

Carryover effects in free recall reveal how prior experiences influence memories of new experiences

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Abstract

We perceive, interpret, and remember ongoing experiences through the lens of our prior experiences. Inferring that we are one type of situation versus another can lead us to interpret the same physical experience differently. In turn, this can affect how we focus our attention, form expectations of what will happen next, remember what is happening now, draw on our prior related experiences, and so on. To study these phenomena, we asked participants to perform simple word list learning tasks. Across different experimental conditions, we held the set of to-be-learned words constant, but we manipulated the orders in which the words were studied. We found that these order manipulations affected not only how the participants recalled the ordered lists, but also how they recalled later randomly ordered lists. Our work shows how structure in our ongoing experiences can exert influence on how we remember unrelated subsequent experiences.

16 Introduction

17 Experience is subjective: different people who encounter identical physical experiences can take
18 away very different meanings and memories. One reason is that our subjective experiences in the
19 moment are shaped in part the idiosyncratic prior experiences, memories, goals, thoughts, expect-
20 tations, and emotions that we bring with us into the present moment. These factors collectively
21 define a *context* for our experiences³.

22 The contexts we encounter help us to construct *situation models*^{4,6} or *schemas*^{1,5} that describe
23 how experiences are likely to unfold based on our prior experiences with similar contextual cues.
24 For example, when we enter a sit-down restaurant, we might expect to be seated at a table,
25 given a menu, and served food. Priming someone to expect a particular situation or context
26 can also influence how they resolve potential ambiguities in their ongoing experiences, including
27 ambiguous movies and narratives⁷.

28 Our understanding of how we form situation models and schemas, and how they interact
29 with our subjective experiences and memories, is constrained in part by substantial differences
30 in how we study these processes. Situation models and schemas are most often studied using
31 “naturalistic” stimuli such as narratives and movies⁷. In contrast, our understanding of how we
32 organize our memories has been most widely studied using more traditional paradigms like free
33 recall of random word lists². Because random word lists are unstructured by design, it is not clear
34 if or how non-trivial situation models might apply to these stimuli.

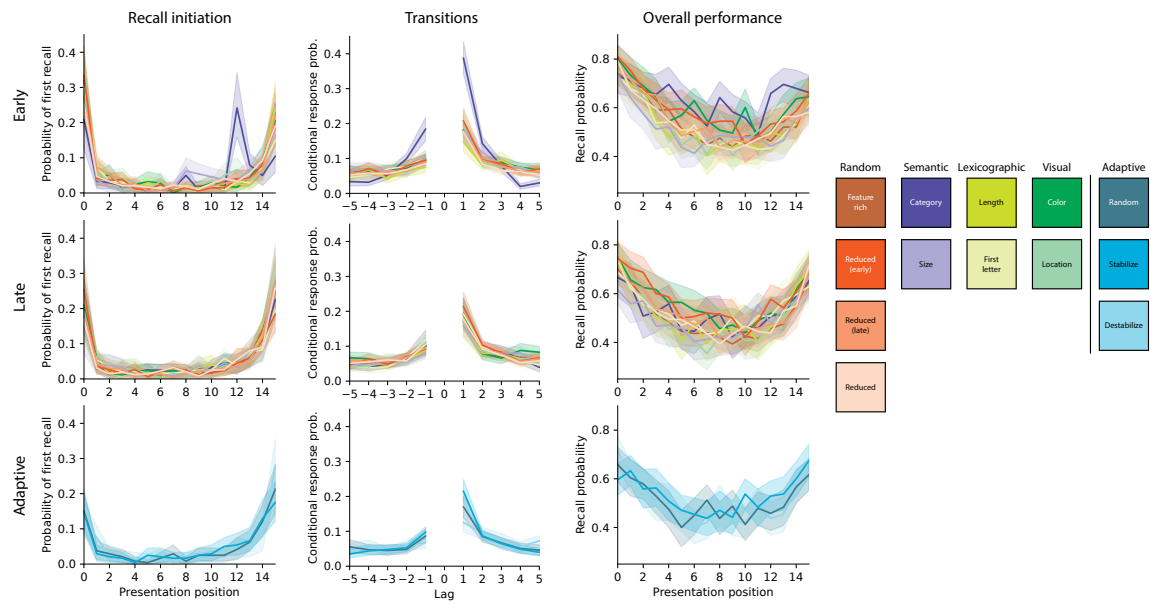


Figure 1: Recall dynamics in free recall.

Results

Discussion

Materials and methods

Participants

Experimental design

Analysis

References

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