

Learning words from context in ASL: Evidence from a Human Simulation Paradigm

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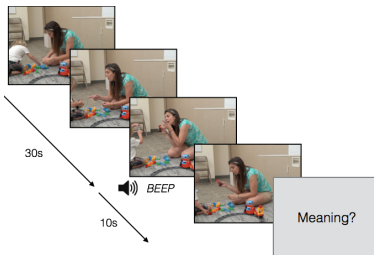
Funding: T32DC013017, R01DC016592, R01DC015272

BACKGROUND

- Little is known about how children learn word meaning when acquiring ASL.
- The Human Simulation Paradigm (HSP)¹ asks naïve participants to derive word meaning from extralinguistic context alone, thus providing insight into potentially viable word learning strategies.
- Key findings from spoken language include:
 - Cross-linguistic differences in the kinds of words that are easier to guess: concrete nouns are easier in English^{1,2}; verbs are easier in Mandarin³
 - Eye-gaze and pointing promotes guessing when timed appropriately^{4,5}
- ASL input is visual, and thus the above findings may not generalize.
 - Increased iconicity makes certain signs possibly more observable.
 - Dynamics of joint attention are different in signed relative to spoken language⁷
- Additionally, ASL input may be verb-heavy e.g.⁶
- **Research Question:** Which cues promote word-to-world mapping in ASL?

METHODS

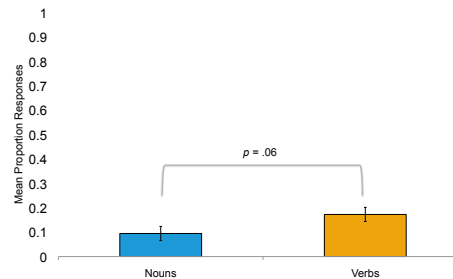
- **Participants:** 33 university students (age 18-29, 27 F) with no previous ASL experience
- **Stimuli:** 189 40s vignettes extracted from a corpus of play sessions from 7 dyads: 5 Deaf mothers with their 7 Deaf children (age 2-5 years). 30s into each vignette, a target sign (one of the 24 most frequent nouns or 24 most frequent verbs from the corpus) was used and accompanied by an auditory beep. Some videos contained additional uses of the target sign, which were also “beeped.”
- **Procedure:** Participants viewed 48 vignettes in a random order, one of each frequent sign. After each vignette, they were asked to provide the sign's meaning. After every 6th vignette, they were asked to provide an explanation for their response.
- **Data Analysis:** Sign meaning responses were coded as either a correct gloss for the sign, or incorrect. Incorrect responses were further coded for whether or not they were semantically-related or in the same syntactic category. Explanations were coded based on strategy (see Results)



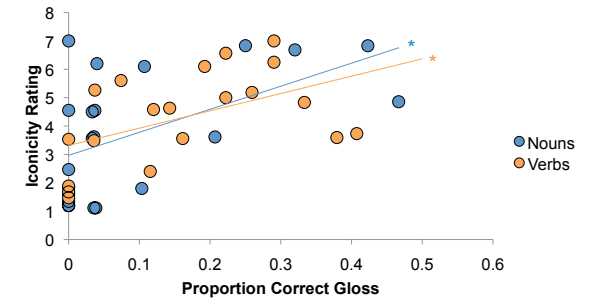
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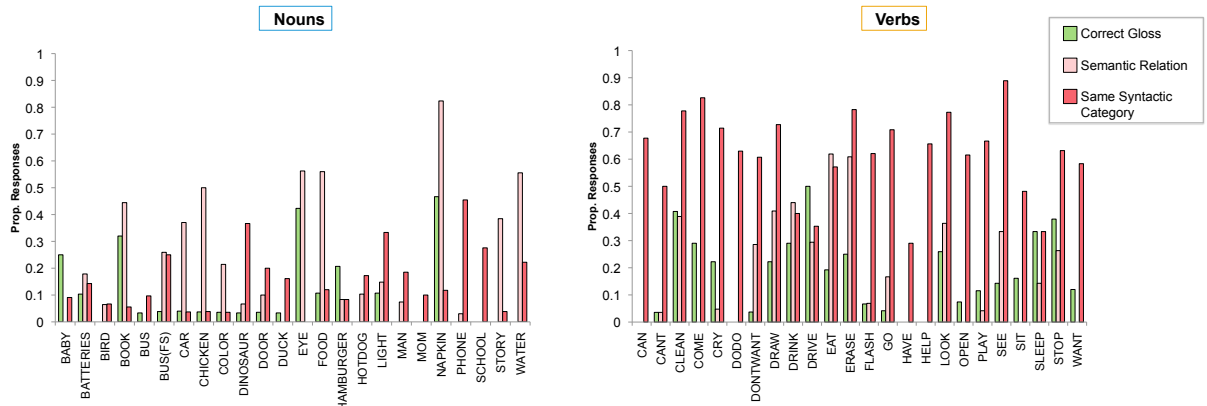
Correct Responses by Syntactic Category



Relationship between proportion correct & iconicity⁸



Item-wise averages for responses categorized as: correct, incorrect but semantically-related, or incorrect but same syntactic category



Response Type	Example	Responses (n = 219)	% correct glosses
Iconicity	<i>Looked like motion of holding a steering wheel</i>	61	21% (13/61)
Sublexical Iconicity	<i>Signed near her eye</i>	8	0% (0/8)
Joint Attention	<i>She pointed to the bus</i>	53	9% (5/53)
Nonspecific context clue	<i>[There was] food and woman wiping her mouth on her sleeve</i>	11	9% (1/11)
Context BEFORE	<i>She had just picked up the bottle</i>	29	17% (5/29)
Context AFTER	<i>The girl started to feed the baby after the adult made this sign</i>	48	15% (7/48)
Context DURING	<i>He was putting toys into the car</i>	3	33% (1/3)

DISCUSSION

- Overall, accuracy was low, suggesting words are difficult to learn through extralinguistic context alone (especially with only one exposure)
- Participants' responses were more likely to be verbs than nouns
- Participants were marginally more likely to correctly gloss verb items than noun items, suggesting verb instances may be more informative (unlike prior findings with English)
- For both nouns & verbs, iconicity ratings were significantly related to % of correct glosses
- Participants drew on a variety of strategies to respond; only a subset of these was iconicity.

FUTURE DIRECTIONS

- Ongoing study: Are verbs still more informative if participants are given syntactic category information?
- Ongoing analyses: What is the role of parent and child eye-gaze in informativity? What role does the visual context (e.g. objects in the room) play in informativity?
- Stay tuned!