Does Depth of Processing Affect Temporal Contiguity?

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Introduction

• Levels of Processing Effect: deep processing tends to result in better memory than shallow processing (Craik & Tulving, 1975)
  • Mechanisms involved are not well understood (Eysenck, 1978; Baddeley, 1978)
  • Temporal Contiguity Effect (TCE): recall of one event triggers recall of other events originally experienced nearby in time (Kahana, 1994)
  • Recall and the TCE are typically correlated (Healey, Long, Kahana, 2019)
  • Many models include specific TCE-generating mechanisms

Research Question: How does a deep processing task affect temporal contiguity?

• Theory-based predictions
  • Retrieved Context Models — deep processing task may increase the rate of context drift during encoding, increasing the TCE relative to shallow processing (Healey, 2016)
  • Item-Order Account — deep processing task may prioritize item information over order information, reducing the TCE relative to shallow processing (Miell & Bugg, 2008)
  • Accounts based on control processes — any assigned task may interfere with order-based strategies, reducing the TCE (Healey, 2019)

Design

• N = 680
• Immediate free recall of 16-item lists
  • 30 lists; 10 lists each for deep, shallow, and no-task
  • Deep: Does this word refer to a living thing?
  • Shallow: Does this word contain the letter T?

Results

• Recall highest in no-task; higher for deep than shallow processing (Craik & Tulving, 1975; Hyde & Jenkins, 1969; Long & Kahana, 2017)
• TCE highest in no-task; higher for deep than shallow processing (Long & Kahana, 2017)
• Semantic contiguity higher in no-task than shallow processing

Conclusions

• Any assigned task reduced both recall and the TCE. Deeper processing improved both recall and the TCE.
• Results support accounts based on control processes and retrieved context models
  • Contrary to item-order account