

# THE (NON-)INFLUENCE OF EVEN'S LIKELIHOOD-BASED PRESUPPOSITION ON LEXICAL PREDICTABILITY EFFECTS

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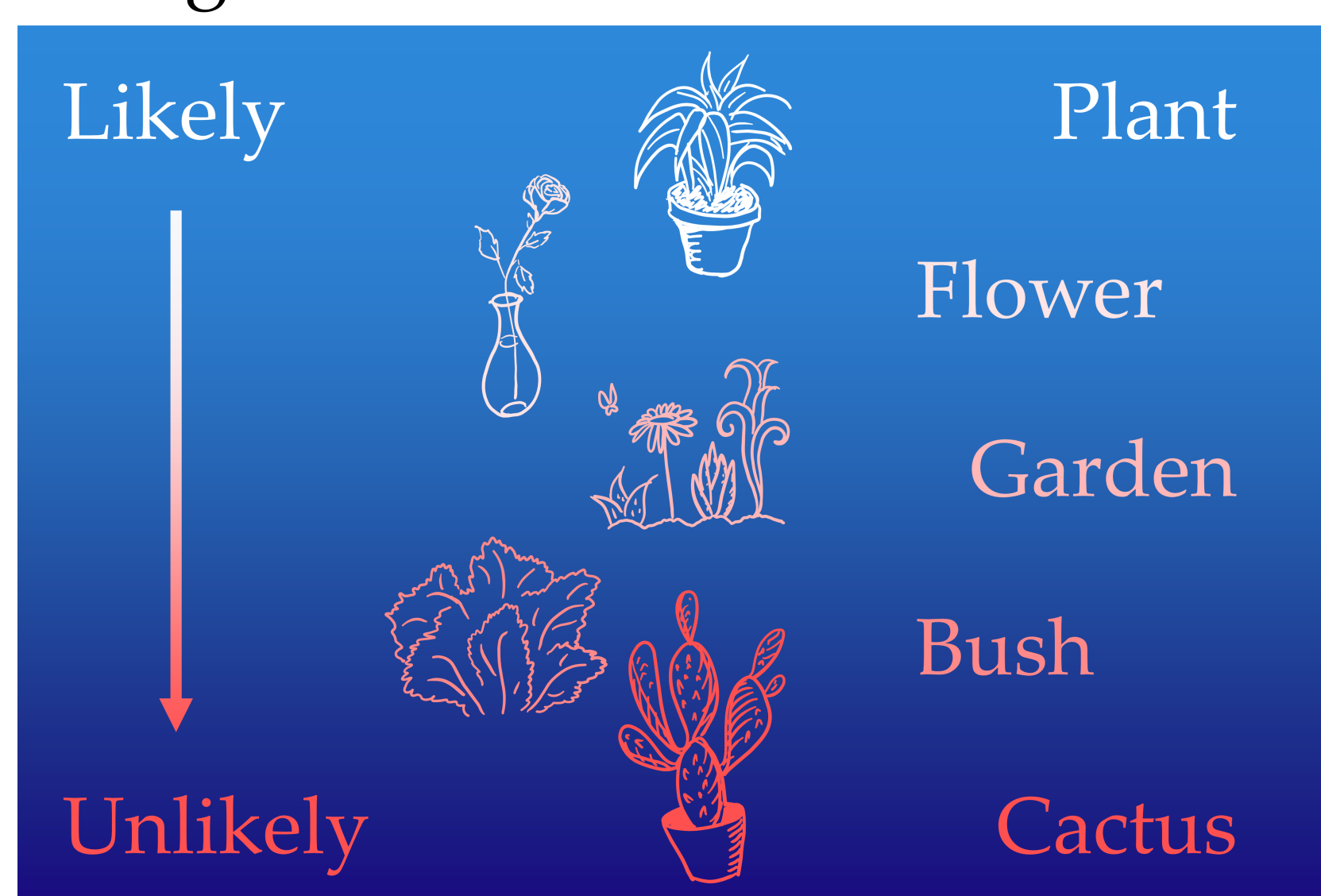
## ABSTRACT

We present the results of an eye-tracking-while-reading study investigating how and whether *even*'s likelihood-based presupposition influences lexical predictability effects. The presence of *even* did not reduce or eliminate predictability effects. However, there was limited evidence for an effect of *even* on later reading time measures.

## BACKGROUND

- Even* is a sentential operator that introduces a presupposition about the likelihood of the proposition it modifies [5, 6, 7, 8, 1, cf. 4].
- When *even* modifies a proposition *p*, it introduces a presupposition that *p* is less likely than a set of contextually supplied alternatives:

The gardener **even** watered a ...



- These alternatives are determined by focus.
- A likelihood presupposition may influence predictability effects.
- Xiang & Kuperberg (2016) showed that comprehenders use the semantics of the connective *even so* to predict sentence continuations.
- In an eye-tracking-while-reading study, Filik et al. (2009) found an interaction between likelihood and the presence of *even*, though only in a postcritical region.

## HYPOTHESIS

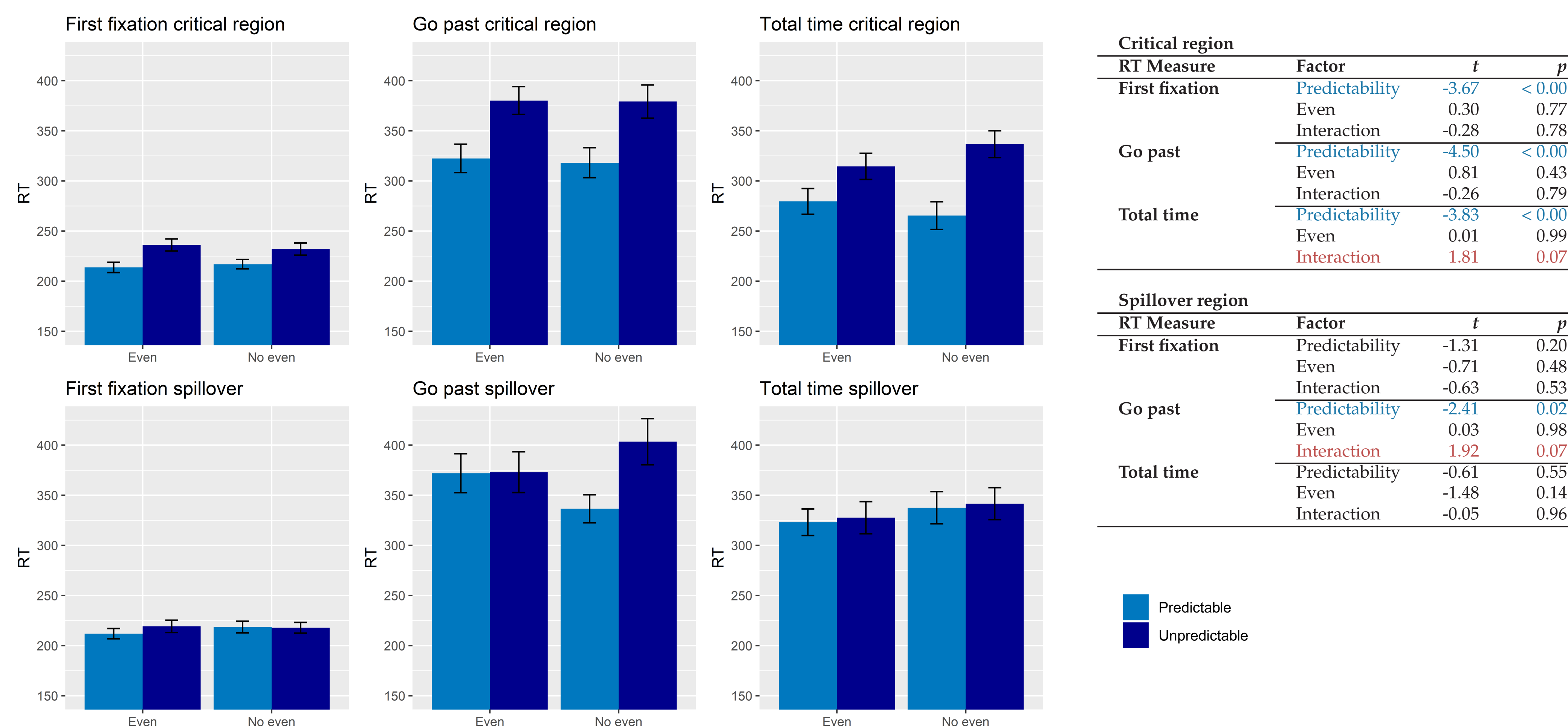
If readers integrate the semantic contribution of *even* rapidly during comprehension, *even*'s likelihood presupposition may reduce facilitation for predictable words while making unpredictable words easier to process.

## STIMULI AND DESIGN

- Eye-tracking-while-reading study (N = 47) manipulating the presence of *even* and NP predictability
- We collected cloze norms for a set of sentence preambles (N = 19) to create 40 items with highly predictable object noun phrase critical words.
- Predictable NPs were approximately matched for frequency and word length with 40 unpredictable but plausible NP continuations.

	Even	Predictability	Preamble	Critical	Spillover	Continuation
1	No even	Predictable	The geologist found a	rock	last week	, Rick said.
2	Even	Predictable	The geologist <b>even</b> found a	rock	last week	, Rick said.
3	No even	Unpredictable	The geologist found a	ruby	last week	, Rick said.
4	Even	Unpredictable	The geologist <b>even</b> found a	ruby	last week	, Rick said.

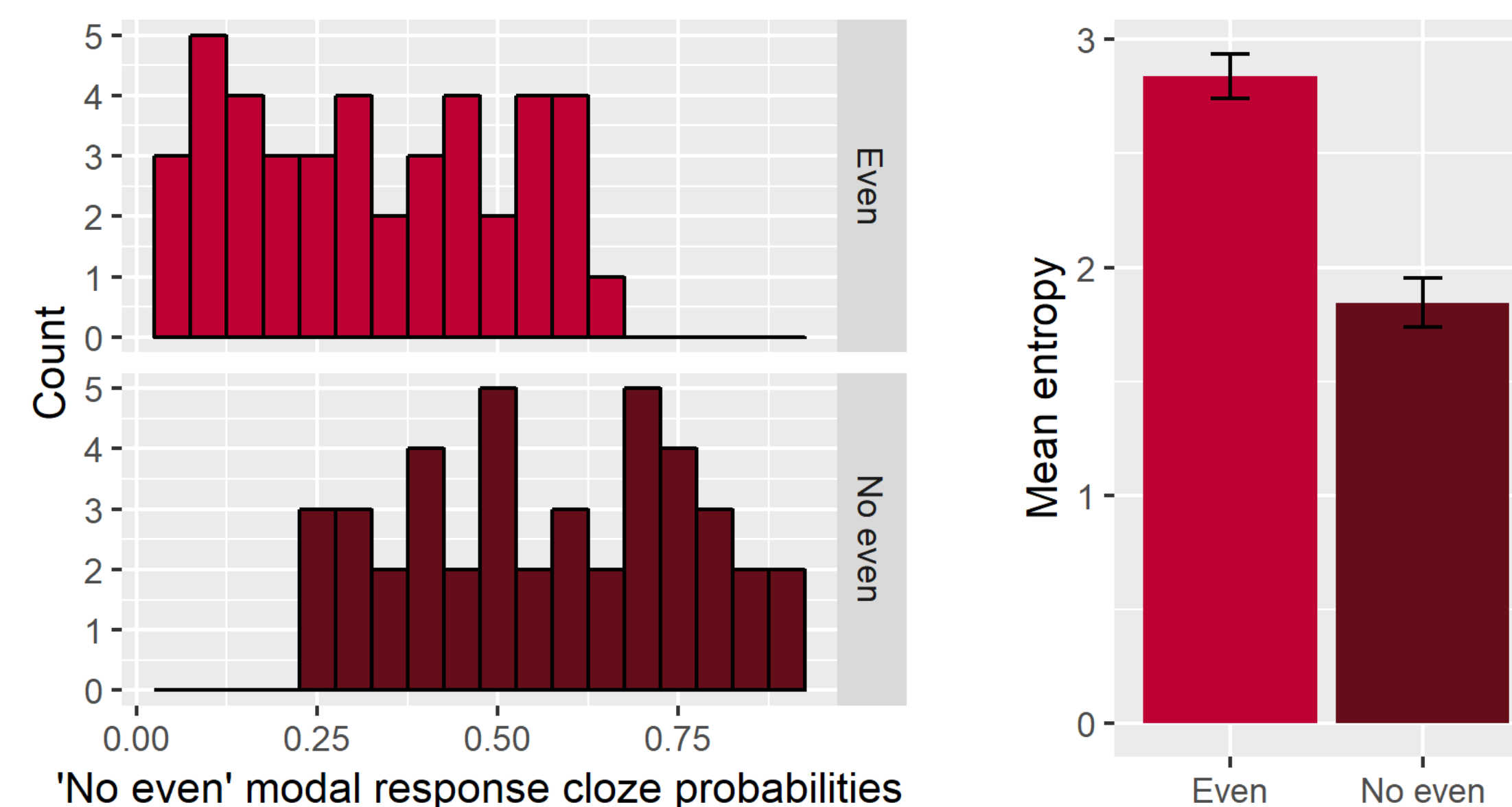
## RESULTS



## OFFLINE CLOZE NORM RESULTS

- 40 preambles with or without *even* (N = 40)
- 10 of 40 items had different modal responses in the two conditions.
  - The complicated lecture {even} confused a student / professor.

- Shannon entropy:  $H(X) = - \sum_{i=0}^{N-1} p_i \log_2 p_i$
- Responses to items with *even* had significantly more entropy than responses to items without *even*;  $t(39) = 12.88, p < .001$ .

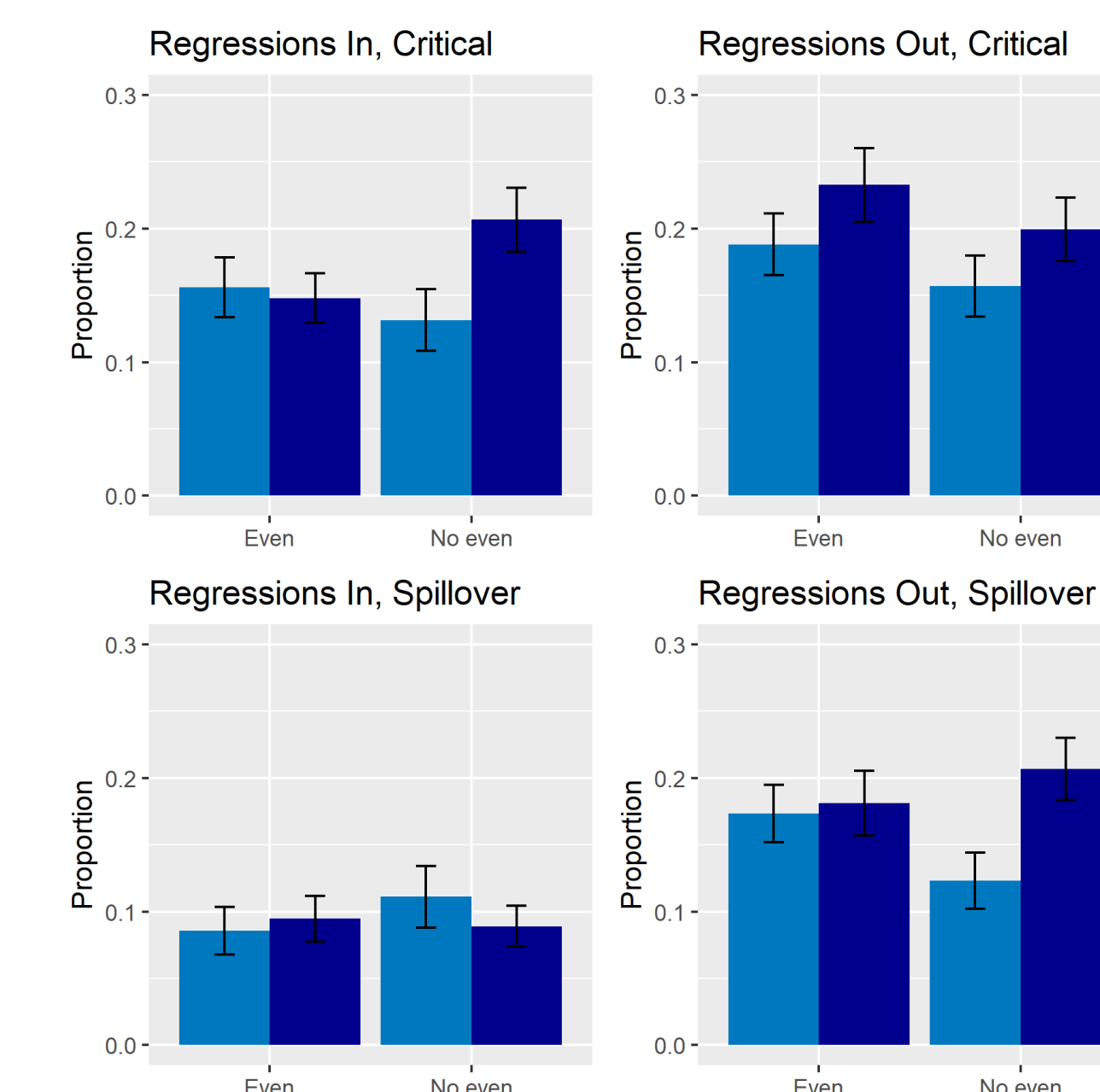


## DISCUSSION

- Even*'s likelihood presupposition was reflected in higher entropy in an offline cloze norm task.
- However, the majority of modal responses remained the same.
- Early RT predictability effects are not eliminated by the presence of a semantic operator signaling that upcoming material will be less likely or expected.
- We provide preliminary evidence that the influence of *even* may mediate predictability effects in later stages of processing.
- These results are consistent with an account of *even* in which the comparison of the likelihood of the original proposition to the likelihood of a set of relevant alternatives occurs later in sentence comprehension.
- Comprehenders may wait to assign focus (and therefore to compute relevant alternatives), or *even*'s presupposition itself may be delayed.

### Future work

- What is the role of focus?
- Is there a clearer effect of *even* on predictability in regressions?



## REFERENCES

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