Children with SLI Exhibit Delays and Differences Resolving Ambiguous Reference

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Disambiguation in Typically Developing Children

- Disambiguation Effect = selection of unfamiliar object (Merriman & Bowman, 1989)
- Present in very young children (Merriman & Stevenson, 1997)
- Stronger after phonological priming (Merriman & Marazita, 1995)
- Effected by phonetic similarity (Merriman & Schuster, 1991)

Beverly & Estis (2003)

- Investigated disambiguation by children with SLI compared to CA children and L matches and investigated phonetic similarity as a factor.

Purposes of the Present Investigation

- To examine the development of disambiguation in children with SLI
  - Younger, preschoolers (SLI-Y and TD-Y)
  - Older, school age children (SLI-O and TD-O)
- To examine tendency by children with SLI to choose familiar objects
  - Continued investigation of PS words
  - “no word condition”

Mean Number of Selections of Unfamiliar in Both Word Conditions

Participants

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Y</th>
<th></th>
<th>O</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLI</td>
<td>Ages 3;7 to 4;11</td>
<td>n = 16</td>
<td>Ages 6;0 to 8;1</td>
<td>n = 16</td>
</tr>
<tr>
<td></td>
<td>(M = 50.63 months)</td>
<td></td>
<td>(M = 85.50 months)</td>
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</tr>
<tr>
<td></td>
<td>n = 8</td>
<td></td>
<td>n = 8</td>
<td></td>
</tr>
<tr>
<td>TD</td>
<td>Ages 3;5 to 5;0</td>
<td>n = 8</td>
<td>Ages 6;1 to 8;3</td>
<td>n = 8</td>
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<tr>
<td></td>
<td>(M = 50.00 months)</td>
<td></td>
<td>(M = 85.88 months)</td>
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<tr>
<td></td>
<td>n = 8</td>
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<td>n = 8</td>
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Stimuli

- Auditory Stimuli
  - PD words: Do not sound similar to familiar object label
  - PS words: Sound similar to familiar object label
  - No word condition = "Pick one"

- Object Stimuli
  - 30 familiar objects
  - 30 unfamiliar objects (unnamable by young children)

- Experimental Task Lists
  - Counterbalanced
  - 10 per condition per list

Procedures

- Preexperimental Sessions
  - Case history
  - Language testing
  - Cognitive testing
  - Articulation Screener
  - Hearing Screening
  - Object exposure task

- Experimental Session
  - Experimental task
  - Identification task
  - Speech Perception task

Results & Discussion

Mean % Selection of Unfamiliar Objects Across Groups and Conditions

Statistical Analysis

- Omnibus 4 (group) X 3 (word condition) Mixed ANOVA
  - Significant Interaction
    - $F(6, 56) = 5.545, p<.001, \eta^2 = 0.373$

Between Group Differences

- Significant differences for PD
  - $F(3, 28) = 11.224, p<0.001$
  - SLI-Y < TD-Y = SLI-O = TD-O

- But not for
  - PS
    - $F(3, 28) = 2.256, p=0.104$
  - NW
    - $F(3, 28) = 0.188, p=0.904$
Within Group Differences for Each Condition

Univariate ANOVAs, 1(group) X 3(condition)

- TD-Y showed significant differences
  - $F(2, 6) = 71.266, p<.001, \eta^2 = 0.960$
  - PD vs. PS, $p=.001$
  - PD vs. NW, $p<.001$
- TD-O showed significant differences
  - $F(2, 6)=23.245, p<.001, \eta^2 = 0.886$
  - PD vs. PS, $p<.001$
  - PD vs. NW, $p=.003$

Within Group Differences for Each Condition

Univariate ANOVAs, 1(group) X 3(condition)

- SLI-Y showed no significant differences
  - $F(2, 6) = 2.229, p=.181, \eta^2 = 0.434$
- SLI-O showed significant differences
  - $F(2, 6)=299.762, p<.001, \eta^2 = 0.990$
  - PD vs. PS, $p<.001$
  - PD vs. NW, $p<.001$
  - PS vs. NW, $p=.008$

Summary of Findings

- Preschoolers with SLI do not disambiguate consistently
  - May not utilize or possess underlying mechanisms for word learning
    - Comprehension strategies
    - Pragmatic reasoning abilities
- Early elementary children with SLI consistently chose familiar objects in PS
  - Not explained by
    - General familiar object bias
    - Misperception of the PS word as the actual name

Impact of phonetic similarity on disambiguation

- Lexical and phonological activation during disambiguation for children with SLI
- Processing demands of disambiguation and incidental word learning likely tax processing capacity and phonological working memory

<table>
<thead>
<tr>
<th>Cat toy</th>
<th>Car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searched for name of object</td>
<td>Searched for name of object</td>
</tr>
<tr>
<td>Did not arrive at clear label</td>
<td>Lexical activation (recognition of car)</td>
</tr>
<tr>
<td></td>
<td>Phonological activation (/kar/)</td>
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</tbody>
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Directions for Future Research

- Further evaluation of the PS condition
- Investigation of social-pragmatic aspects of disambiguation
- Overt teaching of comprehension strategies using disambiguation tasks
- Activities linking phonological and lexical information using phonological and semantic cues

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