A context maintenance and retrieval model of interlist effects in free recall

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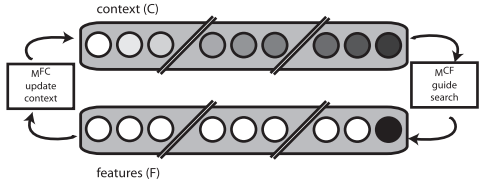
Introduction

- Most memory models attempt to account for single trial phenomena
- The challenge is to explain both intralist and interlist phenomena using a single model
- We attempt to account for prior-list and extra-list intrusions and the list-before-last paradigm

Continuous-memory version of the context, maintenance and retrieval model (CMR2)

- For each simulated participant, all items in the session are represented in the model
- Memory is not reset between lists



- Input to context:

$c^{IN} = M^{FC} f_i$

driven by studying or recalling a word, by a distractor task, or by a delay between lists

- Update context:

$c_i = \rho_i c_{i-1} + \beta c^{IN}$

$\Delta M^{FC}_{exp} = (\Delta M^{CF}_{exp})^T = c_i f_i^T$

- Recall process:

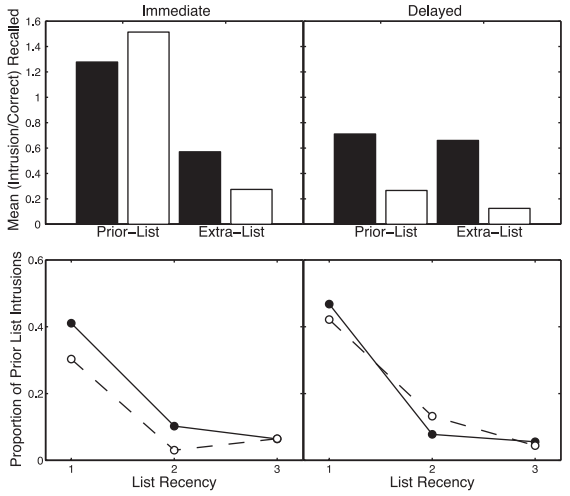
$f^{IN} = M^{CF} c_i$

$x_s = (1 - \tau\kappa - \tau\lambda N) x_{s-1} + \tau f^{IN} + \varepsilon$

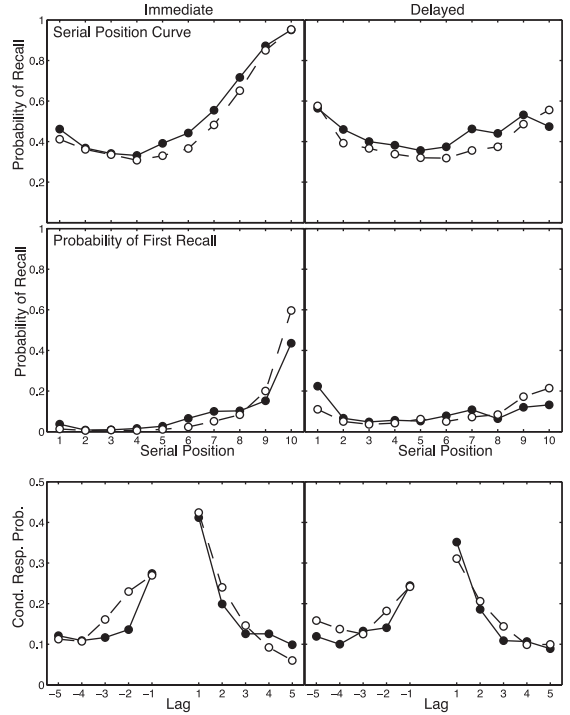
$\theta = 1 + \omega \cdot \alpha^i$

Free recall

Interlist effects



Intralist effects

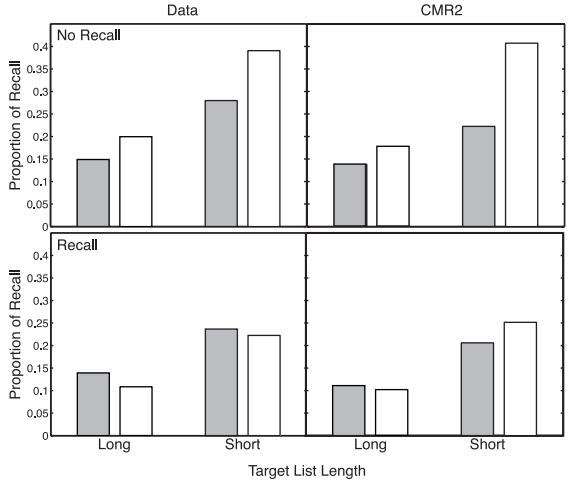


List-before-last paradigm

No Recall: ... study n | study n+1 | test n ...

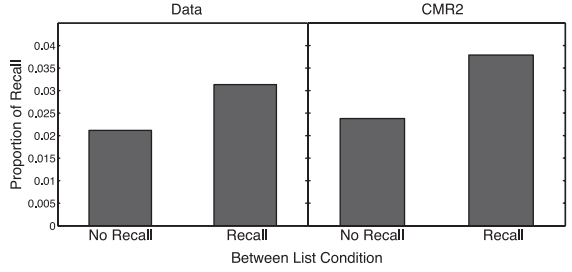
Recall: ... study n | test n-1 | study n+1 | test n ...

Target list recalls
- less for longer target lists
- less for longer intervening lists with no recall
- unaffected by intervening list length with recall



Long Intervening List
Short Intervening List

Intervening list recalls
- less with no recall between lists



Conclusions

Using contextual representations, CMR2 accounts for and elucidates the properties of:

- prior-list and extra-list effects in free recall
- target list effects in the list-before-last paradigm
- current list effects

Future Directions

Use CMR2 to examine the properties of:

- intralist and interlist repetitions
- proactive interference
- externalized free recall
- multitrial free recall
- patterns of intrusions in aging
- directed forgetting

References

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