**INTRODUCTION**

- Building a bi-bi-bi corpus of child language
  - We are interested in the simultaneous development of a sign language and a spoken language
    - How does development in one language affect the other?
    - How is this cross-linguistic influence different for bimodal language pairs?
  - We are building corpora of naturalistic spontaneous production samples from children in the US and Brazil

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**INTRODUCTION**

- Similarities to studies of sign acquisition by Deaf children
  - Baker and Woll (2009) offered some best practices for development of sign language acquisition corpora
  - Lillo-Martin and Chen Pichler (2008) overviewed the development of our own corpora on the acquisition of ASL by Deaf children

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**1. COLLECTING THE DATA**

- General considerations
  Use what we know about building a corpus of data from
  - Spoken language
  - Sign language
  - Children
  - This gives us guidance in areas such as participant factors, data collection factors, etc.

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**Special Considerations**

- Participant selection
  - Kodas: At least one parent Deaf; both fluent signers
  - CI’s: Exposure to SL by the age of 2; implanted by the age of 2
  - At least 10 hours per week exposure to each language
Special Considerations

• Who does the data collection?
  – The families are generally involved, to different degrees
  – Information for families on creating a good sample

• Aiming for samples of each language
  – We use different interlocutors on alternating sessions – Deaf signers for the SL sessions; Hearing for the OL
  – Petitto et al. (2001) argued that young bilingual children are sensitive to the language used by their interlocutor
  – Genesee and colleagues have made similar observations for unimodal bilinguals
  • However, code-blending is still very common

Code Blending

• The use of sign language and spoken language at the same time
  – NOT THE SAME AS SIM COM
  – Similar to code-switching as used by unimodal bilinguals in some ways
• Code blending is very common in adult and child bimodal bilinguals
  – (van den Bogaerde 2000; van den Bogaerde & Baker 2005; Bishop & Hicks 2008; Emmorey et al. 2008; Pyers & Emmorey 2008)

• Why does code blending occur?
  – Children may see that Deaf parents do have access to aspects of spoken language – may not fully appreciate the need to sign without blending
  – Even for adults, it may be difficult to switch between languages/modes. Emmorey argues that both languages are “on” – and there is greater ability to leave both on (more difficulty to suppress one) for bimodals.

Particular Issues for Bibibi

• Questions on how to define code-blending
  – Mouthing / voice
    • Must an utterance have full voice on to be a blend? (Van den Bogaerde & Baker vs. Petitto)
  – Timing
    • Must the spoken and signed utterance match in timing? (Emmorey et al. 2008; Pyers & Emmorey 2008)

2. TRANSCRIPTION

• General Principles
  – (Johnston 2001, Johnston & Schembri 2007; Miller 2001; Pizzuto & Pietrandrea 2001)
  – A machine-readable record of language samples
    • Not necessarily sufficient for reader to reproduce in exactly the same way
    • Important that the records can be searched to find all occurrences of phenomena of interest
  – Multiple annotation parses focusing on different phenomena
  – Documentation of data behind analysis decisions
Details of our Approach

• ELAN
  http://www.lat-mpi.eu/tools/elan/
  Crasborn & Sloetjes (2008)

• It’s the cat’s pajamas!

Details of our Approach

• Transcription conventions
  – Where possible, we follow the CHILDES conventions established for child language data in transcribing both speech and sign (though we do not use BTS)
  http://childes.psy.cmu.edu/manuals/chat.pdf
  – When the CHILDES conventions conflict with our sign-specific goals, we create new conventions to be followed for transcribing both sign and speech
  – It is important to keep the sign and speech transcriptions comparable

Details of our Approach

• ID glossing
  – Brazil:
    • We started with the on-line Dicionário da Língua Brasileira de Sinais www.acessobrasil.org.br/libras
    • We created a special folder on the Brazilian group’s server for additions to this list
      – Make a clip of the sign from tapes or a new recording
      – Use commonly accepted ID gloss if available
      – The team discusses and agrees on all new glosses

Details of our Approach

• ID glossing
  – Brazil:
    • Because of the limitations of the Dicionário, we are building our own glossary
      – Computerized database
      – Will be searchable by handshape and/or location
      – Will be made available to users
Details of our Approach

• ID glossing
  – US: We are working with colleagues to develop an ID-gloss database for ASL. Meanwhile, we use many common sign labels, striving for consistency. Our conventions list gives guiding principles for cases which are commonly variable.

• Cross-site comparability
  – US / Brazil
    • Same selection criteria, approach to data collection
    • Same ELAN template
    • Same general transcription principles
    • Working together regularly
  – Two US labs
    • Joint lab meetings
    • Shared documents through Google Docs
    • Common server for files

3. ANALYSIS

• Bilingual issues
  – How does development of one language influence the other?
    • Detailed analysis of development of particular components of each language
    • Examination of blended structures

Multicylicity in Early ASL

Previous reports

• Three Deaf ASL signers 0;9 - 1;5 show strong preference for multicylicity (Meier et al. 2008)
  – Multicyclic signs represent the majority of spontaneously produced signs (over 75%)
  – Both multicyclic and monocyclic targets tend to be produced with reduplication
    • Multicyclic targets correctly reduplicated (81-93% of time)
    • Monocyclic targets also reduplicated (50-80% of time)

• Does bimodality affect this tendency towards multicyclicity in koda ASL production?
  – Syllable structure susceptible to crosslinguistic transfer (Paradis 2001)
  – 1 koda child (Ben) at 1;10 and 1;11
Searching for Cyclicity Errors
Multicyclicity in early koda ASL

Comparing Cyclicity Patterns
Monolingual vs koda ASL

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LOOKING FORWARD

• Continue to build and expand our corpus
• Address theoretical questions regarding bi-modal bi-lingual development and comparison with unimodal development in speech or sign only
• Eager to discuss with other teams:
  – new challenges and issues for corpus work
  – Extensions to other areas (e.g. adult coda language use; co-speech gesture)

REFERENCES

• Pyers & Emmorey (2008) The face of bilingual signing: ASL grammatical facial expressions are produced when bilinguals speak in English monolinguals. Psychological Science, 19, 104-110.