

**Two Languages But One Computation:
Code-Blending in Bimodal Bilingual
Development**

Ronice Müller de Quadros
Universidade Federal de SC

Diane Lillo-Martin
University of Connecticut

Deborah Chen Pichler
Gallaudet University

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INTRODUCTION

Intermodality



INTRODUCTION

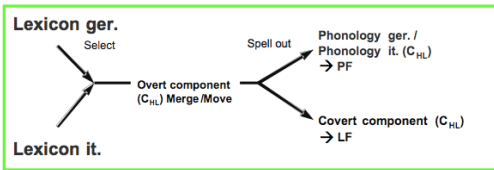
- Studies of intermodal language development can help us better understand the architecture of the human capacity for language.
- There is little conflict between the articulatory mechanisms of signed and spoken languages, so it is an excellent population in which to test questions of language design.

THEORETICAL FRAMEWORK

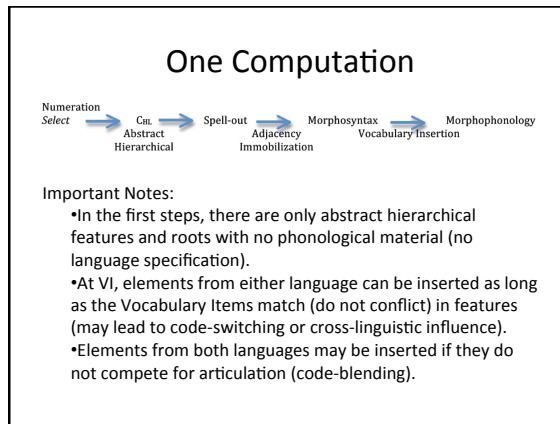
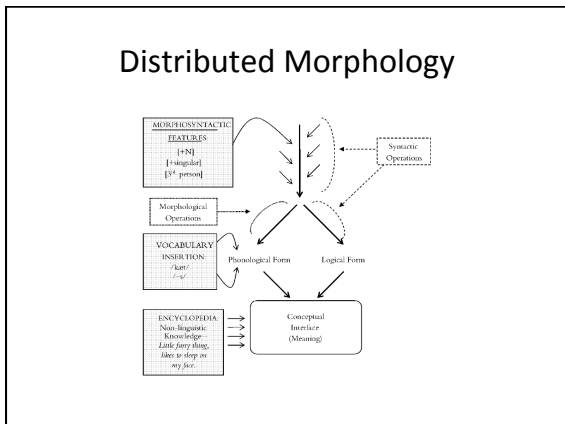
- One Computation
 - Lillo-Martin, Quadros, Koulidobrova & Chen Pichler (2009)
- MacSwan’s (2000, 2005) Minimalist Model of Code-Switching
- Plus concepts from Distributed Morphology (Halle & Marantz 1993, Idsardi & Raimy 2010, Siddiqi 2010) – cf. Liceras et al. 2005

A minimalist model of code-switching

MacSwan (2000, 2005)
Code-switching can be accounted for using only the mechanisms needed to describe monolingual competence



MacSwan’s model as illustrated by Cantone & Müller (2005)



- ### Predictions
- One proposition may be expressed in either or both modalities
 - Bilinguals will not produce two different utterances simultaneously – i.e., will *not produce*:
 - One proposition in sign while two are produced in speech (or vice-versa)
 - One proposition in sign while a different one is produced in speech (or vice-versa)

BINATIONAL STUDY OF BIMODAL BILINGUAL LANGUAGE ACQUISITION

We examine the 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)



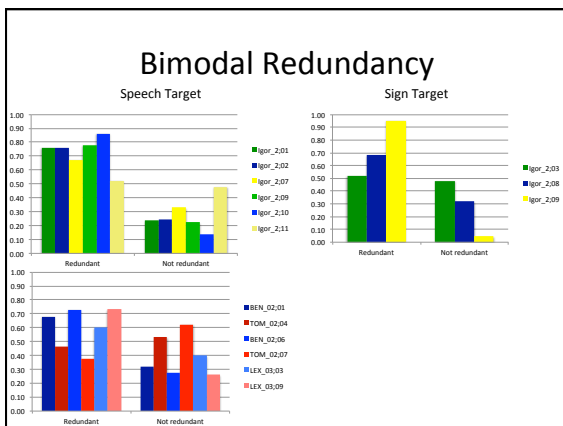
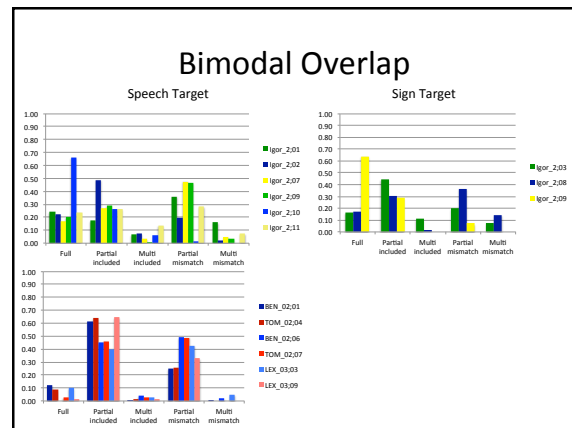
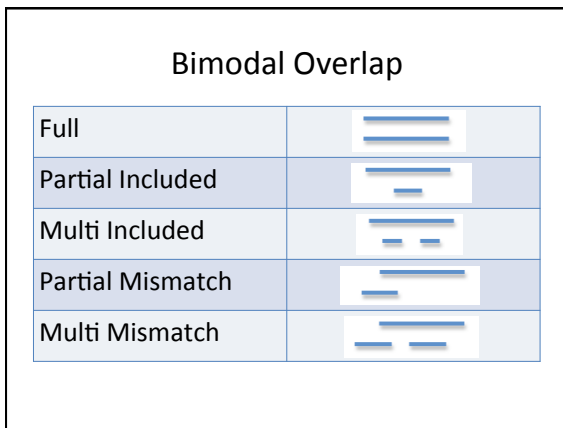
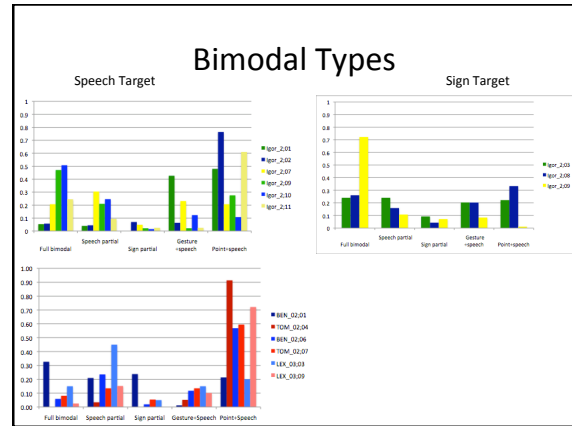
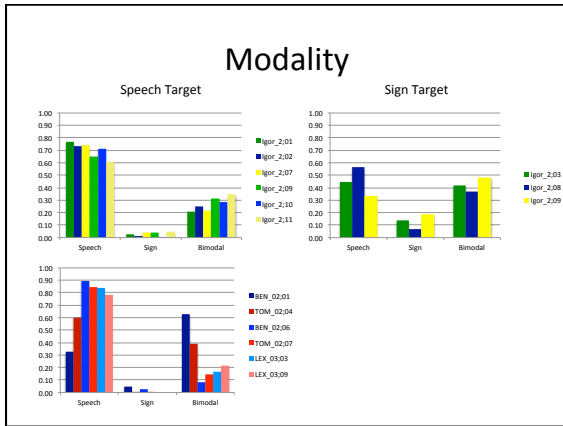

Participants

Data analyzed for the current presentation

Name	Lang's	Age Range	Sess'ns	# Coded Utt's
Igor	Libras / BP	2;01 – 2;11	10	3610
Ben	ASL / AE	2;01 – 2;06	2	994
Lex	ASL / AE	3;03 – 3;09	2	608
Tom	ASL / AE	2;04 – 2;07	2	398

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

- ### Bimodality under One Computation
- Modality
 - Speech
 - Sign
 - Bimodal
 - Bimodal Types
 - Bimodal Overlap
 - Bimodal Redundancy



Potential Counterexamples – 1

- Timing overlap – Multis

Igor (2;10)

	NOVE
Child LSB utteranc [1;11]	nove nove nove g(a)plausos-mãos
Child BP utterance [3;8]	nove nove nove g(a)plausos-mãos

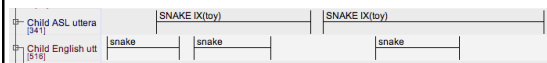
Lengthening

- Holding or repeating of the sign or word
- Used as a conversational strategy
 - Holding attention
 - Maintaining the topic
 - Cohesion across utterances
 - Repairs
- (Bennett-Kastor 1994; Huang 2010)

Potential Counterexamples – 2

- Timing overlap – Mismatches

Ben (2;01)



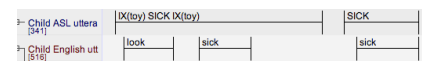
Coordination

- Children are still developing the ability to coordinate well manual and vocal outputs
- Repetition is used to repair the ill-coordinated timing

Potential Counterexamples – 3

- Non-redundancy

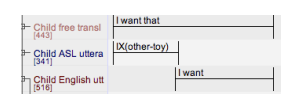
Ben (2;01)



Igor (2;07)



Ben (2;01)

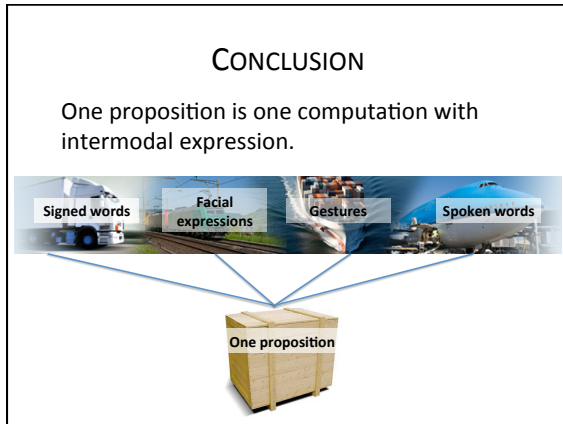


One Proposition

- According to our model, these are not counterexamples as long as combined they express one proposition
 - Look, she's sick
 - This one is black.
 - I want that toy.

CONCLUSIONS

- Multiple kinds of blending are possible with multiple articulators.
- Our model, incorporating MacSwan's proposals for code-switching and concepts from Distributed Morphology, can capture these possibilities.



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