**Title:** lrd: An R Package and Shiny Application for Quickly Processing Lexical Response Data

**Authors:** Nicholas P. Maxwell, Mark J. Huff, & Erin M. Buchanan

**Abstract:**

Recall testing is common paradigm that assesses memory retrieval. Responses from these tests can be analyzed in several ways; however, the output they generate typically requires manual coding that can be time intensive and error-prone before any analyses can be conducted. To address this issue, we have developed *lrd* (Lexical Response Data), an open-source *R package* that quickly and accurately processes several forms of lexical response data. This tool can be used in two ways: Either as a package within the *R* environment or through an accompanying *R Shiny* graphical user interface. First, we provide an overview of the package and detail the process used for scoring both cued and free-recall responses with *lrd*. We then showcase the validity of this program’s scoring algorithms using two methods. We will use *lrd* to recode output from both cued and free-recall studies with large samples and test whether the results replicate using *lrd* scored data. We then assess both the inter-rater reliability and sensitivity and specificity of the scoring algorithms relative to human-coded data. Overall, we show that *lrd* is highly reliable and shows excellent sensitivity and specificity, indicating that recall data processed using this package are remarkably consistent with data processed by a human coder.

**Word Count:** 204

**Character Count (w/ spaces)**: 1301