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# How long can you hold the filler?

Nayoun Kim<sup>1</sup>, Laurel Brehm<sup>2</sup>, Patrick Sturt<sup>3</sup>, Masaya Yoshida<sup>1</sup>

<sup>1</sup>Northwestern University, <sup>2</sup>Max Planck Institute, <sup>3</sup>University of Edinburgh

## Overview

- How much information about a filler is maintained in a WH-dependency?
- Is there a difference between active maintenance and re-activation of a filler?
- We present evidence that:
  - : Fine-grained information about a filler is maintained across a dependency (c.f. Wagers & Phillips, 2014)
  - : The quality of this information is degraded when a filler is reactivated (Martin & McElree, 2008)

## Background

- We know that fillers are actively maintained in memory (Stowe, 1986):
  - Ruth wondered who Robert would bring *us* home to \_\_\_ at Christmas.
- We also know that fine-grained information about fillers seems to rapidly decay (Wagers & Phillips, 2014):
  - #The cats which the squirrels with the bushy black tails quickly crammed their small puffy cheeks with \_\_\_ before scurrying out of the park...
- Presumably, a filler must be reactivated in a coordinate structure due to the coordinate structure constraint (Ross 1967)
  - John wondered what Mary bought \_\_\_ and sold \_\_\_.
  - \* John wondered what Mary bought \_\_\_ and sold a shirt.
- We further test how much information is actively maintained/reactivated using an agreement attraction paradigm (Wagers, Lau, & Phillips, 2009):
  - \*The key to the cabinet(s) are on the table.

## (1) "Reactivated" WhFGD formation

Which key to the **cell/s** can be used for front doors and unsurprisingly **is/are** used for two doors?

- WhFGD and coordination structure where the the wh-filler is linked to the verb in the first conjunct, but the wh-phrase must be "reactivated" at the coordinating connective *and*.

## (2) "Active" WhFGD formation

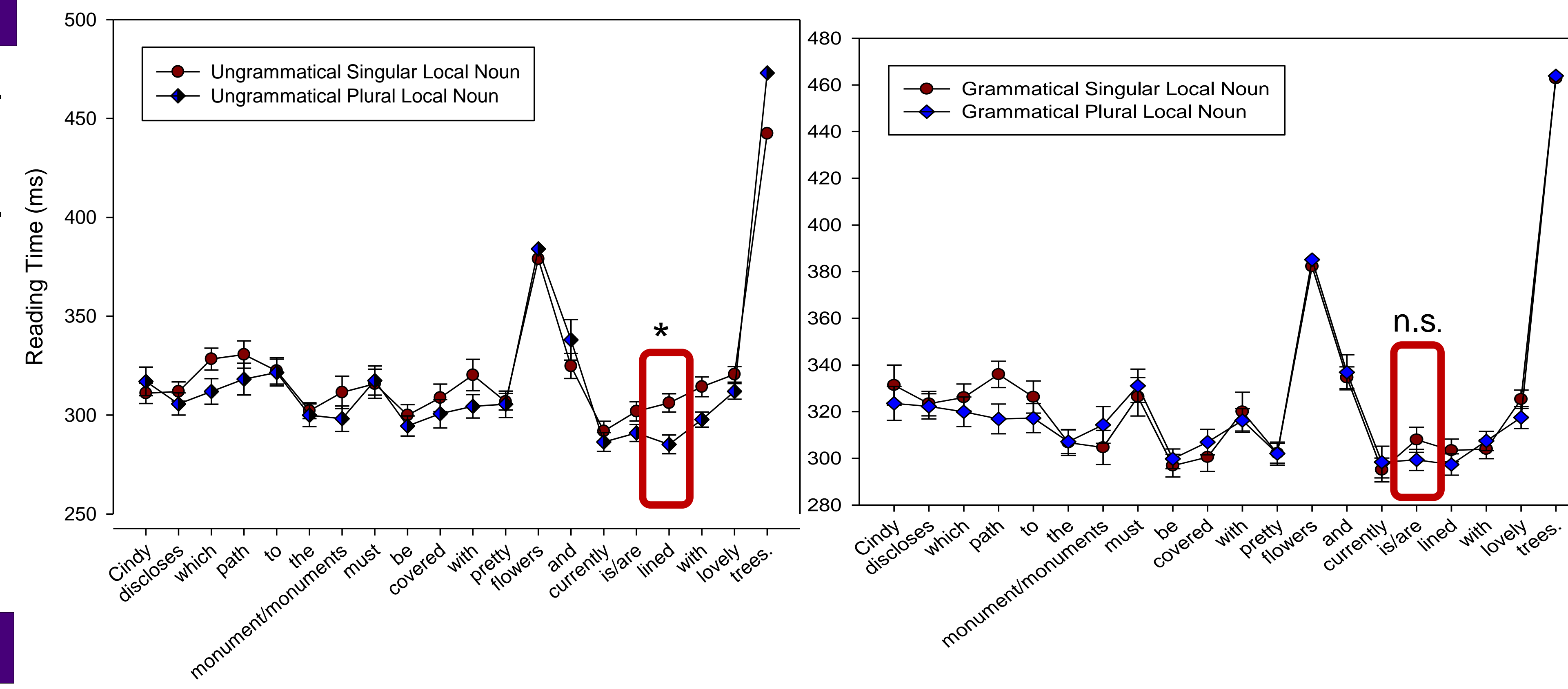
Which key to the cell/cells that can be used for front doors unsurprisingly **is/are** used for two doors?

- The wh-V dependency is incomplete at the main verb (the second verb **is/are**), meaning the wh-phrase is linked to the main verb **is/are** directly

## Experiment 1: Coordinate Structure

A Self paced reading experiment (n=44) at Northwestern University. 32 sets of target sentences, with four conditions balanced in a Latin square.

- a.b. Cindy discloses which path to the **monument/s** must be covered with pretty flowers and currently **is** lined with lovely trees.
- c.d. Cindy discloses which path to the **monument/s** must be covered with pretty flowers and currently **are** lined with lovely trees.

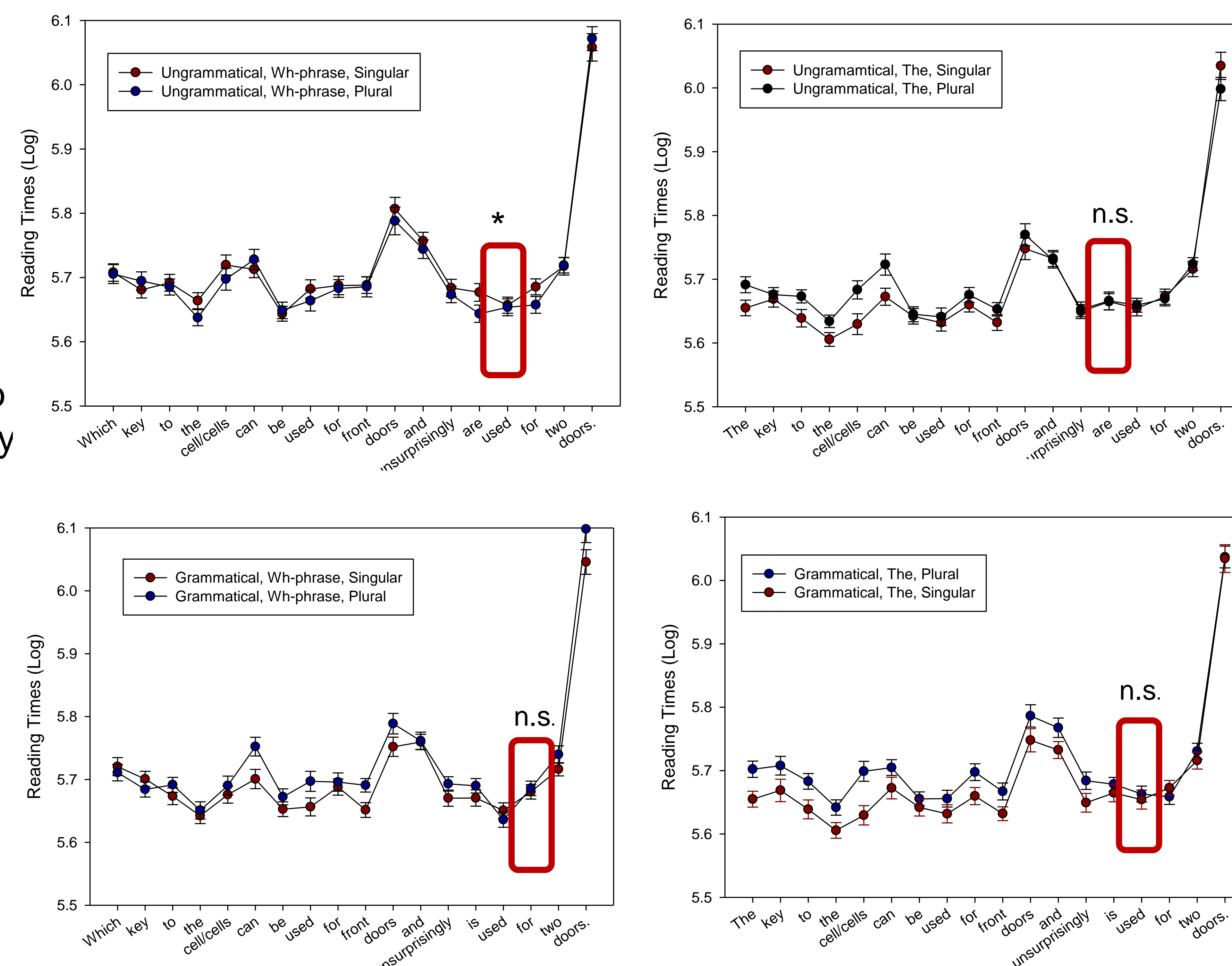


Comprehenders activate the entire constituent corresponding to the WH phrase, not just the head/syntactic category.

## Experiment 2: Wh vs. The

A Self paced reading experiment (n=70) at Northwestern University. 32 sets of target sentences, with four conditions balanced in a Latin square.

- a.b. Which key to the **cell/s** can be used for front doors and unsurprisingly **is** used for two doors?
- c.d. Which key to the **cell/s** can be used for front doors and unsurprisingly **are** used for two doors?
- e.f. The key to the **cell/s** can be used for front doors and unsurprisingly **is** used for two doors
- g.h. The key to the **cell/s** can be used for front doors and unsurprisingly **are** used for two doors.

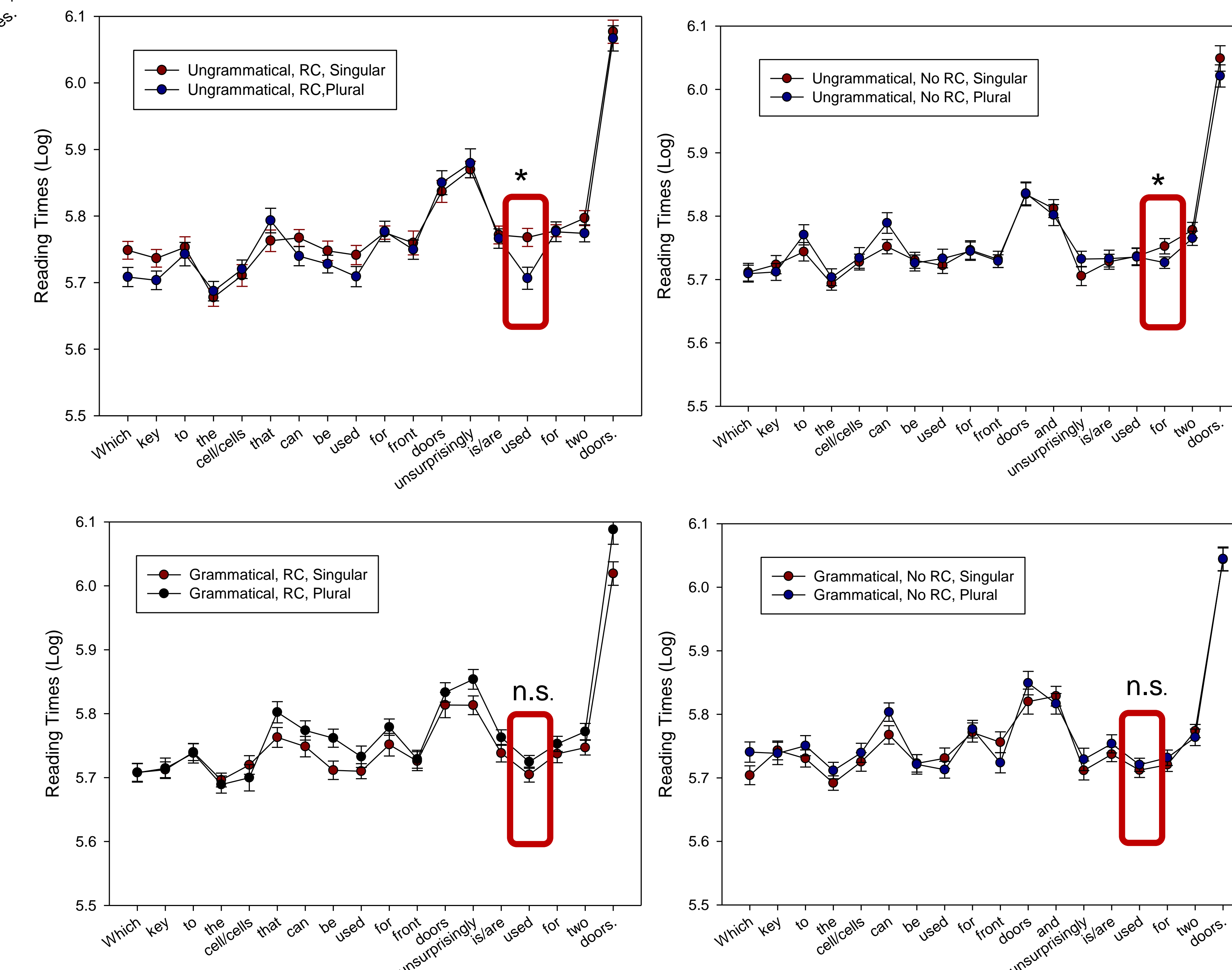


We find reactivation with WH phrases, but not definite DPs, therefore reactivation can't be the whole story

## Experiment 3: Reactivated vs. Active WhFGD

A Self paced reading experiment (n=76) at Northwestern University.

- a.b. Which key to the **cell/s** can be used for front doors and unsurprisingly **is** used for two doors?
- c.d. Which key to the **cell/s** can be used for front doors and unsurprisingly **are** used for two doors?
- e.f. Which key to the **cell/s** that can be used for front doors unsurprisingly **is** used for two doors?
- g.h. Which key to the **cell/s** that can be used for front doors unsurprisingly **are** used for two doors?



Comprehenders maintain information of a higher quality than they reactivate.

## Summary and Conclusion

- We find that fillers can cause agreement attraction effects
  - This effect obtains when fillers are actively maintained, and when they are reactivated.
  - It is larger when they are actively maintained.
  - It is absent when the constituent is not a WH-filler.
- These findings suggest that:
  - Comprehenders maintain relatively fine-grained information about fillers across dependencies (c.f. Wagers & Phillips, 2014).
  - Comprehenders access this information less reliably during retrieval (Martin & McElree, 2008).
  - Wh phrases hold some privileged status in memory.
- Open Questions and future directions:
  - Does agreement attraction surface in even longer dependencies?
  - Why are WH phrases privileged relative to other constituents?

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