Cross-Linguistic Influence in the Morphological Development of Preschool-Aged ASL-English Bilinguals

Corina Goodwin & Diane Lillo-Martin
University of Connecticut

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https://lilsa.uconn.edu/bibibi/

OVERVIEW

• Background
• Cross-linguistic influence
• Bimodal bilinguals
• Focus on 6 English morphemes
• Method
• Results
• Discussion and conclusion

BACKGROUND

Developmental bilingualism effects

• Overall slower development in one language than monolinguals (but catches up, esp. in dominant language(s))
• Code-switching
• Use of structural properties of Language A with words of Language B
• Cross-linguistic influence

Cross-Linguistic Influence

• What are the linguistic conditions under which Cross-Linguistic Influence is observed?
• Do specific linguistic properties of Language A affect its influence on Language B?

Cross-Linguistic Influence


• Both groups showed overall high accuracy
• French-English bilinguals (like monolinguals) more accurate with regular verbs
• Chinese-English bilinguals more accurate with irregular verbs

The richness of French verbal morphological paradigm helps children acquire regular English past tense faster than Chinese-English bilinguals
Bimodal Bilinguals

- Bilinguals using languages in two modalities: spoken and signed
- Hearing children with deaf, signing parents
- Acquiring American Sign Language and English
- Previous studies indicate overall age-appropriate development of ASL and English by ages 5-7 (Davidson et al. 2013)
- But some delays in acquiring specific English morphemes are found (Goodwin et al. 2017; Goodwin & Lillo-Martin 2019)

Cross-linguistic influence in the acquisition of English morphemes by ASL-English bilinguals

- Possible cross-linguistic influence effects based on differences between ASL and English
  - If ASL has no equivalent (obligatory) overt expression to an English morpheme
  - If ASL has an expression which patterns differently from an English morpheme
- 6 English morphemes selected for analysis
  - Occur with sufficient frequency
  - Acquired by monolinguals between ages 2 and 5

Comparison of English and ASL morphemes

<table>
<thead>
<tr>
<th>English Morpheme</th>
<th>ASL Structural Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles (a/the)</td>
<td>No articles*</td>
</tr>
<tr>
<td>Auxiliary (be)</td>
<td>No auxiliaries</td>
</tr>
<tr>
<td>Copula (be)</td>
<td>No copula*</td>
</tr>
<tr>
<td>Plural (-s)</td>
<td>Limited marking of plural nouns</td>
</tr>
<tr>
<td>Progressive (-ing)</td>
<td>(Non-progressive) Aspectual marking</td>
</tr>
<tr>
<td>3rd Sing. Pres. (-s)</td>
<td>Agreement with subject and object in limited class of verbs</td>
</tr>
</tbody>
</table>

*Some analyses posit a sign with this function, but distribution is different from English

RESEARCH QUESTIONS

- Do ASL-English bimodal bilinguals show bilingualism effects in the acquisition of English morphemes?
- Are there any differences between different morphemes based on structural comparisons between ASL and English?

METHOD

Participants

- 3 target children (Bimodal bilinguals)
  - Longitudinal data - ages 2.06-5.00
  - Bibibi database (Chen Pichler et al. 2010)
- 60 Monolingual English speakers
  - Cross-sectional data
  - CHILDES (MacWhinney 2000)
- All participants are male
- Data are from spontaneous production in play sessions
**Number of observations**

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>Monolingual English</th>
<th>Ben</th>
<th>Lex</th>
<th>Tom</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>10</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>36</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>42</td>
<td>10</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>48</td>
<td>10</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>54</td>
<td>10</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>60</strong></td>
<td><strong>10</strong></td>
<td><strong>8</strong></td>
<td><strong>8</strong></td>
</tr>
</tbody>
</table>

For bilingual children: Target English sessions only

**Coding**

- 100 utterances from each session coded for accuracy on English morphemes
- Errors of omission and commission combined
- Bilinguals: at least 4 obligatory contexts for morpheme at each session
- Monolinguals: at least 5 children have 4 obligatory contexts in each age range
- All coding conducted by 1st author
- For bilinguals, Cohen’s kappa values of .83 and .74 with two additional coders on 9% of data (reliability coding yet for monolinguals)

**RESULTS**

**General bilingualism effect**

- How do the bilinguals compare to monolinguals over the age span?

**Age Analysis**

(Morphemes collapsed)

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>Ben</th>
<th>Lex</th>
<th>Tom</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 months</td>
<td>6</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>36 months</td>
<td>20</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>42 months</td>
<td>60</td>
<td>60</td>
<td>44</td>
</tr>
<tr>
<td>48 months</td>
<td>60</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>54 months</td>
<td>0</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>60 months</td>
<td>20</td>
<td>17</td>
<td>63</td>
</tr>
</tbody>
</table>

Comparison between bilinguals and monolinguals on accuracy for each morpheme, totaling across morphemes, percent accuracy for bilinguals below the lowest monolingual performance

**Individual morpheme results**

- For each morpheme, we overlay a scatterplot representing the three bilinguals (Ben in blue; Lex in red; Tom in green)...
- On a boxplot representing the results from the monolinguals (n=10 for each age group)
- As long as:
  - Bilinguals: at least 4 obligatory contexts for morpheme at each session
  - Monolinguals: at least 5 children have 4 obligatory contexts in each age range
Comparison of different morphemes

- Even though bilingual development is slower than monolingual, we can collapse across ages to see whether any morphemes show particularly high error rates.

Morpheme Analysis (Age collapsed)

<table>
<thead>
<tr>
<th></th>
<th>Ben</th>
<th>Lex</th>
<th>Tom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles</td>
<td>11</td>
<td>13</td>
<td>13</td>
</tr>
<tr>
<td>Be Auxiliary</td>
<td>25</td>
<td>50</td>
<td>63</td>
</tr>
<tr>
<td>Copula</td>
<td>11</td>
<td>50</td>
<td>63</td>
</tr>
<tr>
<td>Plural</td>
<td>50</td>
<td>71</td>
<td>43</td>
</tr>
<tr>
<td>Progressive</td>
<td>11</td>
<td>29</td>
<td>60</td>
</tr>
<tr>
<td>3rd Present</td>
<td>0</td>
<td>33</td>
<td>33</td>
</tr>
</tbody>
</table>

Percent of sessions in which morpheme accuracy is below the lowest monolingual performance.

DISCUSSION

Overall bilingualism effect

- All three children were less accurate than monolinguals in their production of these morphemes.
- By 54 months, two of the three were generally within the range observed for monolinguals.
- Still, about a third of the morphemes were in the lowest quartile.
- One child (Tom) shows a greater error rate throughout the observation period.

Morpheme comparison effects

- Overall highest accuracy: Articles
  - No ‘interference’ from ASL.
  - However, ASL also might be expected to show no interference on auxiliary and copula but these show moderately higher error rates.

- Overall lowest accuracy: Plural
  - Cross-linguistic influence?
  - ASL marks plural on a limited set of nouns.
  - Similar possibility for influence on 3rd singular, but this was more accurate.
  - Alternatively, plural may be less accurate due to low saliency or other factors.
For further consideration

• What does it mean to ‘acquire’ a morpheme?
• How to compare bilinguals and monolinguals on age of acquisition?
  • Standard for monolinguals – data highly variable
  • Especially when using spontaneous production data

CONCLUSIONS

• Three bimodal bilingual children show overall bilingualism effects in their development of English grammatical morphemes
• There is not strong evidence that differences between morphemes in accuracy levels should be attributed to specific features of ASL
• Additional factors influencing performance to be considered

THANK YOU

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