Aging and false memories: Comparing effects of item-relatedness and list position

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Introduction

In list-learning tasks, memory distortions are usually meaning-based (semantic) or sound-based (phonological).

Such false memory (FM) errors reveal the interplay between verbatim and gist traces and may elucidate how memoranda are processed and stored in memory.

Prior work has shown that FM can be delay-invariant (Flegal, Atkins, & Reuter-Lorenz, 2010; Zucker, Flegal, Atkins, & Reuter-Lorenz, 2010).

Here, we investigated the prevalence of semantic and phonological codes across putatively different memory systems (STM, LTM) and examined potential differences due to age.
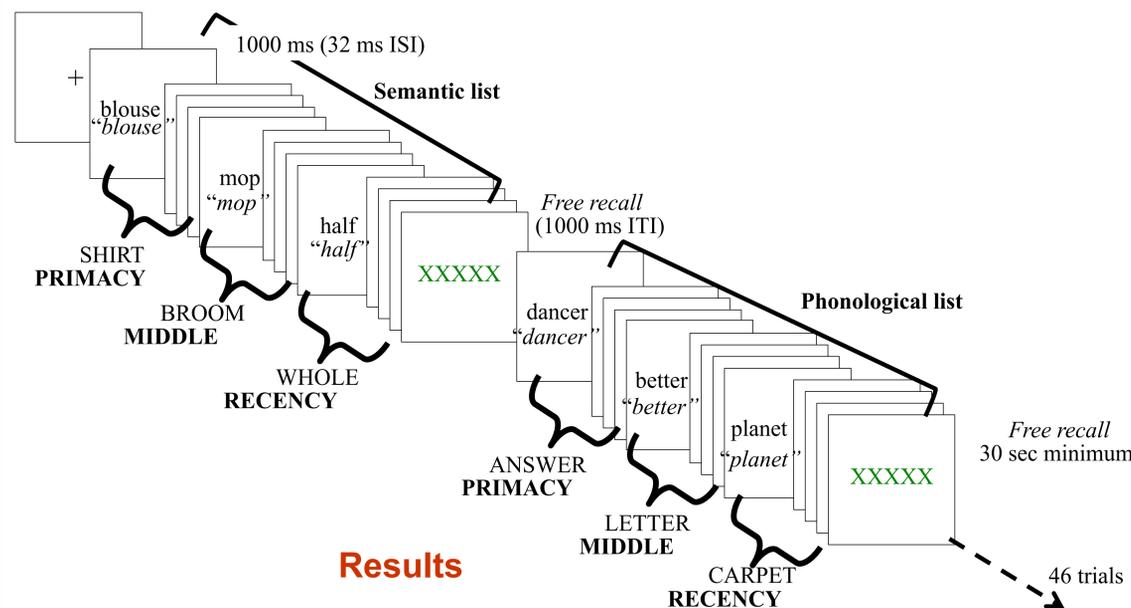
Hypotheses

Semantically organized lists should promote better memory than phonologically organized lists, and this advantage should be more evident in YA than OA because YA are more likely to use and benefit from semantic codes.

Further, the advantage of semantic lists should be greater in the primacy than recency position, if semantic codes prevail in LTM, and phonological codes in STM, as posited by the separate memory system view.
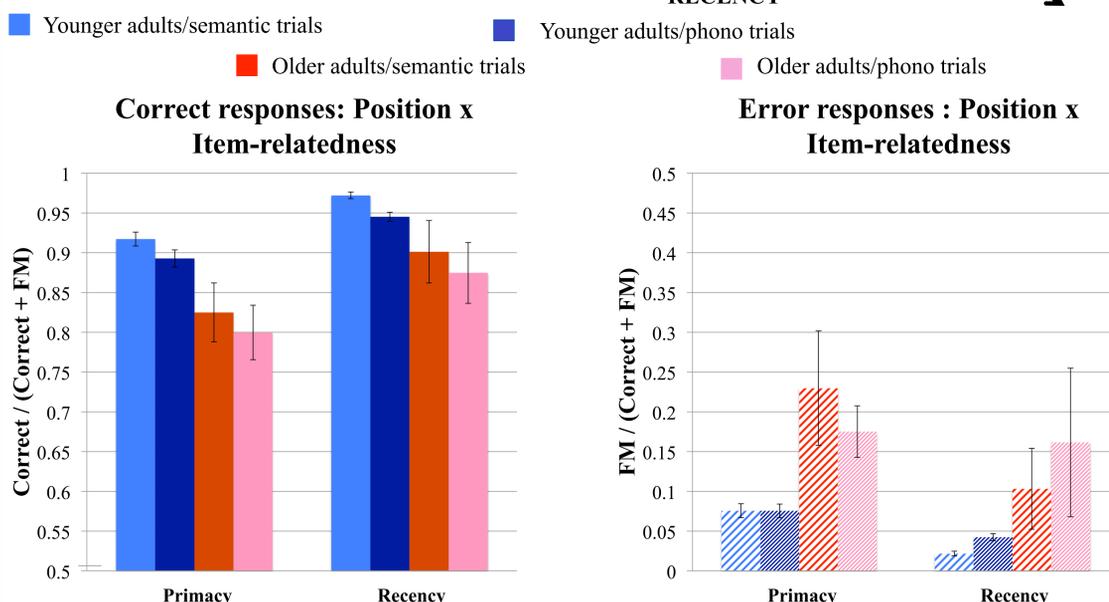
Age differences should be greater in primacy than recency lists to the extent that age affects LTM more than STM and this difference may be most pronounced for semantic lists where age differences may be most evident.

Method

	Younger adults 42 (female = 25)	Older adults 42 (female = 27)
Mean age (SD)	19 (.89) years	76 (6.7) years
MMSE	29.43 (.83)	28.76 (1.36)

Results

Correct responses: Position x Item-relatedness

Younger adults/semantic trials
Younger adults/phono trials
Older adults/semantic trials
Older adults/phono trials

More correct responses came from recency than primacy positions, $p < .001$. More responses were made on semantic than phono trials, $p < .001$. YA made more responses than OA, $p = .029$. There was a trending age x position interaction, $p = .089$, with a larger age effect in the primacy position.

Error responses : Position x Item-relatedness

More FM responses came from primacy than recency positions, $p = .026$. OA made more FM responses than YA, $p = .026$. There were no significant interactions with position, age, or item-relatedness.

Conclusions

We confirmed our hypothesis that semantically organized lists would support better memory performance, however, contrary to our prediction, the effect of item-relatedness was not different for YA & OA.

Primacy positions were more likely to show age-differences in terms of correct responses, however YA and OA had similar FM performance across positions. These relationships were not affected by item-relatedness for either age group.

The continuity of memory performance across positions and item-relatedness is inconsistent with the multiple memory systems view.

What about memory performance at other list positions?

Despite similarities at primacy and recency positions, error performance from middle positions shows a divergent pattern between YA and OA.

Error responses: Position x Item-relatedness
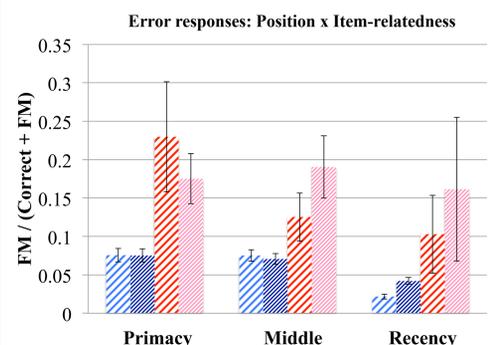
There is a trending interaction between position and item-relatedness, and age, $p = .101$.

These list positions are an open area for future studies of YA & OA memory processes.

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