Cross-Language Influence, Code-Switching, and Code-Blending

Helen Koulidobrova, Diane Lillo-Martin
University of Connecticut
Ronice Müller de Quadros
Universidade Federal de Santa Catarina
Deborah Chen Pichler
Gallaudet University

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Bilingualism, cross-language influence and the architecture of the lg. faculty

○ How autonomous are a bilingual's two languages?
○ Why do children (and adults!) mix languages within utterances?
○ How exactly do two separate grammars interact?
○ In what ways do the languages influence each other during development?
○ Can we account for bilingual phenomena without appealing to any special machinery?

We will argue that bimodal bilingual acquisition studies offer unique insights on these issues and on the architecture of the human capacity for language.

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Who are bimodal bilinguals?

Bilingual

unimodal bilingual
(monomodal)

bimodal
bilingual

speech + speech
sign + sign

sign + speech
(coda or koda)

NOTE: "Sign" in these cases refers to full, national sign languages, *not* SimCom or invented sign systems such as SEE.

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Cross-language influence

i.   If the construction is at the syntax-pragmatics interface
ii. If structural (string) overlap between the two languages is observed
iii. Prior to the instantiation of the C-system

(adapted from Hulk & Müller 2000)

☞ Bimodal bilingual data:
   ii'. Children produce structures in their spoken language without surface overlap
   iii'. Non-target structures continue past the evidence of the C-domain

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Possible explanation

- Bimodal bilingual children appear to be markedly different from unimodal bilinguals as well as monolinguals.
- What we need is a theory that puts them in the same camp as unimodal language users and yet makes a reference to their being different.

☞ **Obvious difference:** another simultaneously available articulatory channel
   ➜ no longer a theory of "transfer" but a theory of (non-enforced) language choice at a particular juncture of structure building
   ➜ **code-switching**

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A Minimalist-friendly Model of CS
(MacSwan 1998)

- An extra modality ➔ 2 simultaneous linearizations (Donati & Branchini 2009)
  - ○ 2 modalities ➔ 2 Phonological Forms(?)

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Additional Assumption: Distributed Morphology (Halle & Maranz 1993; Idsardi & Raimy 200; Embick & Noyer 2007, i.a.)

Roots, Morphemes ($L_x \cup L_y$)

Syntactic Derivation

Vocabulary Insertion ($L_x \cup L_y$)

Phonology ($L_x \cup L_y$)

Phonological representation

Meaning

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Additional Assumption: Distributed Morphology

- Featural requirements of ROOTs & morphemes must be met.

- At Vocabulary Insertion, elements from either language can be inserted, as long as PF requirements are satisfied
  - ➔ code‑switching

☞ When two independent sets of articulators are used, lexical items from **both** languages are possible
  - ➔ code-blending

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Initial evidence from unimodal bilinguals

- Some "cross-language transfer" effects in young children may be a result of code-mixing/switching (Liceras et al 2008 for DP-related issues; Tieu 2009 for wh-production, 2010; Cantone 2007 for word-order)

- Similar phenomena in adults (González-Vilbazo & Lopez submitted; Bandi-Rao & den Dikken 2004)

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What have we learned from bimodal bilingual research so far?

- They are **unlike** unimodal bilinguals:
  - ○ Sign and speech can co-occur simultaneously, resulting in **code blends**
  - ○ Strong preference for code blending (90%) over code switching (<10%); majority (80%) of blends are congruent (Emmorey et al. 2008; van den Bogaerde & Baker 2005; Petitto et al. 2001)

☞ They are **like** unimodal bilinguals:
  - ○ Same milestones for monolingual and bilingual vocabulary development (cf. Brackenbury et a. 2006)
  - ○ **Cross-language influence** (Morgan 2000 [BSL-Eng]; Donati & Branchini 2009 [LIS-It])

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Binational Bimodal Bilingual (BiBiBi) Language Acquisition Project

We examine the simultaneous development of a sign language and a spoken language in two language pairs:

- Brazilian Sign Language (Libras) and Brazilian Portuguese (BP)
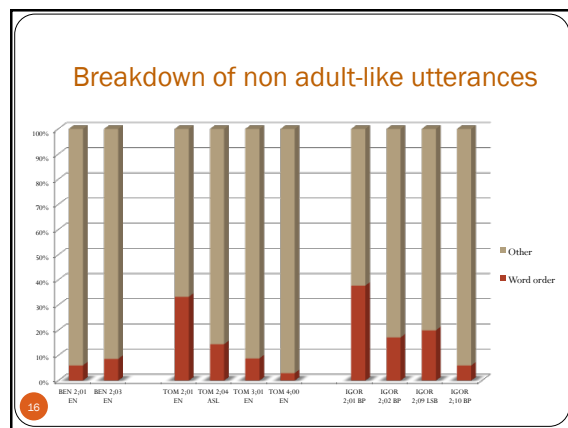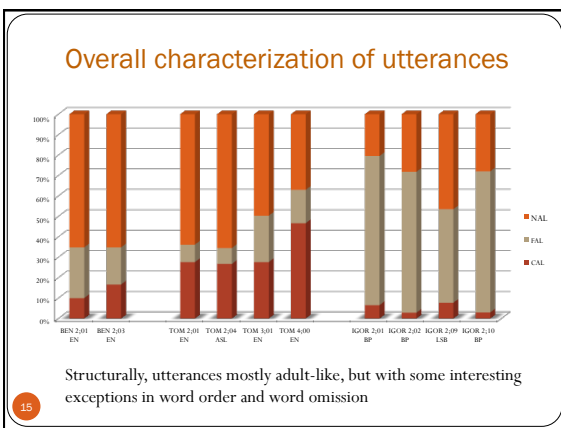- American Sign Language (ASL) and English (E)

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Study 1: Sign structures in the spoken language despite lack of overlap (Lillo-Martin et al 2010)

Subject	Lang's	Age Range	Sess'ns	# Utt's
Ben	ASL / E	2;01 – 2;03	2	715
Tom	ASL / E	2;00 – 4;00	4	592
Igor	Libras / BP	2;01 – 2;10	4	1035

All participants have at least one Deaf parent and relatively equal exposure to both sign and spoken languages.

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Coding

- Excluded routines, interjections, and complete imitations
- Coded (spoken) utterances as Completely Adult-Like (CAL), Fragment Adult-Like (FAL), or Non Adult-Like (NAL)
  - Potentially sign-influenced word order
  - Other (generally, missing/null elements)

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Overall characterization of utterances

Structurally, utterances mostly adult-like, but with some interesting exceptions in word order and word omission

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Breakdown of non adult-like utterances

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Examples

- O-V order
(1) BP: em casa a vovó taí   (Igor 2;10; unimodal)

Target BP: A vovó está em casa?
Is grandmother at the house?

(2) Eng: Chocolate   eat   (Ben 2;01; bimodal)
   ASL: HOT   CHOCOLATE IX EAT

- Doubling
(3)   sleeping mouse sleeping   (Ben 2;01; unimodal)

- SPC
(4)   stuck it   (Ben 2;03; unimodal)

- WH
(5)   bug go where   (Tom 2;04; unimodal)

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The nature of cross-language influence in the speech of BiBi's

Recall:

ii'.   Only for structures that are "surface"- compatible with both languages; i.e. with English and BP, respectively.

BUT

(1)-(4) are not compatible with BP/English

☞ **Not the case !**

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Discussion of Study 1 – e.g. Doubling

- Doubling in ASL and LSB results from choosing a (null) functional element with a strong [+focus] feature
  - Morphological fusion of the focus head with the focused element permits both copies to be pronounced (Nunes & Quadros 2004)

- If this head is chosen during a 'spoken language' derivation, the non-target structure will result

☞ **code-blend**

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Study 2: Sign structures in the spoken language past C-domain (Koulidobrova 2010)

- ASL is a null subject language (Lillo-Martin 1986, 1991)
- Prediction: ASL/Eng bilingual children should pattern with a) monolinguals

    b) unimodal bilinguals acquiring a NSL/non-NSL

Subject	Lang's	Age Range	Sess'ns	# Utt's
Tom	ASL / AE	1;11 – 4;05	14	2222
Lex	ASL / AE	3;03– 4;03	4	1933

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Data

Subject	Number of utterances	Number of uttrs. with verbs	Number of null subjects
TOM	2222	1102	131
LEX	1933	1058	123

After Serratrice, Sorace &Paoli (2004):

- Stage II (MLU≥2.0; age≥24ms.)
- Stage III (MLU≥3.0; age≥36ms.)

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Koda NS rate as compared with Carlo (It/Eng) and Eng. monolinguals (4, CHILDES)

Rate of null subjects (%)

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Results

- Stage II
  - $NS_{Tom/Lex} \approx NS_{Eng. monoling}$ – not significant;
  - $NS_{Tom/Lex} > NS_{Carlo}$ – significant ($p_{two-tailed} < .0002$; Bonferroni $p < .001$)

- Stage III: significant
  - $NS_{Tom/Lex} > NS_{Eng. monoling}$: z- ratio=2.509, $p_{two-tailed} < .0002$; Bonferroni $p < .001$
  - $NS_{Tom/Lex} > NS_{Carlo}$: z-ratio=4.679, $p_{two-tailed} < .0002$; Bonferroni $p < .001$

  ☞   Hypothesis for Stage III is not confirmed

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Examples (stage III)

(6) a. *Ø* are pushing circles.   (Lex)

  b. And then *Ø* wanna make a train.   (Lex)

  c. *Ø* done should make sounds.   (Lex)

  d. *Ø* likes throwing spiderwebs.   (Tom)

  e. *Ø* sticks here.   (Tom)

  f. Mister Conductor said *Ø* won't crashed# he said   (Lex)

  g. It says *Ø* hafta build a king for the king horsies.   (Tom)

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The nature of cross-language influence in the speech of BiBi's

Recall:

iii'. Cross-lg. influence will go away by the time C-domain is in place.

BUT

(7) a. TOM 85 (3;10.26)
    i.   I don't like kings because they are really mad at me.
    ii. Where's the outside (door)?
    b. LEX 27 (3;09.26)
      i. Because we need to pull all the puzzles togethers.
      ii. But I am trying to clean up because I want to go.
    c. LEX 35 (4; 03.11)
      i. I know where this goes

☞ **Not the case !**

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Discussion of Study 2

- If *pro* and an overt pronoun do not compete at VI, pro might be inserted alongside an English VP

☞ **code-blend**

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Additional prediction

- Code-switch happens at a (strong) phase-head (C°, v°, D°; cf. Bhandi-Rao & denDikken 2004, González-Vilbazo & Lopez 2010, denDikken 2011)
  - TP does not have to be language-uniform
  - What sounds like L_x might, in effect, be L_Y

- Sign languages mark agreement and aspect, but neither is obligatory
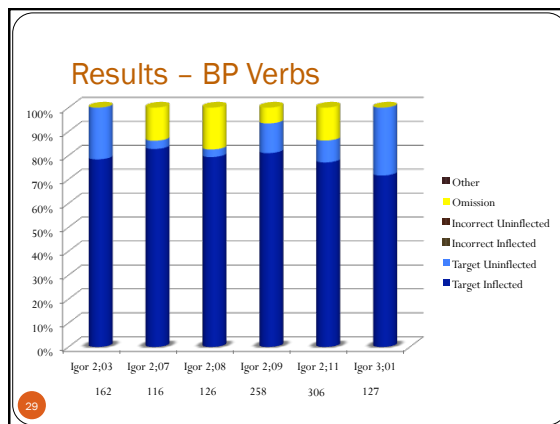 - suggestion: T_{ASL} is underspecified for tense-features
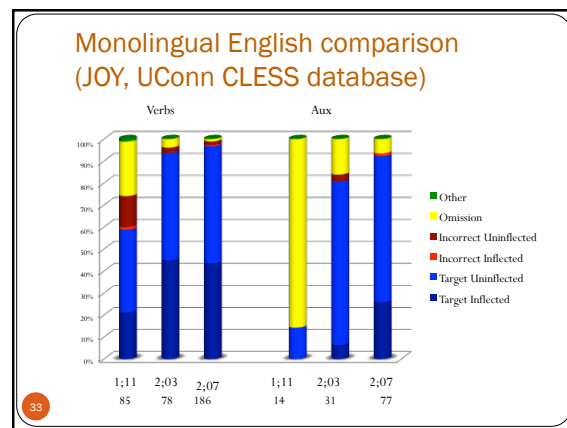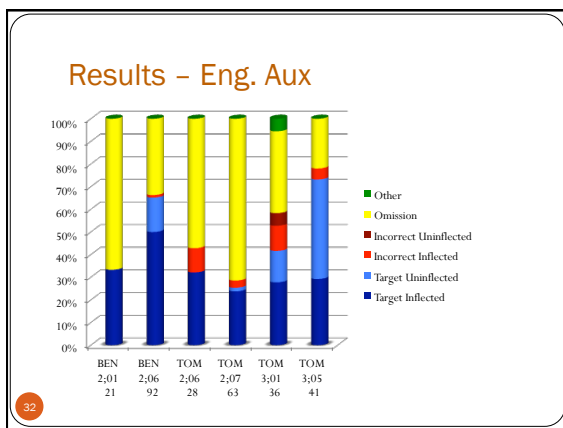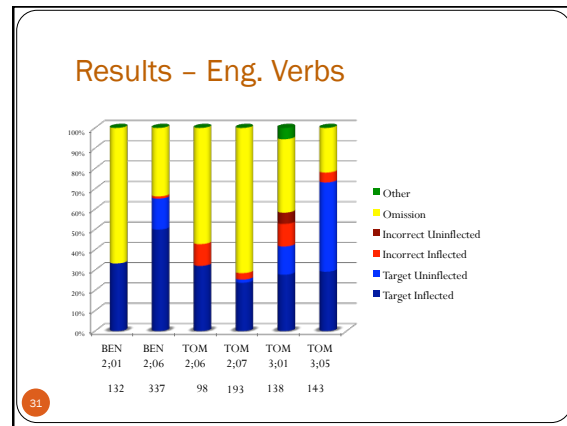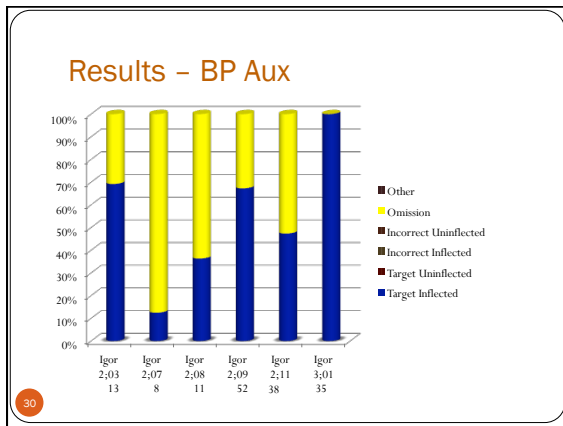
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Additional prediction

- Unimodal environment:
  - Both $[T_{Chinese}[V_{English}]]$ and $[T_{English}[V_{Chinese}]]$
  - At VI, if T is overt, $*[T_{Chinese}[V_{English}]]$ (T_{Eng} more specified: Subset Principle)
    → code-switch impossible

    → inflectional morphology is either
    a) omitted or b) default

- Bimodal environment:
  - Both $[T_{ASL}[V_{English}]]$ and $[T_{English}[V_{ASL}]]$
  - At VI, if T is overt, $[T_{ASL}[V_{English}]]$ b/c T_{Eng} and T_{ASL} don't compete
    → code-blend is possible

    → inflectional morphology is either a) omitted or b) default
    → inflectional morphology is either a) omitted, b) default, or
    c) bearing incorrect tense morphology

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Study 3: Violations

- Monolingual (cf. Harris & Wexler 1996) and unimodal bilingual children (cf. Serratrice 2001 for overview) do not produce errors of commission in verbal morphology. They either omit inflection entirely or supply it correctly (though see some exceptions in Döpke 2002).

Name	Lang's	Age Range	Sess'ns	# Verbs	#Aux
Ben	Engl	2;01 – 2;06	2	469	113
Tom	Engl	2;06 – 3;05	4	572	168
Igor	Libras / BP	2;03 – 3;01	6	1095	157

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Results – BP Verbs

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Results – BP Aux

Results – Eng. Verbs

Results – Eng. Aux

Monolingual English comparison (JOY, UConn CLESS database)

Examples: Incorrectly inflected verbs

(11) Tom (2;06)
  a. I needs this [*target: I need this…*]
  b. I'm bounces [*target: I'm bouncing*]
  c. Looked! [*target: Look!*]

(12) Tom (2;07)
  a. I stucks [*target: I am stuck*]
  b. I need to stirring it [*target: I need to stir it*]
  c. I'm stand-upped [*target: I'm standing up*]

(13) Tom (3;01)
  a. I don't be seeing my frogs [*target: I don't see my frogs*]
  b. I will went too fast [*target: It went too fast*]
  c. I goed over there instead [*target: I will go over there*]

Discussion of Study 3

- The bilingual children do not seem to produce more incorrect uninflected forms than monolinguals (range for both: 3%-14%) ~ omission-default

BUT

- Tom's incorrect inflected verbs ~4% of all verbs (Joy .5%)
  o About half involve use of –s with 1st person subject
- Almost all Tom's incorrect inflected aux forms involve insertion of an unneeded 'be' form (Joy—never)
- Other (random?) incorrect inflected verb forms remain for Tom ~code-blend?

Summary

- The standard account of cross-linguistic influence between the languages of a bilingual (Hulk & Muller 2000, i.a.) does not account for the data that arise during the examination of linguistic patterns of bimodal bilinguals
- To date, BiBi's are alone in the camp of defying the standard account.
- We argue that the basic difference lies in the availability of an extra articulatory channel, which allows for a) sign lg. structures in the spoken language, and b) blends that appear inconsistent with each of the grammars individually.

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Open questions

- Will an account like this be able to correctly explain all the cases where cross-language influence is or is *not* seen – in our bimodal data as well as in uninomodal bilinguals?
- Along the lines of MacSwan, *i.a.*, we would expect any 'constraints' on cross-language influence to be like 'constraints' on code-switching—no more than the requirements on the two languages themselves.
- Testing of these questions is in progress.

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Selected bibliography

- Brackenbury, T., Ryan, T., & Messenheimer, T. (2006). Incidental word learning in a hearing child of deaf adults. *Journal of Deaf Studies and Deaf Education, 11*(1), 76-93
- Cantone, K. & Müller, N. (2005) Codeswitching at the interface of language-specific lexicons and the computational system. *IJB 9(2), 205-225.*
- Chen Pichler, D., R. de Quadros and D. Lillo-Martin (2010) Effects of bimodal production on multi-cyclicity in early ASL and Libras. In J. Chandlee, K. Franich, K. Iserman and L. Keil (eds.) BUCLD 34 proceedings supplement: http://www.bu.edu/linguistics/BUCLD/proc.html.
- Donati, C & Branchini, C. (2009) Simultaneous grammars: two word orders but only one morphology. ESSLLI.
- Emmorey, K., Borinstein, H.,Thompson, R. & Gollan, T. (2008) Bimodal bilingualism. *Bilingualism: L&C 11(1),* 43–61.
- González-Vilbazo, K. & López, L. (submitted) Little v and Parametric Variation. *Natural Language and Linguistic Theory.*
- Halle, M. & Marantz, A. (1993) Distributed Morphology and the pieces of inflection. In Hale, K. & Keyser, S.J. (Eds.), *The View from Building 20,* 111-176. Cambridge, MA: MIT Press.
- Koulidobrova, E. (2010). Mechanics of "transfer": Evidence from null subjects in the speech of an ASL/English bilingual. Presented at *SLRF 2010,* UMD-College Park, MD.
- Liceras, J. M., Spradlin, K. T. & Fernández Fuertes, R. (2005) Bilingual early functional-lexical mixing and the activation of formal features. *International Journal of Bilingualism 9(2), 227-252.*
- Lillo-Martin, D., Quadros, R.M., Koulidobrova, H. & Chen Pichler, D. (2010) Bimodal bilingual cross-language influence in unexpected domains. *Proceedings of GALA 2009.*
- MacSwan, J. (2000) The architecture of the bilingual language faculty: Evidence from code-switching. *Bilingualism: L&C 3(1), 37–54.*
- Petitto, L. A., et al. (2001) Bilingual signed and spoken language acquisition from birth: Implications for the mechanisms underlying early bilingual language acquisition. *Journal of Child Language 28(2), 453–496.*
- Quadros, R. de, D. Lillo-Martin and D. Chen Pichler (2010) Two languages but one computation: Code-blending in bimodal bilingual development. Presented at 10th Congress on Theoretical Issues in Sign Language Research (TISLR), West Lafayette, IN.
- Serratrice, L., Sorace, A., & Paoli, S. (2004). Crosslinguistic influence at the syntax-pragmatics interface: Subjects and objects in English-Italian bilingual and monolingual acquisition. *Bilingualism: Language and Cognition, 7*(3), 183-205.
- Ticu, L. (2010) Reexamining cross-linguistic influence in bilingual acquisition of wh-questions. *Proceedings of the 2010 Annual conference of Canadian Linguistic Association*
- Van den Bogaerde, B. & Baker, A. E. (2005) Code-mixing in mother-child interaction in deaf families. *Sign Language & Linguistics 8(1/2), 151-174.*

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