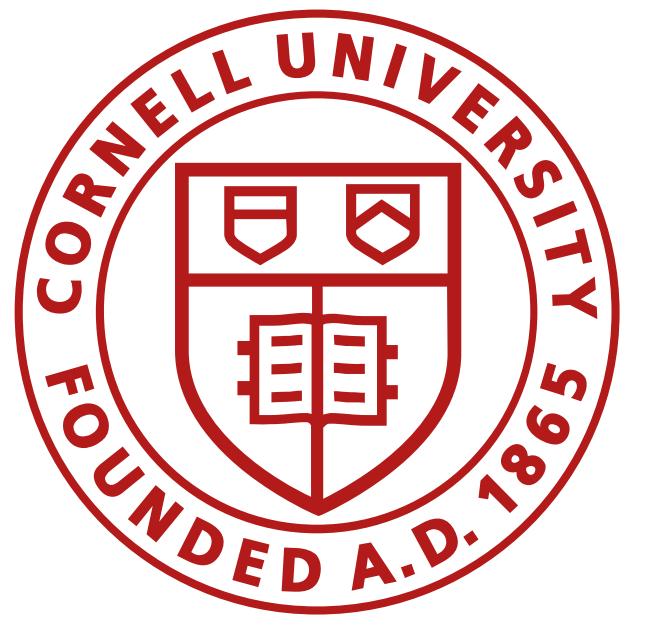


Syntactic Complexity Governs Temporal Processing of Phonological Structure

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INTRODUCTION

- Much psycholinguistic research on incremental processing primarily focuses on syntax and semantics [1, 2, 3].
- Some find that *syntactically-identical* structures display phonological effects [4, 5].
- We examine how *different* syntactic structures of varying complexity affect timing of online phonological processing.
- We focus on processing distinctions between viable and unviable nonce words.

RESEARCH QUESTION

How does syntactic complexity modulate when phonological effects surface during processing?

SELECT REFERENCES

- [1] Ferreira & Henderson (1990). *Journal of Experimental Psychology*.
 [2] Dember & Keller (2008). *Cognition*.
 [3] van Gompel & Pickering (2007). *The Oxford Handbook of Psycholinguistics*.
 [4] Rayner et al. (1992). *Cognition*.
 [5] Plummer & Rayner (2012). *Attention, Perception, and Psychophysics*.
 [6] Kuznetsova et al. (2017). *Journal of Statistical Software*.

STIMULI

	1	2	3	4	5	6
MATRIX:	Last	night	the	<u>brick</u>	smashed	through ...
EMBEDDED:	I	hoped	the	<u>blick</u>	smashed	through ...
C-EMBEDDED:	The	window	the	<u>bnick</u>	smashed	through ...

Table 1: Three sample stimuli from one experimental item (additional 6 sample stimuli not shown). Across all conditions, the TARGET appears in the same linear positions and words 5 & 6 are identical.

- 3 phonological TARGETS:
 1. REAL Word: brick (control)
 2. Viable Nonce: blick
 3. Unviable Nonce: bnick
- 3 STRUCTURES where the TARGET surfaces:
 1. Matrix clause subject
 2. Embedded clause subject
 3. Center-embedded clause subject

RESULTS

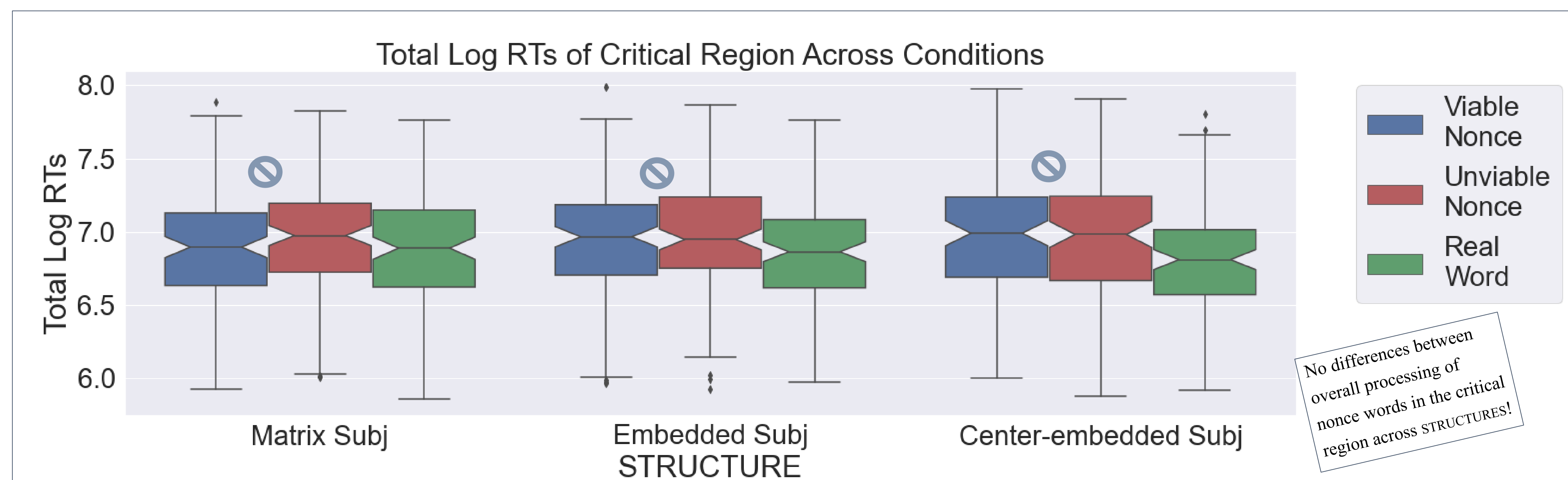


Figure 1: Summed log reading times (RTs) for positions 4 and 5 by STRUCTURE. Notches indicate 95% CIs.

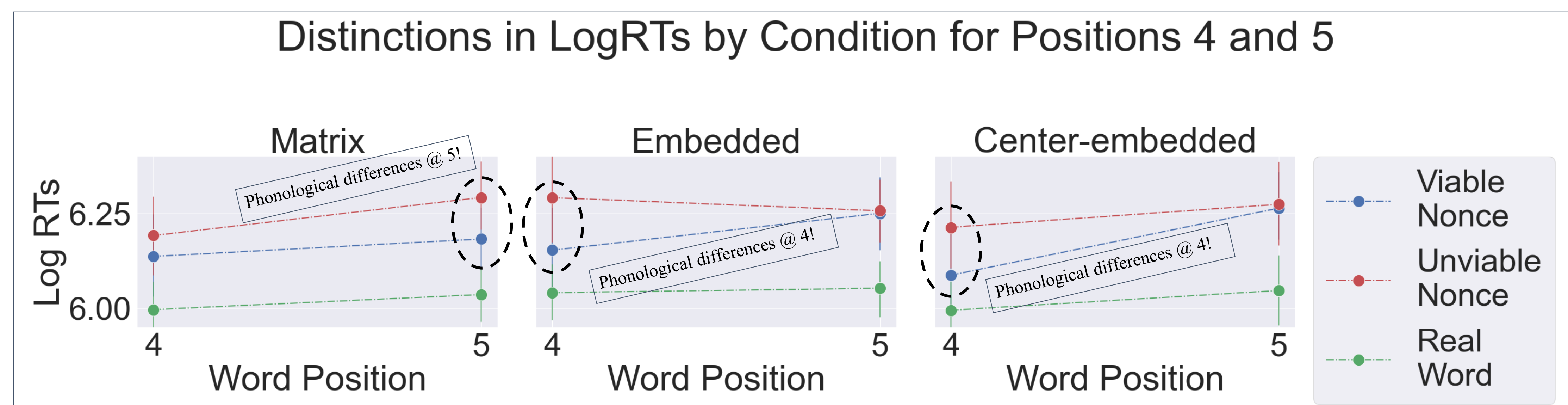


Figure 2: Log RTs by STRUCTURE. Significant differences between nonce targets (as determined by maximal mixed-effects models fit to each position [LogRTs ~ TARGET+ (1+ TARGET | subject) + (1+ TARGET | item)] via lmerTest [6]) are circled.

DISCUSSION

- Total RTs of critical region is consistent across nonces...
- ... but a timing trade-off that follows syntactic complexity arises:
 1. Embedded STRUCTURES show early phonological effects.
 2. Non-embedded STRUCTURES show late phonological effects.

CONCLUSION

Syntactic complexity governs when phonological effects surface during online processing.