Discourse context modulates phonotactic processing

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PLab
C.Psyd
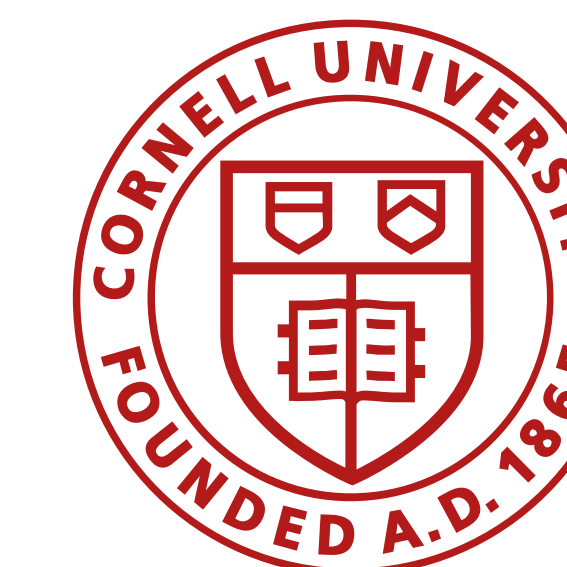
RESEARCH QUESTION

How does context affect phonotactic judgments?

BACKGROUND

- Phonotactic acceptability judgments are well-established in prior phonological and psycholinguistic research [1, 2, 3].
- Most studies examine judgments in isolation.
  - … but most of our encounters with language are in context.
- Additionally, much phonological structure seems to be generated during reading, like stress [4], metrical structure [5], and ordering preferences [6].
- Recently, timing of phonotactic judgments was found to vary by syntactic structure during reading [7], suggesting that context may play a role in how phonotactic judgments surface.
- We probe how additional context modulates phonotactic judgments.

SELECT REFERENCES

[1] Albright (2009). *Phonology.*
[2] Bailey & Hahn (2001). *Journal of Memory and Language.*
[3] Breiss (2020). *Phonology.*
[4] McCurdy et al. (2013). *Journal of Eye Movement Research.*
[5] Kriukova & Mani (2016). *Frontiers in Psychology.*
[6] Morgan & Levy (2016). *Cognition.*
[7] Starr et al. (2023). *The 30th Manchester Phonology Meeting.*
[8] Kuznetsova et al. (2017). *Journal of Statistical Software.*

STIMULI

[A] Context sentences:

	Context Type
Meaningful	There was a loud crashing sound nearby.
Random	There was a music festival all week.

- 2 discourse CONTEXTS:
  1. MEANINGFUL (anticipates upcoming verb)
  2. RANDOM (unrelated to upcoming verb)

Critical region is highlighted in grey!

[B] Starr et al. (2023) stimuli:

	Matrix Subject	Embedded Subject
Viable	Last night the *blick* smashed through…	I hoped the *blick* smashed through…
Unviable	Last night the *bnick* smashed through…	I hoped the *bnick* smashed through…
	1 2 3 4 5 6	1 2 3 4 5 6

- 2 phonological TARGETS:
  1. VIABLE Nonce: blick
  2. UNVIABLE Nonce: bnick

- 2 STRUCTURES for the TARGET:
  1. MATRIX clause subject
  2. EMBEDDED clause subject

CURRENT STUDY: [A] → [B]

Adding discourse CONTEXT!

- What if we add a one-sentence discourse context **[A]** prior to the stimuli of Starr et al. (2023) **[B]**?

No phonotactic judgments for EMBEDDED clauses!

Figure 2: Current study results. Significant differences between TARGETS are circled (as determined by maximal mixed-effects models fit to each position[LogRTs ~ TARGET*CONTEXT*STRUCTURE + (1 | subject) + (1 | item)] via lmerTest [8]).

- Phonotactic judgments surface only for MATRIX clauses.
- Type of discourse context doesn't change phonotactic judgments…
  - .. but the presence of context does!
- … maybe our findings are a result of reading more sentences?

PRIOR STUDY: [B] ONLY

- Nonce TARGETS of varying phonotactics were read in distinct STRUCTURES. Phonotactic judgments arose, but at different times:
  - Easy syntax → delayed phonotactic judgments
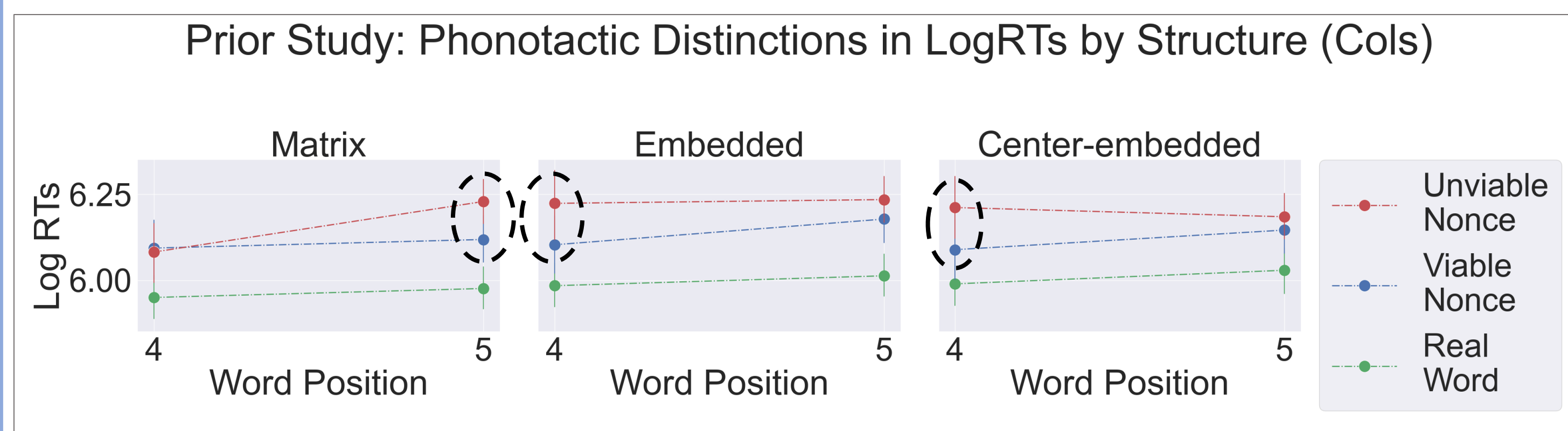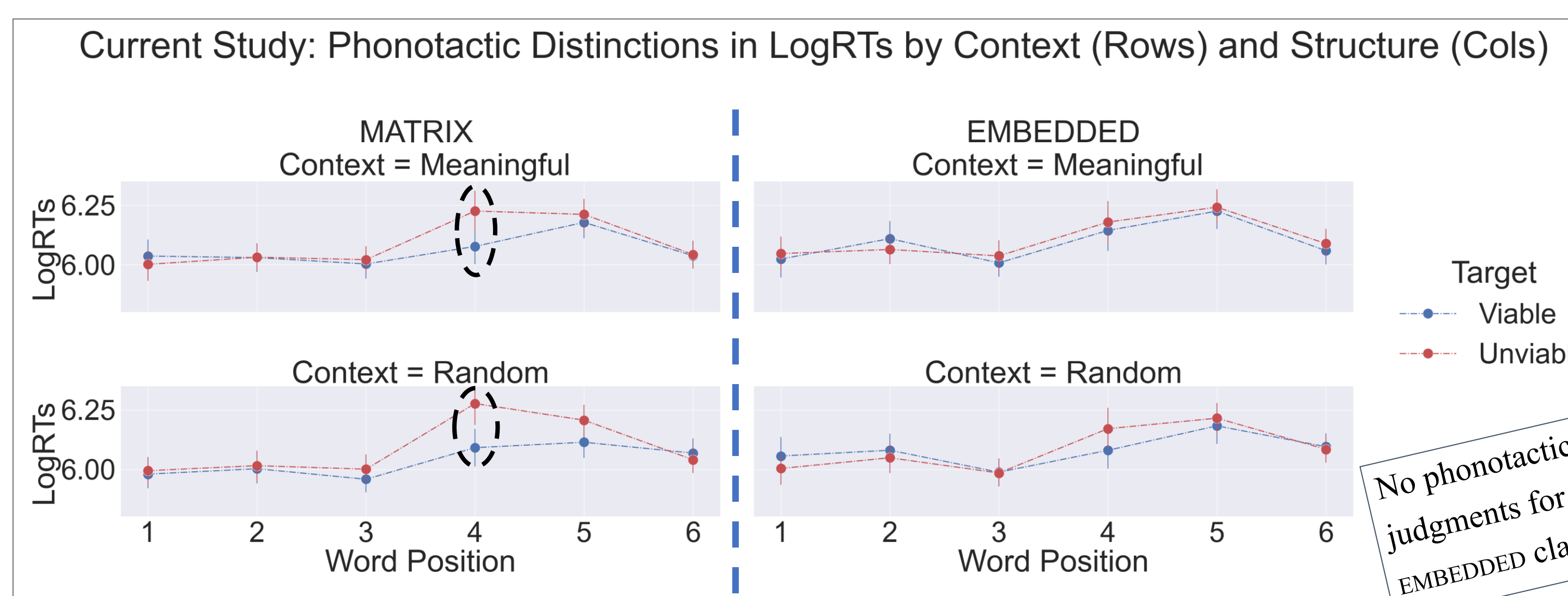 - Hard syntax → immediate phonotactic judgments

Figure 1: Starr et al. (2023) results. Significant differences between TARGETS are circled. (as determined by maximal mixed-effects models [LogRTs ~ TARGET*STRUCTURE*Position + (1 | subject) + (1 | item)] via lmerTest)

- … can other kinds of contexts affect phonotactic judgments?

Prior & Replication should look identical, since there's no discourse CONTEXT before [B] in either!
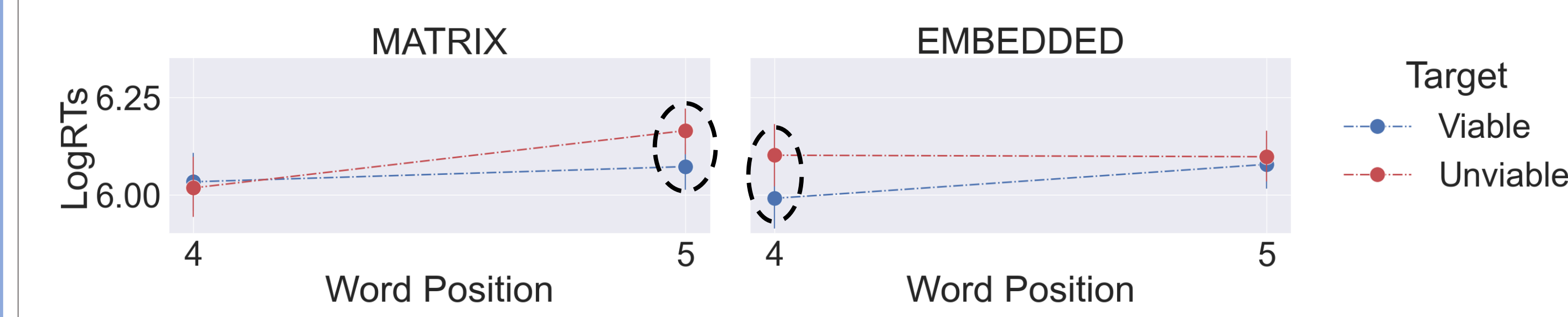
REPLICATION STUDY: [B] → [A]

Figure 3: Replication study results. Significant differences between TARGETS are circled (as determined by maximal mixed-effects models fit to each position[LogRTs ~ TARGET*STRUCTURE*Position + (1 | subject) + (1 | item)] via lmerTest [8]).

- When **[B]** comes before **[A]**, we replicate Starr et al. (2023).

CONCLUSION

- Phonotactic acceptability judgments do not always appear…
- … due to processing limitations:

discourse context + syntactic embedding ~
nothing left for phonotactic judgments