



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



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0

OVERVIEW

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

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1

BACKGROUND

2

2

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

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3

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?

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4

Cross-Linguistic Influence

Example: Development of English past tense by 5- to- 12-year-old French-English vs. Chinese-English bilinguals (Nicoladis et al. 2012)

- 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 -ed faster than Chinese-English bilinguals

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5

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)

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6

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

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7

Comparison of English and ASL morphemes

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

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

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8

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?

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9

METHOD

10

Participants

- 3 target children (Bimodal bilinguals)
 - Longitudinal data – ages 2:06-5:00
 - Bibabi 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

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11

Number of observations

Age (months)	Mono English	Ben	Lex	Tom
30	10	3	0	0
36	10	1	2	1
42	10	2	2	2
48	10	1	1	2
54	10	1	2	1
60	10	2	1	2
Total	60	10	8	8

For bilingual children: Target English sessions only

12

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 (no reliability coding yet for monolinguals)

13

RESULTS

14

General bilingualism effect

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

15

Age Analysis (Morphemes collapsed)

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

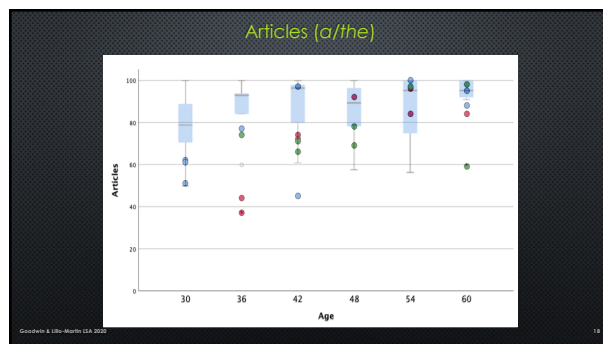
	Ben	Lex	Tom
30 months	0	NA	NA
36 months	20	80	80
42 months	60	60	44
48 months	NA	60	36
54 months	0	0	50
60 months	20	17	63

16

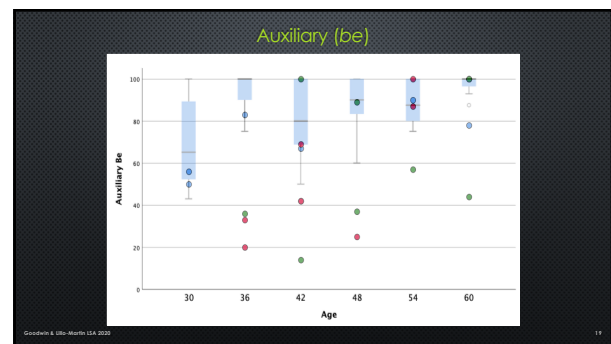
Individual morpheme results

- For each morpheme, we overlay a scatterplot representing the three bimodal 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

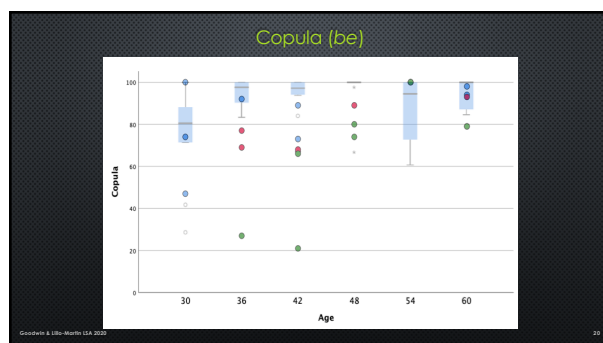
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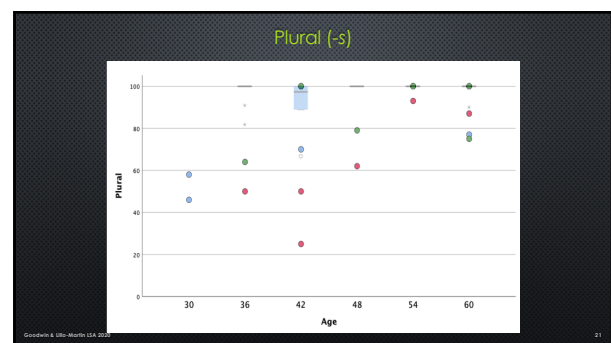
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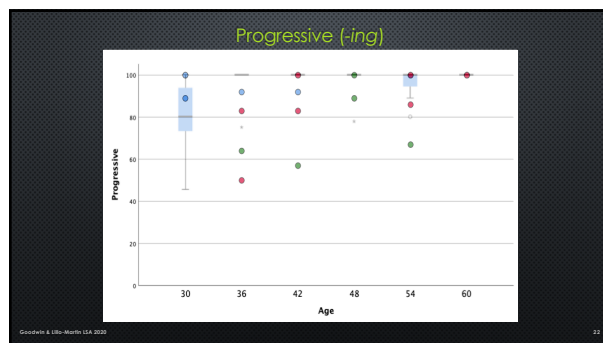
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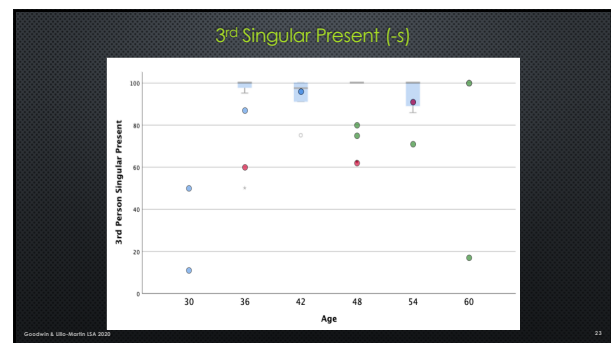
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21



22



23

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

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24

24

Morpheme Analysis (Age collapsed)

	Ben	Lex	Tom
Articles	11	13	13
Be Auxiliary	25	50	63
Copula	11	50	63
Plural	50	71	43
Progressive	11	29	60
3rd Present	0	33	33

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

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25

25

DISCUSSION

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26

26

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

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27

27

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

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28

28

Morpheme comparison effects

- 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

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29

29

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

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30

30

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

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31

31

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32