See what I mean?

Learning verbs from their observational contexts

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Background

- Across languages, verbs tend to be underrepresented in children's early vocabularies[1, 2]
- Previous research suggests that one candidate explanation is that the information needed to acquire noun meanings – their observational context – is accessible earlier in development than the information needed to acquire verb meanings – their linguistic context[3]
- Further, previous research has shown that the acquisition of mental state verbs from observational context may be particularly difficult, as compared to the acquisition of more concrete, action verbs[4]

The current study investigates whether:

1) Assessments used in previous research **underestimate the contributions of observational context for verb learning** by masking partial knowledge of verb meanings
2) Partial learning of verb meanings via observational context is **possible *even* for mental state verbs**

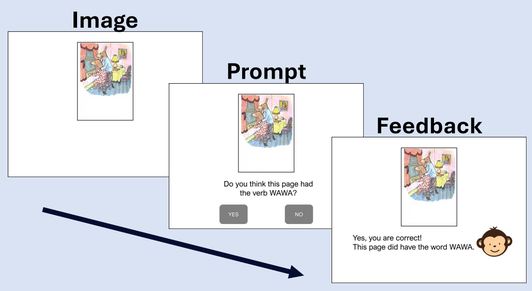
Methods

Stimuli & Task

Example Stimulus for *Run*

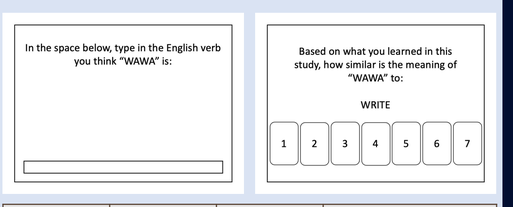
- 2 conditions: Mental Verb and Action Verb (n = 240 adult participants, 120 per condition)
- Stimuli are children's picture book pages without text
- Participants were exposed only to the observational contexts in which verbs occurred
- Learning was assessed via classification, free response, and semantic ratings

Classification Phase



- Participants were asked whether each of 32 stimuli (16 targets and 16 distractors) had originally contained a "mystery verb"
- The "mystery verb" was either a mental or action verb (varied by condition)
- Order of target and distractor stimuli was randomized across participants
- Feedback was provided on each trial

Test Phase

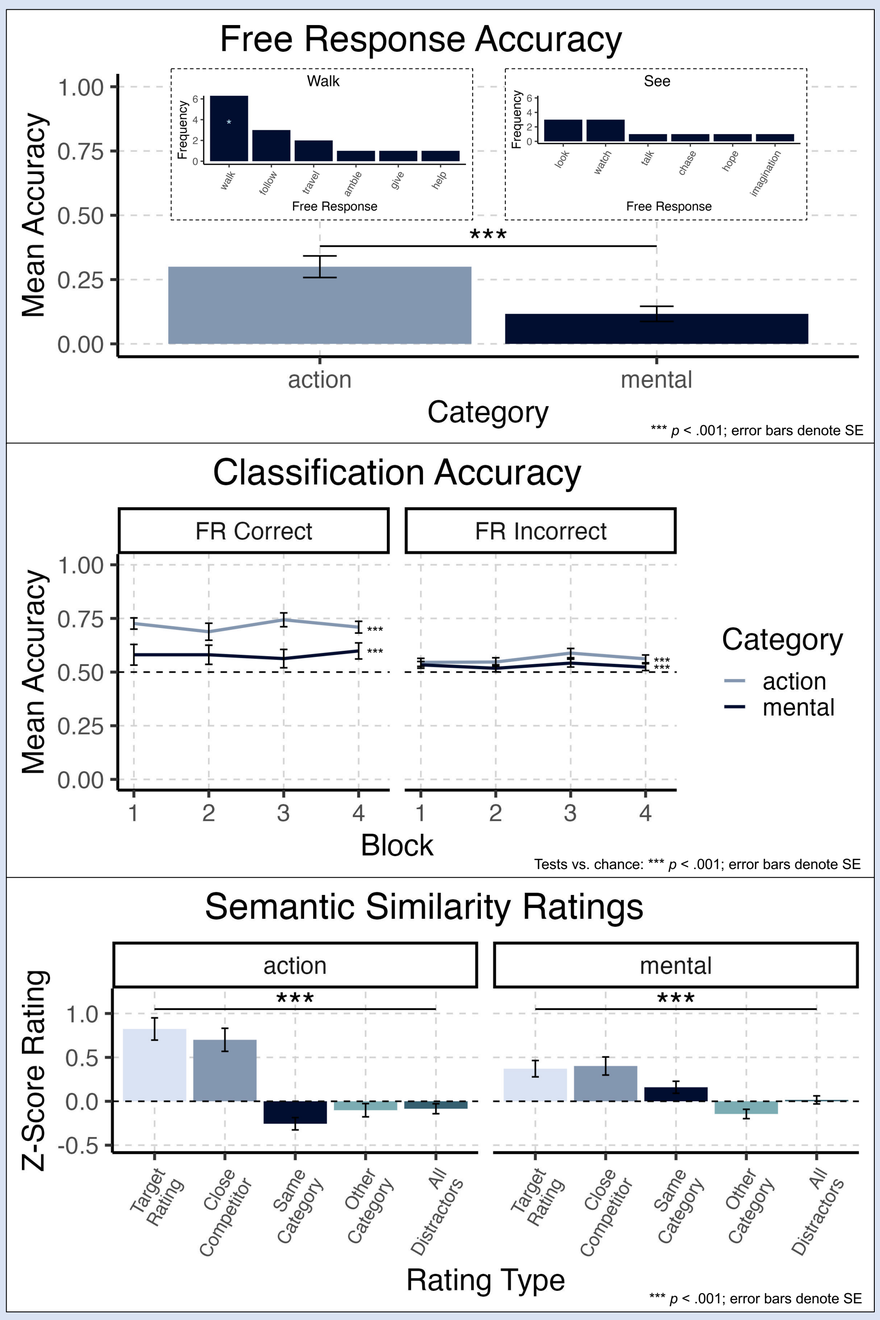


Target	Close Distractor	Same Category	Different Category
Walk	*Run*	*Sleep, Wake, Catch, Throw*	*Love, Like, See, Look, Think, Know*
Love	*Like*	*See, Look, Think, Know*	*Walk, Run, Sleep, Wake, Catch, Throw*

- Free Response: Participants typed the English verb they thought the mystery verb was
- Semantic Ratings: Participants rated the relatedness of 12 verbs to the mystery verb
- Rating list included the target verb as well as 11 verbs that were not the target in their condition

Mental Verbs						Action Verbs					
perceptual		attitudinal		belief		stationary		motion		reciprocal	
see	look	like	love	know	think	sleep	wake	walk	run	throw	catch

Results



Free Response

- As predicted, free response performance was low [M_{action} = 0.30, SD = 0.46; M_{mental} = 0.11, SD = 0.32]
- Incorrect guesses were often semantically related to the target verb (e.g., "look" for target word *see*)

Classification Performance

- Classification was above chance for both verb types even for participants who guessed the verb incorrectly
- Classification performance did not significantly increase over time
- Classification of action verbs was better than mental verbs

Semantic Similarity Ratings

- The meaning of the mystery verb was rated as more similar to the target than distractors even by participants who guessed the verb incorrectly
- Mystery verbs ratings to the target and competitor verbs were not different

Discussion

- The potential for verb acquisition from observational context may have previously been underestimated
- Our results demonstrate that observational context contributes to the acquisition of partial verb meanings in a cross-situational paradigm
  - Despite low free response accuracy, participants who had not acquired the precise verb meaning nonetheless demonstrated partial knowledge in the semantic ratings task
- Further, evidence of partial learning from observational context was observed even for mental state verbs

References & Acknowledgements

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