

CALCULATING MLU IN SIGN LANGUAGES

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BACKGROUND

- Since Brown (1973), *Mean Length of Utterance (MLU)* has been an important concept in child language acquisition research.
- Many factors complicate its use and interpretation:
 - variability due to discourse characteristics (Johnston, 2001)
 - variability due to the nature of the sample (Bornstein, Painter, & Park, 2002)
- simple re-test reliability (Chabon, Kent-Udolf, & Egolf, 1982)
- Interpretation of MLU is especially difficult for cross-linguistic comparison (e.g., Devescovi et al. Dromi & Berman 1982; Klee et al. 2004). Languages vary with respect to morphological richness, optionality of arguments, obligatoriness of determiners, etc.
- Still, MLU has remained a commonly-used control measure for comparing children at different points of development (e.g., Rice et al. 2006).
- MLU can be seen as a measure of overall linguistic development (see, e.g., Dethorne et al. 2005).

Many different versions of MLU are used in different studies, with specialization for individual languages. Our goal was to begin to establish replicable standard procedures for calculating MLU in sign languages.

Previous research – sign languages

- A few sign language researchers have reported analyses of MLU (e.g., Hoffmeister, 1978; Kantor, 1982).
- Baker, van den Bogaerde and Woll (2009) mention MLU as a grouping strategy, but provide no methodological guidance.
- Van den Bogaerde (2000) presents data on MLU in signs for children acquiring Sign Language of the Netherlands. This count includes pointing, which may be considered a sign or a gesture in young children's utterances.
- Richmond-Welty and Siple (1999) excluded points in their counts of MLU for children acquiring American Sign Language. They specified that "pointing gestures and responses, yes/no gestures and responses, imitations, unintelligible utterances, and utterances including a participant that was not visible were excluded".
- More detailed procedures and examination of problematic issues is needed.

PROCEDURES

Overview

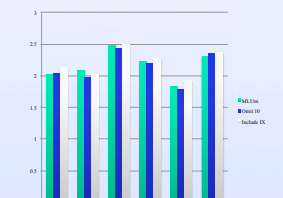
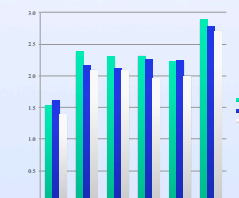
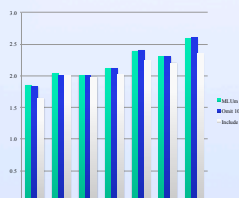
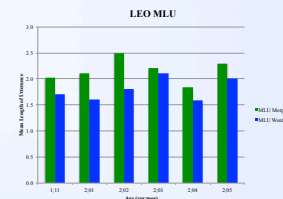
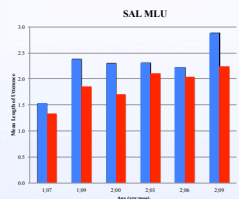
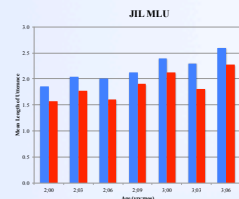
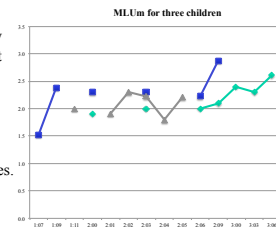
When calculating MLU, we obtain three counts:

- The number of **utterances** in a session. This includes all potentially analyzable utterances, whether included in the MLU analysis or not.
- The MLU in words (**MLUw**). This analysis applies to a subset of all utterances. The mean number of words per MLU-analyzable utterance is calculated.
- The MLU in morphemes (**MLUm**). This analysis applies to the same subset of utterances used for MLUw.

Sign-Specific Procedures

- For the purposes of coding MLU, Syntactic Units are used. A Syntactic Unit may include a single main clause, with any number of embedded or adjoined clauses, but not conjoined clauses. Clauses that might be analyzed as conjoined are treated as separate Syntactic Units.
- IX signs used in isolation are not counted; IX used with other signs is counted as one morpheme.
- Emblems are considered signs; gestures are excluded.
- Spatial modifications, repetition for aspect or emphasis are counted as morphemes.
- Non-manual marking is not counted as morphemic.

(See handout for more detailed procedures.)



Comparison Measures

Spontaneous longitudinal production data from 3 children – two acquiring ASL (JIL, SAL), one Libras (LEO).

- MLUm: MLU in morphemes following our procedures
- Omit 10: MLU in morphemes starting after the first 10 analyzable utterances (to test Brown's suggestion of skipping the first page)
- Include IX: MLU in morphemes if IX-only utterances are included

CONCLUSIONS

The goal of this work is to offer our methods to the research community for commentary and the eventual adoption of a systematic, uniform, comparable set of standards.

Summary of findings

- MLU increases with age, though not sharply
- MLU for sign languages is closer to that obtained for Cantonese than to that obtained for English (due to null arguments, lack of determiners, etc.)
- For our familiar spontaneous contexts, it is not necessary to skip the first few utterances
- IX-only utterances may artificially decrease MLU

Future directions

- Further examination of the relationship between MLU and age – especially considering later-emerging structures
- Comparison with older children and adults
- Examination of the potential relationship between MLU and vocabulary size
- Consideration of other measures of language growth

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