Judgments of Learning Reflect the Encoding of Contexts, Not Items: Evidence from a Test of Recognition Exclusion

Belgin Ünal and Aaron S. Benjamin, University of Illinois Urbana-Champaign

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Introduction

Two sources of evidence are assumed to be shared by judgments of past recognition and judgments of future performance: *item memory* and *context memory*.

We tested memory and metamemory using a continuous exclusion procedure which allowed us to disentangle the contributions of item and context memory to JOLs.

Independent contributions model (Jacoby, 1991)

$$C = HR - FAR_{TBX}$$

$$I = \frac{FAR_{TBX}}{(1 - C)}$$

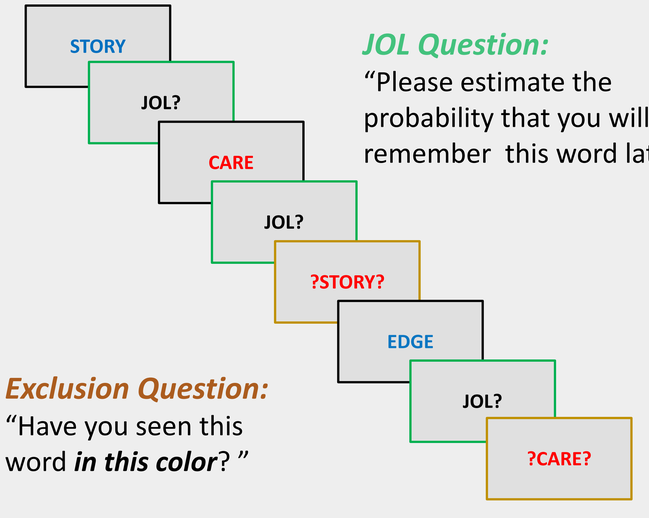
C = Context Memory
I = Item Memory
HR = Hit Rate
FAR = False Alarm Rate
TBX = to-be-rejected items

Power law forgetting function (Wickelgren, 1974)

$$P = a(bt + 1)^{-c}$$

P = parameter of interest
a = initial degree of learning
b = scaling parameter
t = time (here, measured in lags)
c = rate of forgetting

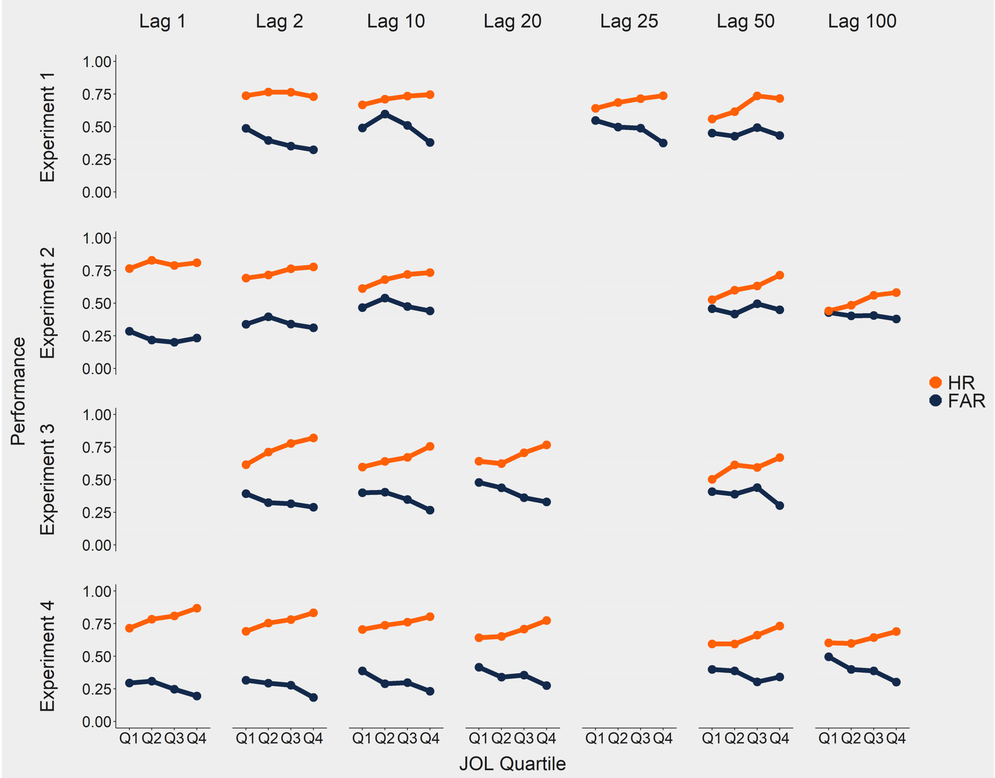
Continuous Exclusion Procedure



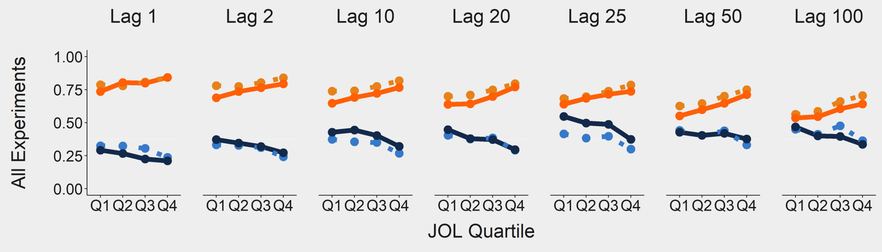
JOL Question:
"Please estimate the probability that you will remember this word later."

Exclusion Question:
"Have you seen this word ***in this color***? "

Hit and False Alarm Rates

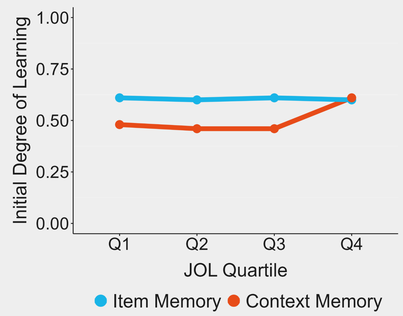


Overall Performance and Model Fit

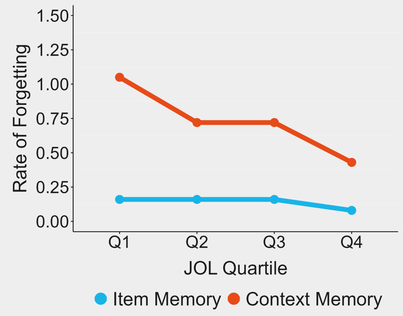


Estimated Item and Context Memory

Median Parameter Estimates



JOLs predicted the ***degree of learning*** for context memory but not for item memory.



JOLs predicted the ***rate of forgetting*** for context memory but not for item memory.

Conclusions

- Higher JOLs are predictive of a higher degree of initial learning and a lower rate of forgetting for context memory but are not related to either parameter for item memory.
- JOLs reflect the memory strength for the individual memory episode rather than for the semantic information associated with that episode.

References

Jacoby, L. L. (1991). A process dissociation framework: Separating automatic from intentional uses of memory. *Journal of memory and language, 30*, 513–541.

Wickelgren, W. A. (1974). Single-trace fragility theory of memory dynamics. *Memory & Cognition, 2*, 775–780.

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Belgin Ünal
bunal2@illinois.edu