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Authors

Colas, Cédric

Mills, Tracey

Prystawski, Ben

et al.

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The Effect of Set Size on Long-Term-Memory Retrieval Times in Cued Recall

Susanne Haridi

Max Planck School of Cognition, Leipzig, Germany

Mirko Thalmann

Helmholtz Institute, Munich, Germany

Eric Schulz

Helmholtz Institute, Munich, Germany

Abstract

Cognitive search processes are generally affected by the number of available items. We investigated if this also applies to long-term memory retrieval. Specifically, we explored the effect of set size on retrieval times of cued memories from long-term memory. Participants learned lists of word pairs that varied in the number and the semantic similarity of the pairs. An increase in set size resulted in slower retrieval times, indicating the influence of set size on memory retrieval efficiency. However, participants were faster in retrieving more semantically similar word pairs. These findings are consistent with a search-based model of retrieval, illustrating its sensitivity to the number of memory candidates, while highlighting the role of the quality of the cue in optimizing search performance. Furthermore, we established the validity of using similarity values based on Word2Vec embeddings by showing a high correlation with human similarity ratings and similar model results.