Dear editor,

We enclose a manuscript titled “The emergence of words from vocal imitations.” **This is a resubmission of RSPB-2017-1610 and includes a detailed response to editor and reviewer comments.** The reported experiments (involving nearly 1600 participants) examine the process by which spoken words can emerge from imitations of environmental sounds. We show how a simple process of repeated unguided imitation results in vocal imitations transitioning to word-like forms. In the course of this transition, the vocal forms become more stable, repeatable, and more learnable as category labels. Remarkably, even after as many as 8 generations of participants, the forms still maintain resemblance to the sounds that motivated them such that naïve participants can guess the meaning of these “words” at levels considerably above change.

We believe this manuscript is suitable for *Proceedings of the Royal Society B* for several reasons. First, our paper addresses the fundamentally biological question of the processes that can give rise to spoken words in human language, with a focus on the role of vocal imitation in this process. Second, the topic is of broad appeal, bridging between linguistics, cognitive psychology, and semiotics. Third, our study is innovative, providing the first look at how increasingly categorical spoken labels can emerge from simple imitations of environmental sounds. Fourth, more than simply detailing a set of results, this work introduces a novel method (complete with the requisite analyses and software) enabling others to conduct similar experiments to generalize beyond the set of meanings we tested.

We are strongly committed to openness and reproducibility. We are making available all of our data, analyses, and software available in online repositories so that others can easily reproduce and extend our results. Links to software repositories and details for reproduction are provided in manuscript.

We thank you for your consideration of this manuscript.

Pierce Edmiston, Marcus Perlman, and Gary Lupyan