Structural priming across development: The lexical boost, abstract priming, and task demands

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1. Introduction

? How does syntax develop?

- **Usage-based**: starts out lexically-specific, generalization over time (e.g., Tomasello, 2003)
- **Early-abstraction**: generalization from beginning (e.g., Fisher, 2001)

- Kids have **abstract representations by 3-4 yrs old**, as evidenced by **structural priming** (Bencini & Valian, 2008; Messenger et al., 2011; Shimpi et al., 2007; Thothathiri & Snedeker, 2008)
- Does abstract priming **increase or decrease with age**?
  - Desideratum: comparison of abstract priming in kids and adults
  - Mostly can't make direct comparisons of existing work (differences in task, stimuli, etc.)
- **Only one study to look systematically at this to date**: Rowland et al. (2012) (see also Messenger et al., 2011, 2012; cf. Peter et al., 2015)
  - Stable (if anything, slight decrease in) abstract priming with age
- But priming known to **vary by task** (persistence vs. decay: Bock & Griffin, 2000; Branigan et al., 1999; multiple primes: Savage et al., 2003; Thothathiri & Snedeker, 2008; blocking: Bencini & Valian, 2008; Shimpi et al., 2007)
- Want more evidence across a wide variety of tasks and populations (this work; ongoing comprehension act-out task)

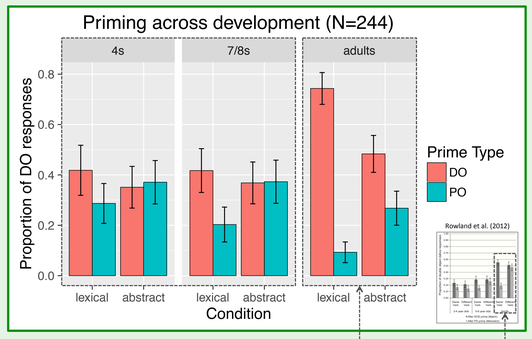
2. Methods

- **Animation description task**
  - Stimuli: alternating **dative verbs**
    - *bring, feed, give, hand, pass, send, show, throw*
  - IVs: 1. prime type (DO vs. PO; within-subjects)
    2. verb overlap (Lexical vs. Abstract; between-subjects)
    3. age (72 4-year-olds, 72 7-/8-year-olds, **in lab**; 100 adults, **on MTurk**)
  - IV: proportion of DO dative productions, over all dative productions
  - Task: 1. experimenter reads **prime** (2 per trial), participant selects matching picture
    2. participant describes **target** video (1 per trial)

- Departure from Rowland et al. (2012)
  - **Full sentences vs. stem completions**, **2 primes vs. 1** (increase likelihood of getting effect)
- Predictions
  - **Usage-based**: increased abstract priming with age
  - **Early-abstraction**: decreased or stable abstract effect over development

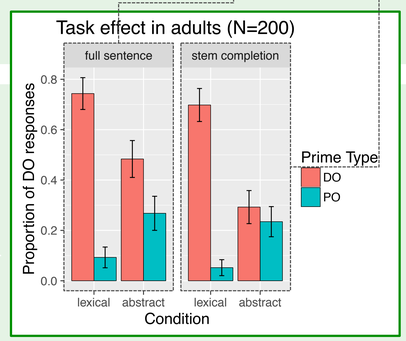
3. Results

- Adults
  - Robust abstract and lexically-specific priming
  - Robust **lexical boost** (Pickering & Branigan, 1998)
- Kids (collapsed across age groups)
  - Robust (lexically-specific) priming
  - Robust **lexical boost**
  - **No abstract priming**
- Developmental trends
  - **Increased abstract and lexically-specific priming with age**



? How affected by task?

- Same design, now with **stem completions** (following Rowland et al., 2012)



- Adults
  - **Abstract effect diminished** (interaction by experiment)
  - Persistent lexically-specific priming
  - Persistent lexical boost
- Kids (ongoing)
  - Prediction: little to no increase in abstract effect with age, based on Rowland et al. (2012)

4. Discussion

- Strong evidence for **increasing lexically-specific priming with age** (= Rowland et al., 2012; also Peter et al., 2015)
- Mixed results for development of abstract syntax (≠ Rowland et al., 2012; also Messenger et al., 2011, 2012; cf. Peter et al., 2015)
  - Our task highly lexically-specific, so doesn't speak to how abstract representations change
  - Though evidence for early abstract representations in other tasks (see Introduction)

❖ **Understanding how lexical and abstract representations change in development requires understanding how these representations are engaged in these tasks**

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