the ‘goldilocks effect’ in preschooler attention to spoken language

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Background

- Infants preferentially attend to stimuli in an intermediate zone of complexity (Kidd et al., 2012; 2014; Gerken et al., 2013)
- Selective attention to learnable stimuli is a lifelong learning skill
- Present study extends "Goldilocks Effect" to rich, naturalistic domain of spoken language
- Complexity defined in terms of familiarity and relative age of acquisition of content words

Research Questions

- Can preschoolers discriminate between different levels of speech complexity?
- Can they explicitly select among them?
- Are their selections meaningfully related to their knowledge level?

Participants

54 2.5-6.5-year-olds (25 females; M = 4.75, SD = 1.04 years)

Method

1. Introduce to picture book
2. Watch speakers alternate reading 6 pages
3. Select speaker
4. Answer listening comprehension questions
5. Test target word-learning
6. PPVT

Eyetracking

- Complex speaker uses later-acquired words
- Simple speaker uses all words on the M-CDI

Speaker Selection

Who would you like to hear tell the end of the story?

- No significant relationship between speaker selection and vocabulary (right) or age
- Speech from both speakers may have been highly complex, given introduction of rare words

Word Learning

- Children learn 3/6 words above chance, regardless of speaker
- Greater accuracy with vocabulary size (b = 0.002, p < .01), age (b = 0.05, p < .01)

Speaker Selection by PPVT

- Greater acccuracy with vocabulary size

Conclusions & Future Directions

- Young children learn partial meanings for -and generalize- novel words after only two exposures in a story reading context
- While children did not make explicit selections systematically related to speech complexity, they looked more toward the referent of a rare word embedded in simpler speech
- Preservation of the narrative or difficulty of Simple speaker may have obscured contrast
- Greater contrast between levels of complexity (i.e., all familiar words versus many novel)
- Longer exposure to complexity differential before rare word presentation
- Alternative critical questions (e.g., "Was one of my friends easier to understand?")

References


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Test Accuracy by Word

Areas of Interest (AOIs)

- Majority attention to illustration
- Longer net dwell time on referent of target novel word (i.e., aperture, above) for children who heard word presented by Simple speaker (p(11) = 5.54, p < .05)

AOI Gaze by Page & Speaker

- Greater contrast between levels of complexity (i.e., all familiar words versus many novel)
- Longer exposure to complexity differential before rare word presentation
- Alternative critical questions (e.g., "Was one of my friends easier to understand?")