Neighborhood Density and Finiteness Marking: Understanding Omission Errors in Typical Development and SLI

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Background and Research Questions

PARTICIPANTS

2. RESEARCH QUESTIONS

• Typical Development (TD) and Specific Language Impairment (SLI) in the OI & EOI stages

• Optional infinitives are regarded as a byproduct of incomplete/emerging knowledge for finiteness in the child’s grammar (e.g., Rice et al. 1999; Wexler, 1994)

• Typical developing children can use optional infinitives up to 2;6 – 3;3

• Children with SLI use optional infinitives for an extended period of time, up to 8-years

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OPTIONAL INFINITIVES

• Interchanging finite forms with bare verb stems

• She play with me. She plays with me

• Optional Infinitive (OI) Stage:

• Typically developing children can use optional infinitives up to 4-years (Wexler, 1994)

• Extended Optional Infinitive (EOI) Stage:

• Children with SLI use optional infinitives for an extended period of time, up to 8-years in production with receptive difficulty up to 15-years (e.g., Rice et al. 1999, 2000)

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RESEARCH QUESTIONS

1. Does neighborhood density (i.e., number of similar sounding words) of verbs predict optional infinitives by children in the OI and EOI stages?

2. Is the pattern of effects the same for children in the OI and EOI stages?

METHODS

1. Sentence Imitation: Children repeated 30 sentences

2. Spontaneous Elicitation: Children generated 30 sentences in response to a pre-recorded script

Sentence Scoring:

Correct: Use of subject, target verb, and third person singular

Incorrect: Use of subject, target verb, but omitted third person singular

Participants, Stimuli & Methods

PARTICIPANTS

• Typical Development (TD) and Specific Language Impairment (SLI) in the OI & EOI stages

• English speaking, normal nonverbal cognition & hearing, otherwise healthy

• Group Differences

<table>
<thead>
<tr>
<th>Age</th>
<th>TD (n = 11)</th>
<th>SLI (n = 11)</th>
<th>Group Matching</th>
<th>MLU (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-2</td>
<td>33%</td>
<td>36%</td>
<td>35</td>
<td>74</td>
</tr>
<tr>
<td>2-11</td>
<td>36%</td>
<td>35%</td>
<td>34</td>
<td>74</td>
</tr>
<tr>
<td>3-11</td>
<td>36%</td>
<td>35%</td>
<td>35</td>
<td>74</td>
</tr>
<tr>
<td>4-6</td>
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<td>35%</td>
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</tr>
<tr>
<td>8-10</td>
<td>36%</td>
<td>35%</td>
<td>35</td>
<td>74</td>
</tr>
</tbody>
</table>

STIMULI

• 30 early acquired verbs chosen based on neighborhood density (Storkel & Hoover, 2011)

• Dense: M = 15 neighbors (n = 15)

• Sparse: M = 7 neighbors (n = 15)

• Dense and sparse verbs were matched on:

• Phonotactic probability, word frequency, syllable shape, argument structure, final 3rd person singular allomorph

• Group Matching

<table>
<thead>
<tr>
<th>Group</th>
<th>MLU (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD</td>
<td>74</td>
</tr>
<tr>
<td>SLI</td>
<td>74</td>
</tr>
</tbody>
</table>

RESULTS

Predictability of Optional Infinitives

• Children in the TD group used third person singular optional infinitives to a significantly lesser extent than with dense verbs

• What made dense verbs less vulnerable to optional infinitives?

• Dense verbs have been hypothesized to have more complete lexical representations (Storkel, 2002; Wexley et al., 2001)

• Complete lexical representations may provide a faster route to accurate finiteness marking

• Word form characteristics might hold the key to predicting optional infinitives

II. Population Differences

• Results did not converge for TD and SLI groups

• Neither variable performance nor four effects explained the null finding in the SLI group

• Children with SLI were equally likely use optional infinitives with dense and sparse verbs

• Why didn’t neighborhood density predict optional infinitives for SLI?

• The presence of neighborhood density effects is dependent on exposure for younger children with SLI

• Massed exposure induced neighborhood density effects in a single subject experiment designed to decrease optional infinites in young children with SLI (Hoover, 2008)

• Older children with SLI show neighborhood density effects in word recognition (Mamela-Arnold et al., 2008)

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