture type (drawing/photography) and list as the fixed effects, and participant and item as random effects. Necessary simplifications of the models due to lack of convergence are reported along with the results.

Calculations were carried out in R, using the glmer() function from the lme4 package that includes z-values along with simulated p-values.

Results

Experiment 1

The random slope model that included the calculation of the intercept-slope correlation did not converge. Therefore, the random slope model was fitted to the data again without intercept correlation. First, the impact of list (whether participant X saw item Y as a drawing or a photography) was tested. This variable had no effect in either group ($p > 0.2$). Then the models first without item, then without participant as random effects were compared to the full model by the anova() function. Both random effects contributed significantly to the outcome of the full model, thus, results are reported based on the maximal model.

For the children's group, the effect of picture type was highly significant ($z = 3.73$, $p < 0.001$). Adults' data did not show a significant difference for picture type ($z = 1.82$, $p = 0.07$), but there was a trend similar to children's responses.

Experiment 2

Similarly to experiment 1, children's and adults' data were analysed in separate models. Model simplification was carried out separately, but parallelly on children's and adults' data. The most complex model that converged was one that included random slopes for participants and random intercept for items. A comparison between models with both picture type and list as fixed effects as opposed to models including only picture type did not show significant differences ($p > 0.45$ for both models). Therefore, results reported here are based on models with only picture type as a fixed effect.

The model described above did not show a main effect of picture type in either age group (children: $z = 1.29$, $p = 0.197$; adults: $z = –0.37$, $p = 0.715$). Subsequently, models were further simplified by omitting random slope estimates for both participants and items, i.e. calculating only intercepts for both random effects. The two models (with and without random slopes for participants) were not significantly different according to the anova() function, however, results changed substantially in the child group. This time, the z-value was slightly higher than 2, i.e. the p-value went slightly below the significance level defined as 0.05 ($z = 2.10$, $p = 0.036$).

The different outcomes in modelling children's responses raise a methodological question about the choice of the appropriate mixed-effect models. According to Barr et al. (2013), the most complex model should be preferred in order to maintain the necessary strictness, i.e. the conservativity of the procedure. The validity of this general thumb rule has been questioned recently, emphasising the risk of overfitting the data, especially in case of small data sets (Matuschek et al. 2017). The data sets in experiment 2 were relatively small for both groups ($n = 228$ for children and $n = 90$ for adults). Given that, at least based on the anova() comparison, the inclusion of random slopes for participants did not improve model estimation significantly, there is no reason to reject the hypothesis that children are more biased by ostensive cues with respect to exhaustivity than adults are.

Supplementary Files

The raw data of the experiments are accessible in the OSF repository https://osf.io/xpfdc/?view_only=522e78f84a6d4b80b42ffb5fbff6b9e7.

Competing Interests

The authors have no competing interests to declare.

References

Barr, Dale J., Roger Levy, Christoph Scheepers & Harry J. Tily. 2013. Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language* 68. 255–278. DOI: https://doi.org/10.1016/j.jml.2012.11.001

É. Kiss, Katalin & Tamás Zétényi. 2017. Quantifier spreading: children misled by ostensive cues. *Glossa: A Journal of General Linguistics* 2(1). 38. DOI: https://doi.org/10.5334/gjgl.147

Matuschek, Hannes, Reinhold Kliegl, Shravan Vasishth, Harald Baayen & Douglas Bates. 2017. Balancing Type I error and power in linear mixed models. *Journal of Memory and Language* 94. 305–315. DOI: https://doi.org/10.1016/j.jml.2017.01.001

How to cite this article: Kiss, Katalin É., Katalin Mády and Tamás Zétényi. 2019. Correction: Quantifier spreading: Children misled by ostensive cues. *Glossa: a journal of general linguistics* 4(1): 43.1–3. DOI: https://doi.org/10.5334/gjgl.902

Submitted: 23 January 2019 **Accepted:** 06 March 2019 **Published:** 08 April 2019

]u[*Glossa: a journal of general linguistics* is a peer-reviewed open access journal published by Ubiquity Press.

OPEN ACCESS