

1. BACKGROUND: SYNTACTIC AMBIGUITY

In the globally ambiguous sentence:

Someone shot the maid of the actress who was standing on the balcony

- ❖ both animate NPs, i.e. 'the maid' (NP1) and 'the actress' (NP2), could be activated as hosts of the following Relative Clause (RC)
- ❖ preferences vary depending on the language tested ^[1]
- ❖ e.g. in English a preference for *Low Attachment* to NP2 is more often reported, whereas *High Attachment* to NP1 is preferred in Spanish

2. RESEARCH QUESTIONS

Research Question 1: How do formal textual features, e.g. *line breaks*, influence parsing decisions during reading?

- ❖ Implicit prosodic phrase boundaries ^[2] could be imposed due to line breaks, grouping certain syntactic constituents together
- ❖ Specific interpretations promoted depending on the prosodic contour projected

Someone shot the maid (prosodic boundary)
of the actress who was standing on the balcony

Hypothesis: NP2 grouped with the RC → Low Attachment

Research Question 2: How do enhanced prosodic features, namely *rhyme* and *meter*, influence parsing decisions during reading?

- ❖ Certain nominal candidates may become more prominent ^[3] and readily available for attachment (if highlighted by such features)
- ❖ Disambiguation may be:
Hypothesis 1: *facilitated* due to phonological & rhythmic regular patterns
Hypothesis 2: *impeded*; perceptual cues are foregrounded that divert attention from critical conceptual information

5. CONCLUSIONS

- ❖ Since a direct comparison of *Prose* and *Poem* presentation attachment preferences could not be performed, further testing is needed
Tentative conclusion: **line breaks may influence attachment preferences to a limited extent** (*Low Attachment* to NP2 was more likely –in terms of observed proportions- in *Prose* compared to all other conditions)
- ❖ The unexpected preference for **High Attachment to NP0** in this dataset:
a) was heightened in the presence of **Rhyme**, **b)** could be attributed to either Predicate Proximity, verb argument status of NP0 or to contextual influences
- ❖ Results *could* support Hypothesis 2: combining both **Meter & Rhyme** led to faster reading, but not to a speedy commitment to a parse (competition for cognitive resources between perceptual cues and conceptual information)

References:

- [1] Cuetos, F., & Mitchell, D. C. (1988). *Cross-linguistic differences in parsing: Restrictions on the use of the late closure strategy in Spanish*. *Cognition*, 30 (1), 73-105
- [2] Fodor, J. D. (2002). *Prosodic disambiguation in silent reading*. NELS 32 North East Linguistics Society, 2002
- [3] Read, K., & Quirke, J. (2018). *Rhyme and word placement in storybooks support high-level verb mapping in 3-to 5-year-olds*. *Frontiers in psychology*, 9 , 889.



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Syntactic Ambiguity: Meter, Rhyme and Lineation Effects

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Poster Presented at the Cambridge Language Sciences Symposium, November 2020

3. METHOD: ONLINE READING STUDY (pilot)

32 critical poem-like text stimuli were designed and used to test two participant samples:

Sample A (*Prose*):

- ❖ 8 native speakers of English (Mean Age: 25; 6 Females)
- ❖ Read metered and rhyming stimuli presented as prose in two-line format with all attachment sites and the RC on a single line (namely, the 2nd line)
- ❖ Made attachment site decision in a subsequent comprehension question
- ❖ Purpose: to address **Research Question 1** and establish baseline preferences when RC is adjacent to attachment sites. The resulting data are only used for reference in plots and not included in any statistical analyses

Sample B (*Experimental - Poems*):

- ❖ 42 native speakers of English (Mean Age: 24; 20 Females)
- ❖ Read stimuli in five-line poem format with the attachment sites on different line-verses from the RC
- ❖ Made attachment site decision in a subsequent comprehension question.
- ❖ The rhyming scheme (*AABBA*) and the meter of the internal lines - namely, the *iambic diameter* of the third line - were disrupted in half of the counterbalanced experimental lists (total n=4)
- ❖ Design: 2x2 → +/- Meter & +/- Rhyme
- ❖ Purpose: to address **Research Question 2**

STIMULUS EXAMPLE FROM SAMPLE A:

An intelligent student called Pip would keep track of his team on a trip by making marks on maps of parks which impressed all the teachers of Pip

STIMULUS EXAMPLE FROM SAMPLE B:

4 Permutations:

- 1) -Meter -Rhyme
- 2) +Meter -Rhyme
- 3) -Meter +Rhyme
- 4) +Meter +Rhyme

An intelligent student called Pip would keep track of his team on a trip by making *a series of dots* by making *dots* by making *a series of marks* by making *marks* on maps of parks which impressed all the teachers of Pip

COMPREHENSION QUESTION:

What impressed all the teachers of Pip?

POSSIBLE ATTACHMENTS SITES (n = 4):

VERB) That he made them, NP0) The dots/marks, NP1) The maps, NP2) The parks

4. RESULTS

Attachment Site Decision:

Multinomial DV → GLMM → R Package MCMCglmm

- The predicted **log-odds of choosing NP0 (*High Attachment*)**, relative to the VERB, were estimated to be:
 - ❖ 75% higher in the -Meter -Rhyme condition (pMCMC < 0.05)
 - ❖ 74% higher in the +Meter -Rhyme condition (pMCMC < 0.05)
 - ❖ 82% higher in the -Meter +Rhyme condition (pMCMC < 0.01)
 - ❖ 80% higher in the +Meter +Rhyme condition (pMCMC < 0.01)
- The predicted log-odds of choosing NP1 (*Middle Attachment*) or NP2 (*Low Attachment*) did not vary significantly across conditions

Poem Reading RT and Comprehension Question RT:

Continuous DV(s) → LMEM → R Package lme4

- Poems read faster (p = 0.01) in +Meter +Rhyme relative to -Meter -Rhyme condition
- Attachment site question responded to slower when both rhetorical devices were present (+Meter +Rhyme) compared to versions with just one of these features, albeit not significant

Figure 1: Overall Count Distribution for Each Attachment Site in Each Condition

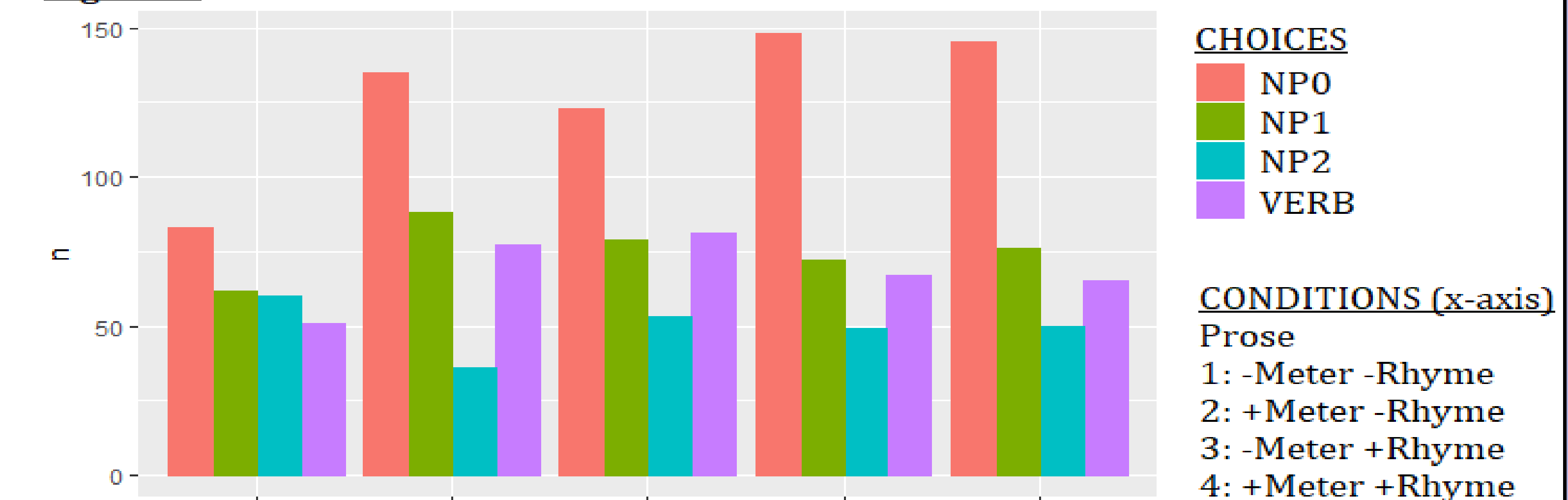
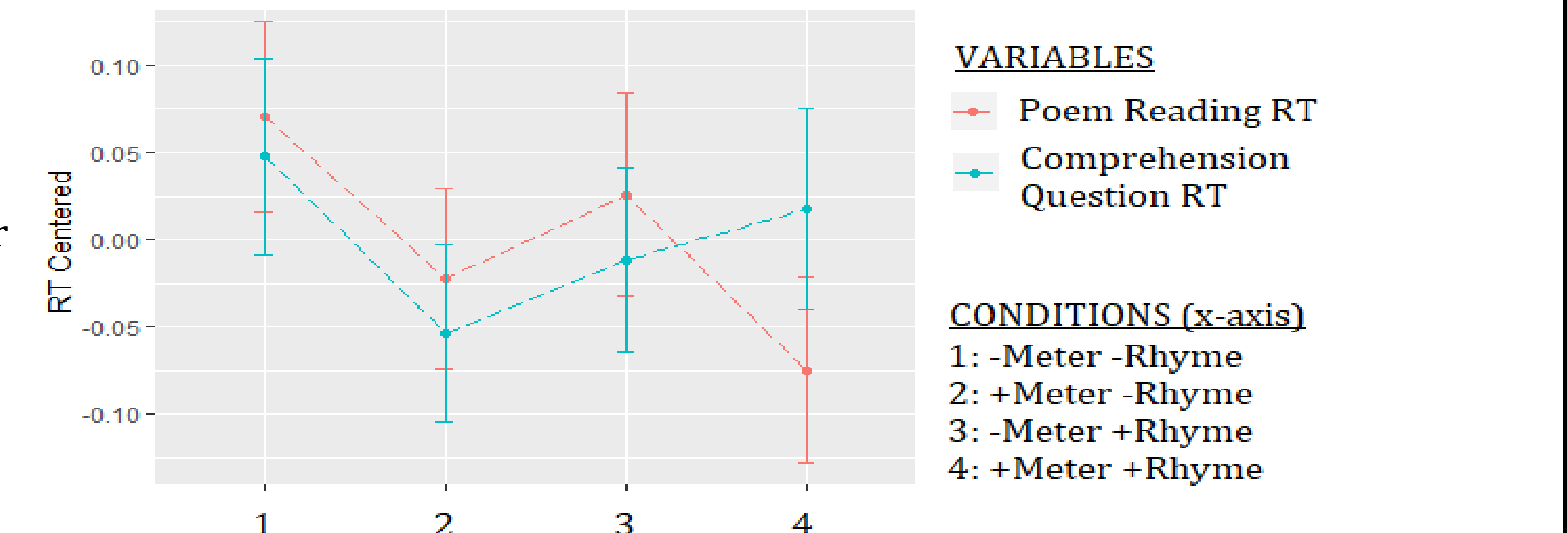


Figure 2: Mean Poem Reading RT & Comprehension Question RT Across Conditions



Note: Error bars represent mean standard error from bootstrap.
Original RT values (in milliseconds) have been centered for comparison across the two variables