

BACKGROUND

Goal of the Study: Investigate whether children's interpretation of ambiguous sentences can be primed by producing sentences with a particular meaning. Children's interpretation is evaluated using a picture selection task.

Priming

- Like adults, 3- to 6-year-olds are more likely to match the structure of their sentence to the structure of a sentence that they just heard / produced, i.e., they can be **primed** (e.g., [1,2])
- Focus on structural alternatives with similar meanings → active vs. passive, double object vs. prepositional dative

Globally Ambiguous Sentences

- The elephant blows on the monkey with the fan. **Interpretation 1:** The elephant uses the fan to blow on the monkey.
Interpretation 2: The elephant blows on a monkey that is holding a fan.

Main Questions: Can 4- to 6-year-olds be primed toward a particular interpretation of a globally ambiguous sentence? Is the strength of this priming affected by whether or not the prime sentence itself is ambiguous?

PICTURE SELECTION TASK

Prime Trial

Target Trial

PART 1: PRIMING STUDY

Participants 51 children, mean age = 5;7, range 4;5 – 6;7

Prime Sentences (between subjects, n = 8)

- Ambiguous:** The elephant blows on the monkey with the fan.
- Unambiguous – Instrument:** The elephant blows on the monkey by using the fan.
- Unambiguous – Modifier:** The elephant blows on the monkey that has the fan.

Equi-Biased Verbs (from [3]) scratch / throw / pinch / feel / drag / turn over / blow on / point at

Interpretation Groups (between subjects)

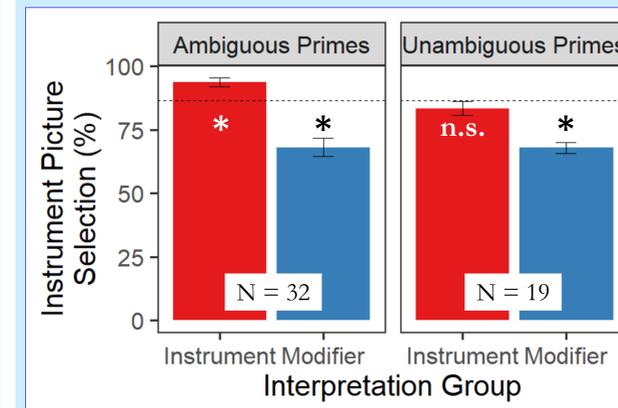
- Instrument:** [_{VP} blows on [the monkey][with the fan]]
- Modifier:** [_{VP} blows on [the monkey with the fan]]

References

[1] Huttenlocher, J., Vasilyeva, M., & Shimp, P. (2004). Syntactic priming in young children. *Journal of Memory and Language*, 50(2), 182-195. [2] Savage, C., Lieven, E., Theakston, A., & Tomasello, M. (2003). Testing the abstractness of children's linguistic representations: Lexical and structural priming of syntactic constructions in young children. *Developmental Science*, 6(5), 557-567. [3] Snedeker, J. & Trueswell, J. (2004). The developing constraints on parsing decisions: The role of lexical-biases and referential scenes in child and adult sentence processing. *Cognitive Psychology*, 49, 238-299. [4] Zimmer, E. J. (2017). Children's comprehension of two types of syntactic ambiguity. *First Language*, 37(1), 7-23.

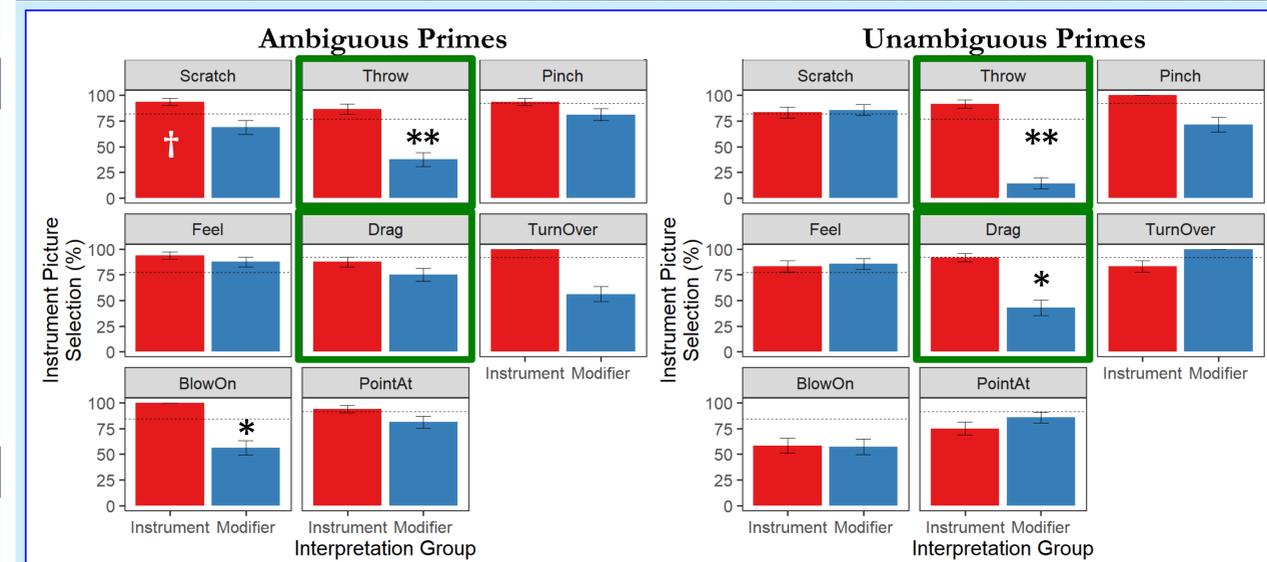
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OVERALL RESULTS



- Overall preference for the **instrument** interpretation (baseline = 86.4%)
- Both **modifier** interpretation groups select the instrument interpretation less often (main effect of interpretation group: $\beta = 0.87$, $Z = 3.25$, $p < 0.001$)
- All groups** significantly different from **baseline** *except* the instrument interpretation group with unambiguous primes

INDIVIDUAL VERB RESULTS



- Consistent decrease in selection of instrument interpretation by **modifier** group for only **2 verbs**
- Only a few cases are significantly different from individual verb baseline selection rates

DISCUSSION & CONCLUSION

Main Findings: Children's interpretation can be primed even when the structure of the prime is ambiguous. Priming occurs in both directions when the prime is ambiguous, but only modifier interpretations are primed when the prime is unambiguous.

Baseline Preferences: Children have consistently higher rates of instrument preferences compared to adults in [3]

Individual Verbs: Exploratory analyses, but overall effects may be driven by 2 verbs (throw / drag)

Remaining Questions

- Why was priming is stronger for the instrument interpretation group when the primes were ambiguous?
- Why did the effects reverse for some verbs after unambiguous primes (turn over / point at)?

Verb	Instrument Responses [3]
Scratch	75%
Throw	33%
Pinch	60%
Feel	50%
Drag	40%
Turn over	50%
Blow on	67%
Point at	40%