Constraints on Bimodal Code-Switching and -Blending

al Biling

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Bilingual linguistic phenomena

- "The bilingual is not two monolinguals in one person." (Grosjean 1989)
- · Bilingual phenomena illustrate this
- Cross-linguistic influence
- Code-switching
- · Code-blending
- What are the psycho/linguistic mechanisms responsible?

Cross-Linguistic Influence (CLI)

- Children developing bilingually may appear to use a mixture of structures from their two languages
- E.g., use of wh-in situ (influenced by Cantonese) in English of Cantonese+English bilinguals (Yip & Matthews 2007)
 - It is for what?

(Timmy, 2;05)

 Some propose that dominant language interferes with weaker one, but counter-evidence

Ouestions about CLI What are the appropriate constraints on CLI? ScLI limited to children and other learners / imperfect speakers? 10 Quechua-L2 Spanish (Sanchez 2015) mergence of new morphemes or independent words in Spanish that are the spell out of derivational morphemes (e.g. causative) in agglutinative languages Kid quer-iendo hac-er-le com-er Iswant-GER make-INF-DAT eat-INF "s/he is about to feed him/her." can CLI be related to code-switching?

Code-switching

- The alternate use of two languages within the same utterance
 - This morning *mi hermano y yo fuimos a comprar* some milk "This morning my brother and I went to buy some milk"

Constraints on Code-Switching

The students *habían visto la película italiana*. "The students had seen the Italian movie." *The student had *visto la película italiana*.

· What are the (linguistic) constraints?

Unification of bilingual phenomena

- CLI and CS may both be options that become available based on knowledge of two lexicons with their grammatical requirements
- If (some) grammatical phenomena are determined by the features associated with lexical items (including null functional categories) ...
- \circ Selection of elements from L_A and L_B can result in CLI or CS

(Koulidobrova 2012, 2016; Lillo-Martin et al. 2012; Tieu 2010)

Code-blending

- (How) is code-blending related to code-switching (and possibly, cross-linguistic influence)?
- · Similar sociolinguistic usage and functions...
- Same kind of derivation?

Bilingual phenomena in Bimodal Bilinguals

- Bilinguals using a sign language and a spoken language ('coda')
- Studies with adults (Emmorey et al. 2008; Bishop 2010) and children (van den Bogaerde & Baker 2005; Petitto et al. 2001)
- Includes use of sign, speech, code-blending and occasional code-switching.

BIMODAL BILINGUALS

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Bimodal bilingual cross-linguistic influence

· Use of ASL word order in English is observed - 'Coda talk'

 "Coda talk usually takes place in an all-Coda environment, and the grammatical structures often follow ASL, not English, a sort of 'spoken ASL."" (Bishop 2010: 207)

"Many times in school me want show videos...where? YouTube. Many many computers in school block-block-block. Me say FSH."

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Codatalk website: codatalk.weebly.com

Bimodal Bilingual Code-blending

- Code-blending is the natural and spontaneous use of speech and sign together.
- It should not be confused with Simultaneous Communication (Sim-Com), an artificial and forced attempt to speak and sign at the same time.

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ARCHITECTURE QUESTIONS



How can two languages be produced simultaneously?

Possibility 1:

- Potential for two different propositions expressed using two completely different derivations
- Possibility 2:
- · One proposition, but possibly two derivations
- Possibility 3:
- · One proposition, one derivation
- With any of these, may have both linguistic and extra-linguistic constraints

Possibility 1?

- If different propositions may be expressed, analyses of blending based on content would reveal this.
- Multiple previous studies have provided evidence against this (e.g., van den Bogaerde & Baker 2000 et seq.; Petitto et al. 2001; Emmorey et al. 2008)

Possibility 2 or 3?

- Possibility 3 (one derivation) theoretical preference
- Is the empirical evidence more consistent with 2 or 3?

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· When might two derivations be needed?

Two word orders

- · Cases in our data VERY RARE
- But shows up in LIS/Italian

Possibility 2? Donati & Branchini (2013) 6 kodas LIS+Italian Two word orders: • ages 6-8 It: Chi ha chiamato? who have.3SG call.PAST Blending types: WHO? LIS: CALL Dominant blending Independent blending · Blended blending: Congruent lexicalization It: Parla con Biancaneve Syntactic calque talk.PRS.3SG with Snow White Two word orders LIS: TALK HUNTER · Blended blending 'The hunter talks to Snow White.'



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Code-blending in the Synthesis model (Possibility 3)

- Theoretically simpler approach
- Can it generate all results?
- Deriving the observed types

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DERIVING BLENDING TYPES

Deriving types of blending Co-insertion (same features) · At Vocabulary Insertion, a morpheme is spelled-out with a Vocabulary Item from both sign and speech · The features of the signed item and the spoken item are the same HAT really it's a hat (Adult to 2;00)

Deriving types of blending

· Co-insertion (subset of features)

• At Vocabulary Insertion, a morpheme is spelled-out with a Vocabulary Item from both sign and speech

· The features of either the signed item or the spoken item are a subset of the features on the abstract morphemes, while the other language might display a fuller set of features (Subset principle)

FINISH are you finished

(Adult to 2;00)

Deriving types of blending

· Both types of co-insertion can occur any number of times in an utterance

WANT BREAD I want some bread though (Adult to 2;06) THAT SAY That's what I said

(Adult to 2;06)

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Blending with Depicting Signs (DS) · Usually, the DS and the spoken VP express very similar information, but packaged differently DS(curved-obj-scoops-upward) Is it scooping it up? (Adult to 2;00) DS(handling-block-place-in-location) (Adult to 2;06) Put it right there The blended VP should contain all necessary morphemes, but different overlapping sets will be expressed in each language

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Туре	Adults (at 2;00 & 2;06) (<i>n</i> =41)	Child (2;00) (<i>n</i> =79)
Co-insertion (same)	.63	.51
Co-insertion (subset)	.24	.26
DV	.10	.01
Complementary	.02	.22

Synthesis Summary

- The Synthesis model employs a single syntactic derivation with multiple outputs in phonology
- \cdot Especially straightforward for cases of co-insertion [follows grammar of $L_{\rm A}$ or $L_{\rm B}$ or both via Synthesis]
- Imperfect feature mapping and blended syntax compatible

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CASE STUDY: DEPICTING/CLASSIFIERS

(Quadros, Davidson, Lillo-Martin & Emmorey 2017; under revision)





























**self-sign rating and native speaker/signer-rating

Total Numb Codas Sign only FB - BR< 8	DS are common, but reduced code blending compared to other verbs					
Codas Sign only FB - BR 🔗 8	Total Number DS Total Num		nber other verbs			
FB – BR <u> </u>	Bimodal	Sign only	Bimodal			
	14	2	34			
B2 – US4	7	3	44			
M4 – US 6	24	0	55			
M5 – US 15	10	7	85			







Discussion

- >Our analysis of code blends provide more evidence of the *morpho-syntactic complexity* of depicting signs
- Further support for both morphemic and nonmorphemic components
- Results are particularly compatible with theories of bilingualism that predict tight connection between syntax and semantics of both languages

CONCLUSIONS

Future research

- Currently planning to collect more complex blending data (elicited production and grammaticality judgment) to push the limits of the 'one derivation' approach.
- Preliminary data indicate resistance to code-blending when English uses non-ASL structures, such as passive, causative, idioms
- · Word order differences, when short, are permitted

Conclusions

- Bimodal bilinguals reveal much about the possible ways languages can be combined
- Our approach permits a unification of bilingual phenomena (CLI, CS, CB)
- Language synthesis emerges from the structure of the language faculty when more than one lexicon is available.
- Further analyses are needed, especially
- · Constraints on synthesis: current work with adult data

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Thank you