USING SENTENCE CONTEXT TO LEARN WORD MEANINGS

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INTRODUCTION

- Early word learning involves mapping words to co-present possible referent(Gleitman & Trueswell, 2020).
  - But ambiguity in these mappings is a challenge in early word learning.

- Sentence context plays a role in overcoming that challenge.
  - Syntactic bootstrapping: using the structure of a sentence to infer the meaning of a word (Gleitman et al., 2009).
  - E.g., using familiar verbs to infer a new noun (Goodman, 1998): "Mommy feeds the *ferret*"

- These studies provided sentence context **simultaneously** with the target referents
  - More limited evidence that learners can use sentence context provided **before** seeing referents (Yuan & Fisher, 2009; LaTourrette et al., in prep)

- Current study asks how learners use informative sentence context **after** learners make a guess
  - When learners are faced with sentence context that disconfirms their previous hypothesis, will they reject that hypothesis?
  - If they reject their guess, will they create a new hypothesis about the meaning that is compatible with that sentence context?

METHOD

- 80 adult participants would learn 8 novel words with 3 exposures each.

- On Exposure 1, they heard a novel word used in an ambiguous sentence and chose the referent from two objects.

- On Exposure 2, they then heard the novel word in a confirming or disconfirming sentence without any referent visibly present.

- On Exposure 3, they were asked again to pick the word's referent from a larger group of objects (see Figure 1 for description)

- We assessed whether the participants' final referent selections in Exposure 3 reflect the confirming or disconfirming sentence context provided on Exposure 2.
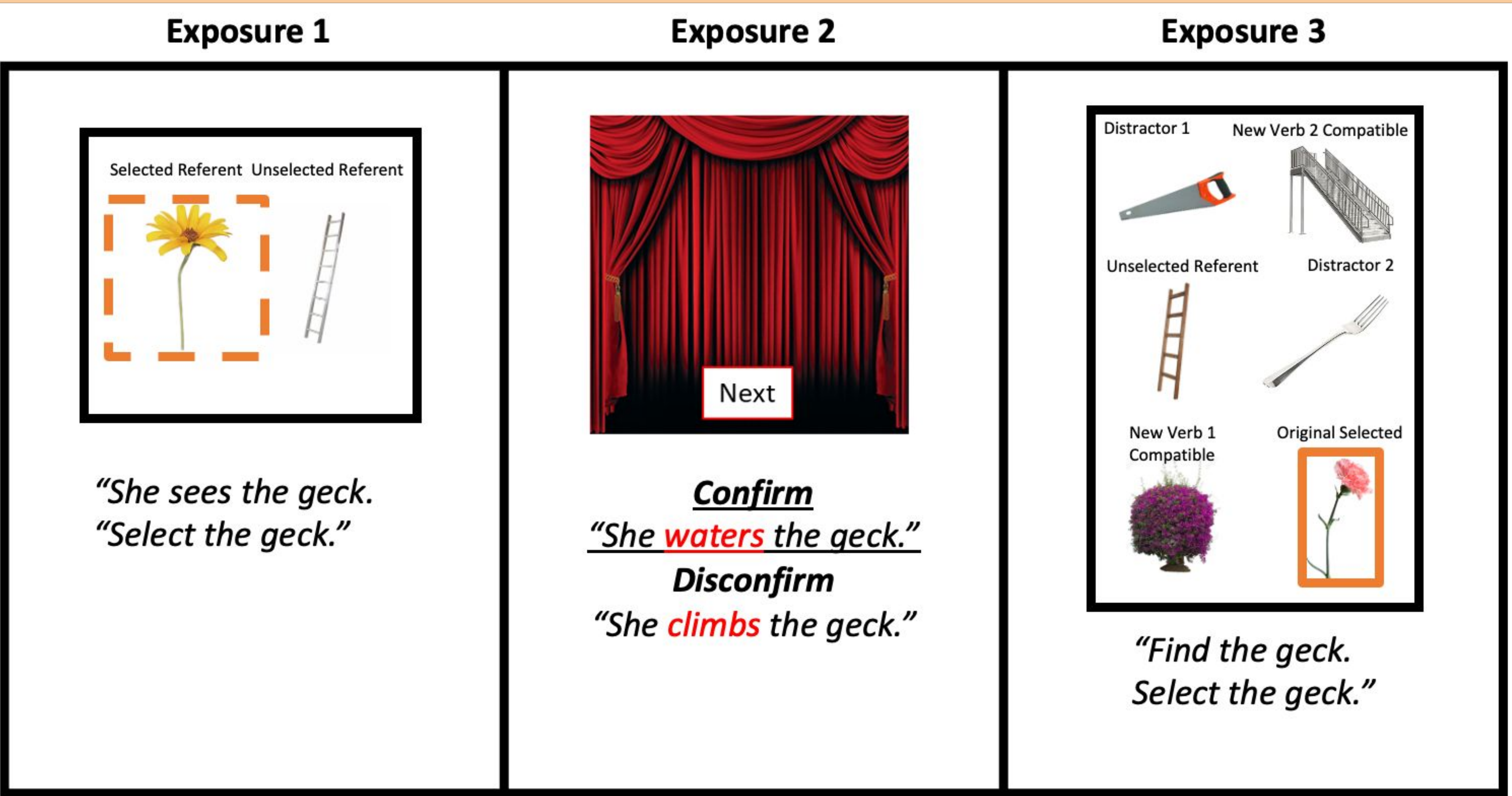

Figure 1: Study Design. Sample trials of a single word's Exposure 1, 2 and 3.
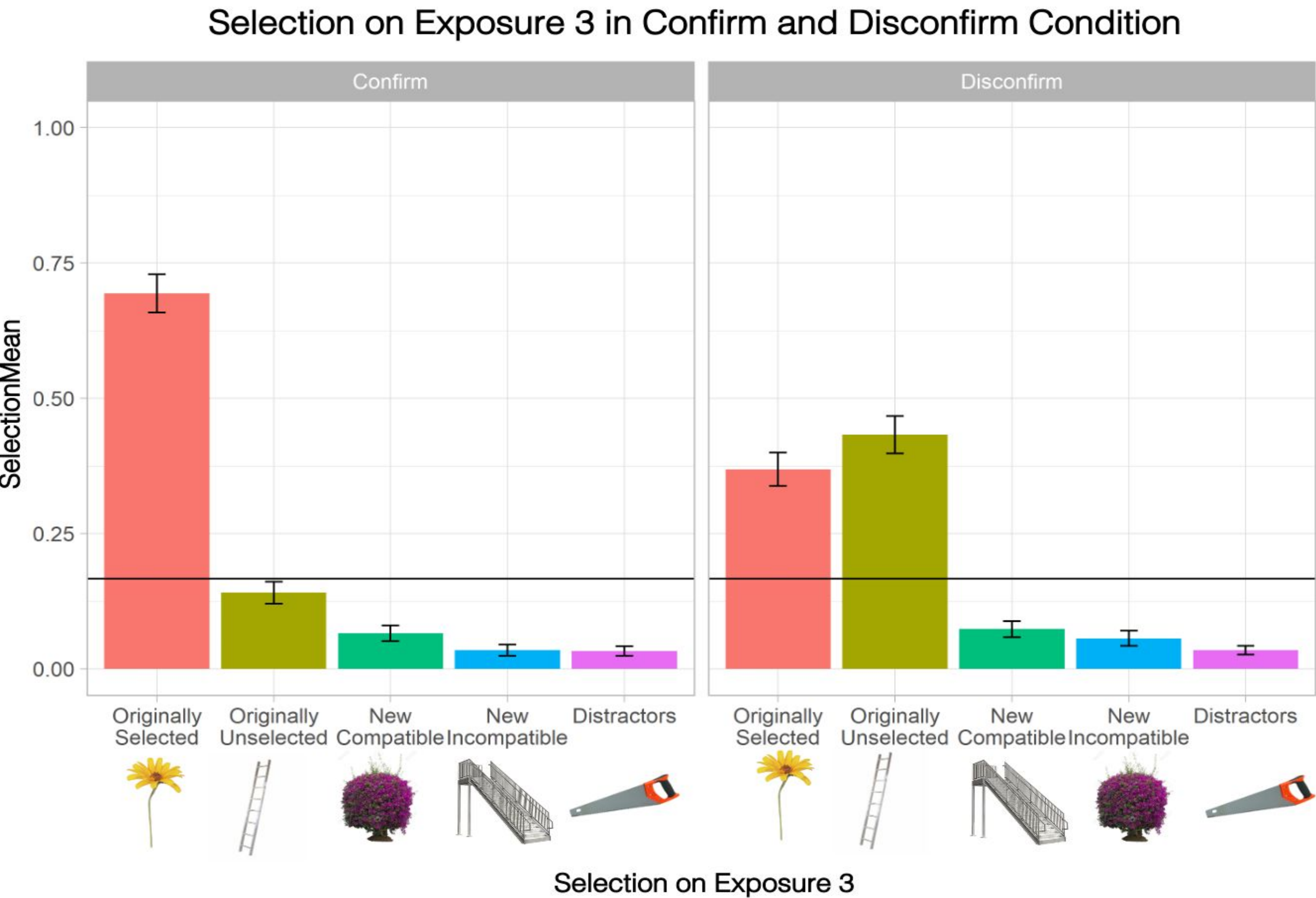

Figure 2: Results. Proportion of each response type selected on Exposure 3.

RESULTS

- Participants in the Confirm condition (M = .69, SD = .32) were more likely to choose the same meaning across Exposures 1 and 3 than learners in the Disconfirm condition (M = .37, SD = .27), t(79) = 7.08, p < .00001.

- In the Disconfirm condition, learners were more likely than chance to select one of the two referents compatible with the verb heard on Exposure 2 (M = .51, SD = .31), t(79) = 5.06, p < .00001.

- Specifically, learners showed an above-chance preference for selecting the verb-compatible referent they saw on Exposure 1 (M= .43, SD = 31), t(79) = 7.74, p < .00001.

DISCUSSION

- Learners do use sentence context to both **evaluate** and **update** their hypothesis across exposures.

- Disconfirming sentence contexts encouraged learners to evaluate and change their guess.

- When learners update their guess, they rely on both linguistic and previous referential contexts.
  - Integrate referents seen on Exposure 1 and sentence context on Exposure 2 to select a referent on Exposure 3

- Future studies should examine:
  - More advanced statistical techniques, including mixed-effects models to account for variation across verbs
  - Investigating this effect with children participants
  - If there is a similar effect in testing with a list of novel verbs

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