Professor Rotello,

Please find enclosed for submission a manuscript entitled “The Spatiotemporal Gradient of Intrusion Errors in Continuous Outcome Source Memory: Source Retrieval is Affected by both Guessing and Intrusions” for consideration for publication in Cognitive Psychology.

In this manuscript, we investigated whether prevailing threshold models of source memory, which state that source retrieval fails entirely on a proportion of trials, continued to hold when intrusions from non-target items are accounted for. Model comparison revealed that errors are driven by both guesses and intrusions, suggesting that although previous studies have overestimated the proportion of guesses by conflating these two sources of error, guesses are required to explain the overall distribution of errors, ultimately supporting thresholded views of source memory retrieval. In particular, we implemented a model in which the probability of a non-target item intruding is determined by the spatiotemporal similarity of its presentation to that of the target item. We found that this model provided a good account of several qualitative patterns in the data, and was preferred by our model selection procedure when constrained by jointly fitting response accuracy and times. In doing so, we draw an explicit link between the source memory and visual working memory literatures regarding how the proximity of items in time and space affects memory representations.

We recommend the following reviewers for this work. **Paul Bays** (University of Cambridge) has investigated misbinding errors in visual working memory using similar techniques to those in the manuscript. **Chris Donkin** (University of New South Wales) and **Jeff Starns** (University of Massachusetts, Amherst) are familiar with several of the issues raised in the manuscript, particularly diffusion modeling and modeling response times. **Rob Nosofsky** (Indiana University Bloomington) is also an expert in response time modeling and has worked with threshold models of visual working memory. **John Wixted** (University of California, San Diego) and **David Kellen** (Syracuse University) are experts in memory modeling, and have contributed to the threshold and continuous model debate that our work is situated in. **Joshua Koen** (University of California, Davis)is an expert who has worked with dual-process models of memory. We would prefer not to have **Andrew Yonelinas** or **Ken Malmberg** be assigned as a reviewer for this submission.

Jason Zhou