April 21st, 2021

Marc Brysbaert, PhD

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Dear Dr. Brysbaert:

My colleagues and I are submitting our manuscript entitled “The lrd Package: An R package and shiny application for processing lexical data” to be considered for publication as an original research article in *Behavior Research Methods*. Our manuscript is based on an updated version of this package that was previously submitted as BR-Org-20-285 in June of 2020. Based on the reviewer feedback, we have completely restructured this package and added in additional functionality for scoring free-recall and sentence-recall. Additionally, we have added several new functions for plotting results. Given these major revisions/additions, we request this manuscript be treated as a new submission.

Although recall tests are commonly used in psychology, no open access tools currently exist that can be used to quickly process the large amounts of lexical data that these studies generate. The *lrd* (lexical response data) package for *R*, has been designed to address this issue by providing researchers with a user-friendly tool for quickly and accurately scoring large amounts of lexical output from cued-recall, free-recall, and sentence-recall studies, while being able to control for minor errors in participant responses. Furthermore, *lrd* provides researchers with several plotting functions for each of the three types of recall scoring. Finally, this package can compute several recall dynamics that are important to research on free-recall (e.g., serial position curves, lag-CRPs, and probability of first response). This functionality is critical for researchers interested in the qualitative aspects of retrieval.

In this paper, we provide an overview of the package, introduce an *R Shiny* application that has been made freely available and can be operated using only Excel skills, and provide a general user guide. We then validate this package’s scoring capabilities by using *lrd* to score sets of cued, free, and sentence-recall data with large samples derived from empirical studies and test whether the results of these studies replicate using *lrd* scored data. We also assess sensitivity and specificity and the inter-rater reliability of the scoring algorithm relative to human-coded data. These analyses show that *lrd* is highly reliable, and data scored using this package are consistent with data processed via human coders.

We hope that *lrd* will both drastically reduce the amount of time spent coding data from recall studies and assist with the reproducibility measures being adopted in the field by providing researchers with a standardized, open-source method for processing lexical output across psychological studies. This work is original and not under review elsewhere, and we report no conflicts of interest. We look forward to hearing about the suitability of our paper in *Behavior Research Methods*.

Sincerely,

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