



Vocabulary composition in a bimodal bilingual child: Are all signers verb attenders?

Corina Goodwin, Diane Lillo-Martin
University of Connecticut



INTRODUCTION and BACKGROUND

Noun bias

Young children seem to be predisposed to learn object names/ nouns before verbs (Gentner 1982 et seq.)

Possible explanations

- universal cognitive bias
- frequency in input

Cross-linguistic evidence

- Noun bias has been observed for children learning (a.o.): English (Bates et al. 1994, Fortner 2005, etc.); Italian (Caselli et al. 1995); Hebrew (Dromi 1987); Spanish (Bornstein & Cote 2005)
- However, universality is questioned by studies of: Korean (Au, Dapretto & Song 1994); Mandarin (Tardiff, Gelman & Xu 1999)

Possible explanations

- methodology used to sample vocabulary, and context of observation (Tardiff, Gelman & Xu 1999)
- Structural properties of target language (e.g., position of verb, Kim et al. 2000; pro-drop, Dhillon 2010)

Overall, studies show a general tendency for nouns to be more frequent than verbs, but differences wrt whether nouns are strongly dominant.

Evidence from Mandarin-English bilinguals

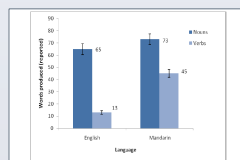


Figure 5: Noun-verb patterns in bilingual children's English and Mandarin vocabularies.

Using parent inventories, Xuan (2010) examined vocabulary composition of 50 Mandarin-English bilingual children, age 22-30 months

More nouns than verbs in both languages, but significantly more verbs in Mandarin

A new proposal (Hoiting 2006, Slobin 2006)

All the languages mentioned so far - even those with a small or no noun bias - are *Dependent-marked* - word order or case marking on nominals indicates their roles wrt argument structure.

Sign languages are *Head-marked* - information about nominals is provided by verb-internal elements. Nouns are often dropped. Because of these typological differences, children acquiring sign languages show a strong *verb bias* - evidence from SLN.

On the other hand, Anderson & Reilly (2002) found a greater use of predicates in ASL compared with English, but still a strong noun bias.

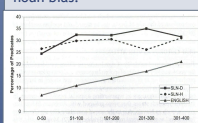


Figure 7: Percentage of predicates out of total vocabulary: SLN, EN, ASL.

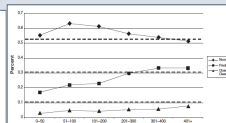


Figure 8: Vocabulary composition: Proportion of nouns, predicates and closed class items at each vocabulary level. (The horizontal lines represent the percentage for each vocabulary type across the children as a whole.)

RESEARCH QUESTIONS

- Would children learning American Sign Language (ASL) show a strong verb bias pattern similar to those acquiring Sign Language of the Netherlands when examined using natural production data?
- Would a bimodal bilingual child show notably different biases for each language if the languages are as typologically distinct as head-marked vs. dependent-marked?

METHOD

Spontaneous Production Data from:

- 1) One bimodal bilingual child (BEN) learning ASL & English from birth (Chen Pichler et al. 2010). Child of Deaf parents with a mixture of Deaf and hearing family members.
- 2) Five Monolingual English children from the Providence Corpus (Demuth et al. 2006)

Sampling Rate

- About 2 sessions per month for the bimodal bilingual child, with one target-language English and one target-language ASL. Ages 1;04.25-2;06.02
- Similar age range analyzed for monolinguals, with slight modifications to ensure similar vocabulary sizes

Vocabulary Counts

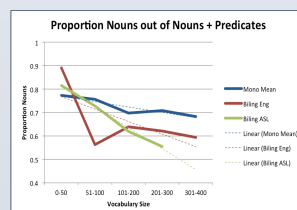
- Cumulative counts of productive vocabulary
- Vocabulary items split into categories based on those used in the MacArthur CDI
- Comparison based on vocabulary size: 1-50, 51-100, 101-200, 201-300 & 301-400 words

Important Vocabulary Categories

- Nouns
- Predicates = main verbs + adjectives

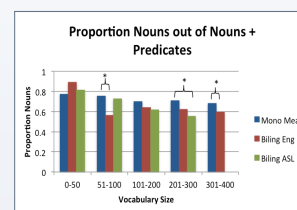
RESULTS

Both the bilingual's ASL and English vocabularies begin with a strong noun bias, similar to that observed in monolingual English.

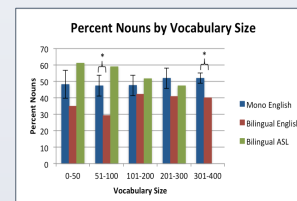


This noun bias in the bilingual's ASL falls quickly, but he never shows a verb bias. Using a two-tailed single-sample t-test, there is a significant difference between the monolingual mean and ASL when the vocab is 201-300 words, and between the English and the monolingual mean by 301-400 words.

RESULTS (cont.)

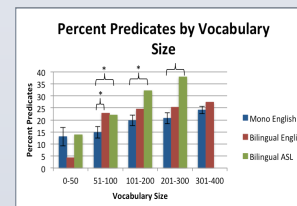


As a proportion of total vocabulary, there are no differences between nouns for the monolinguals and the bilingual's ASL. There is a lower proportion of nouns in the bilingual's English at two points (51-100 & 301-400 words).



There are more predicates as a proportion of total vocabulary for ASL than the monolingual mean once the vocabulary size reaches 51-100 words.

This difference is only observable in the bilingual's English when the vocabulary is 51-100 words.



When comparing the bilingual's ASL and English directly using a Fisher's Exact Test, there were no significant differences at any of the vocabulary sizes ($p=1.0$, $.084$, $.708$ & $.433$)

CONCLUSIONS

- Children acquiring English and ASL show a strong noun bias at the earliest stages of language acquisition; this also holds for the bimodal bilingual child studied here
- This noun bias recedes much faster in the bilingual's ASL
- This effect influences the English of a bimodal bilingual so that his noun bias in English is not as strong as would be expected for a monolingual, yet not as weak as observed in his ASL
- Since the proportion of nouns out of total vocabulary is not different for ASL and the monolingual English means, the higher proportion of predicates must entail a trade-off with other word categories
- The effect observed in ASL was not as strong as that reported for other languages such as Mandarin, in which there is only a slight noun bias by 20 months of age. There are at least two possible explanations for this:

- 1) The bilingual's English also influenced his ASL, reducing the effect of language differences
 - 2) Some Deaf parents use more English structures in their signing with hearing children. This could alter their signing to include more subjects and objects than monolingual Mandarin (or ASL) children would typically be exposed to.
- We did not find support for the hypothesis that acquisition of ASL promotes a strong verb bias, as in SLN.

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