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Syntax and recall serial: The effect of positional statistics on serial ordering

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Introduction

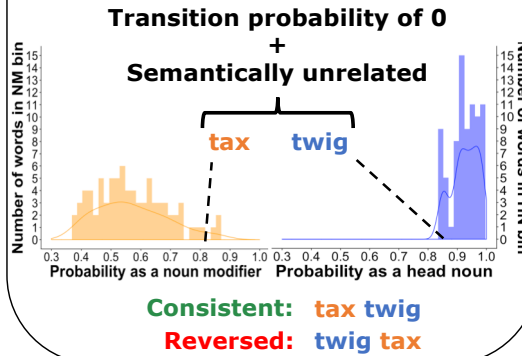
Does syntactic knowledge gleaned from natural language experience affect ordering processes in working memory?

Working memory performance is affected by long-term semantic [1] and phonotactic knowledge [2] from language experience. **Accounts suggesting that verbal working memory is emergent from language production predict that syntactic experience should also influence recall** [6], but other accounts claim that only word-internal experience affects working memory performance [3].

We tested the role of long-term syntactic knowledge on working memory tasks by comparing recall in word orders that were either **consistent with prior grammatical experience** or **reversed compared to prior experience**.

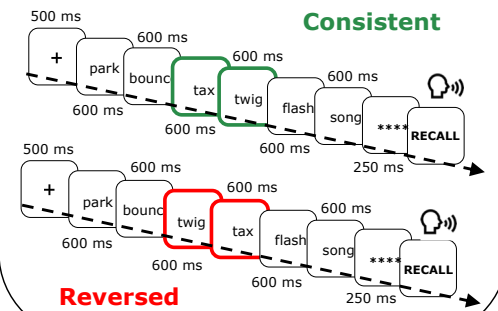
Stimuli

Typical noun modifiers and **typical head nouns** were paired together such that the words **never co-occurred** [COCA, 4] and were **not semantically related** [5].

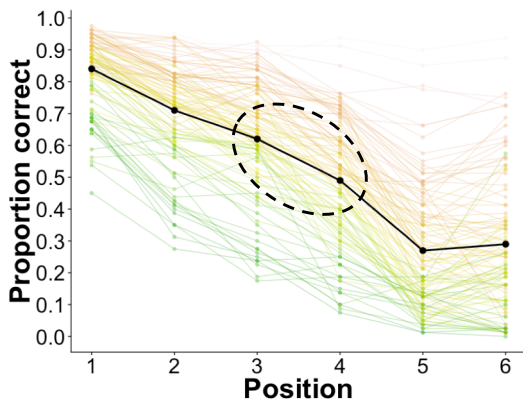


Methods

Critical words appeared in positions 3 and 4 flanked by randomly selected filler items from a variety of grammatical roles. **We hypothesized better recall for consistent critical pairs compared to reversed critical pairs.**

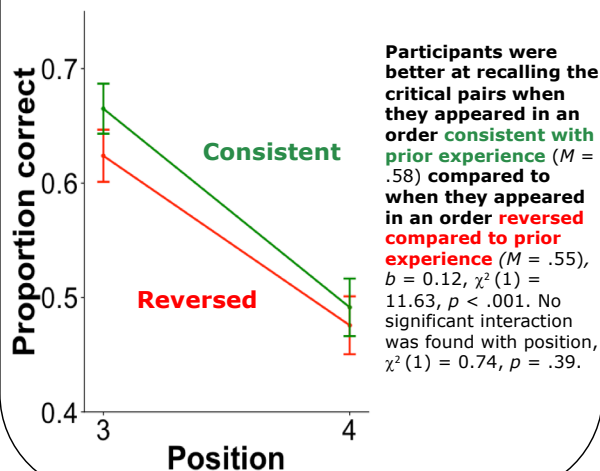


Overall recall



UW-Madison undergraduates who were native speakers of English ($n = 108$) each completed 80 trials. Colored lines represent individual participants. Location of critical words (**consistent**, **reversed**) was manipulated within subjects.

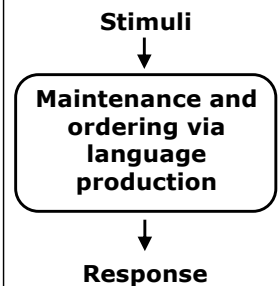
Model predictions



Participants were better at recalling the critical pairs when they appeared in an order consistent with prior experience ($M = .58$) compared to when they appeared in an order reversed compared to prior experience ($M = .55$), $b = 0.12$, $\chi^2(1) = 11.63$, $p < .001$. No significant interaction was found with position, $\chi^2(1) = 0.74$, $p = .39$.

Conclusions

These results implicate language production processes in the maintenance and ordering of verbal working memory, providing support for theories which tie the two processes together [6].



References

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