

Linguistic Development in Heritage Spanish-English Bilingual Children

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The study of bilingual competence

Autonomous syntactic representations

- > It is possible for a bilingual child to develop two independent and autonomous representations for the languages he/ she is acquiring. (Meisel, 1986; Paradis and Genesee, 1996).

The syntax-semantics interface

- > Cross-linguistic interference in bilinguals takes place at the interface of syntax and pragmatics (Hulk and Müller 2000, Müller and Hulk 2001) when pragmatic conditions are not mastered (Sorace 2000, Serratrice, Sorace and Paoli 2004, Toribio 2004).

The functional convergence hypothesis

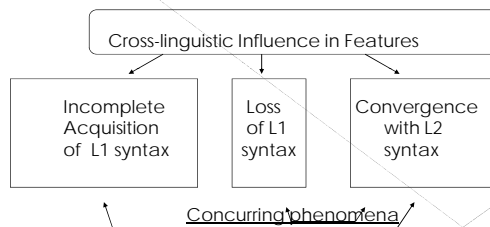
- > Convergence in syntactic representations in the two languages spoken by a bilingual individual takes place when functional features not activated in one of the languages are activated in the other language (Sanchez 2003, 2004).

Language attrition in heritage bilinguals

- Adult heritage bilinguals show evidence of non-native like morphological and syntactic representations (Tsimpl, Sorace, Heycock & Filiaci 2004, Montrul 2004, 2005, Rothman 2007)
- There are few studies of language development in bilingual children living in a contact situation and shifting linguistic dominance from their L1 to their L2

What are the long-lasting effects of cross-linguistic influence?

Possible outcomes of cross-linguistic influence



The purpose of this study

Research questions:

- Do bilingual children in contexts of subtractive bilingualism experience language loss or incomplete acquisition?
- Which areas of the syntax will be affected by long term effects of cross-linguistic influence?

We address these questions by looking at three areas:

- *Wh*-questions
- Negative Sentences
- Negative Polarity Items

Wh-questions

Spanish: Post-verbal subject

English: Pre-verbal subject + do-support

(1) ¿Qué quiere Juan?
What wants John?

(2) What do you want?

(3)*¿Qué Juan quiere?
What John wants?
(except in Caribbean Spanish)

(4) What does John want?

Subject-verb inversion in *wh*-questions in Spanish and English

Spanish

Weak nominal features in T
(Toribio 2000, Zagana 2002, Suñer 1994)

(5) $\zeta_{[CP} \text{ Qué}_i \text{ [TP quiere}_i \text{ [VP Juan } t_i \text{ t}_j \text{]]} \text{]?}$
What want Juan

(6) $\zeta_{[CP} \text{ Qué}_k \text{ [TP [Juan]}_i \text{ quiere}_i \text{ [VP } t_i \text{ t}_k \text{]]} \text{]?}$
What Juan want

Note: (6) is grammatical in Caribbean Spanish

English

Strong nominal features in T
(7) $\zeta_{[CP} \text{ What [C does [TP John [VP want]]]} \text{]?}$

Negative sentences and NPIs

Spanish

(8) No como pan
(I) not eat bread

(10) No como ningún pan
(I) not eat any bread

English

(9) I don't eat bread

(11) I don't eat no bread

(12) I don't eat any bread

Negative sentences (Zagana 2002)

Spanish: Strong *v*-features in T
(verb raising) + Neg over T:

(13) $[_{XP} \text{ Yo } [_{\text{NegP}} \text{ no } [_{\text{TP}} \text{ como}_i \text{ [VP } t_i \text{ [DP pan]]} \text{]]} \text{]}]$
I not eat bread

English: Weak *v*-features in T
(do-insertion) + T over Neg:

(14) $[_{\text{TP}} \text{ I do } [_{\text{NegP}} \text{ not } [_{\text{VP}} \text{ eat } [_{\text{DP}} \text{ bread}]]] \text{]}]$

Spanish NPIs (Zagana 2002)

Spanish: Negative Concord (Weak Neg in DP)

(15)a. $[_{XP} \text{ Yo } [_{\text{NegP}} \text{ no } [_{\text{TP}} \text{ como}_i \text{ [VP } t_i \text{ [DP } \text{ningún/*no} \text{]} \text{]} \text{]}]]$
I not eat any/no bread

(15)b. $*[_{XP} \text{ Yo } [_{\text{NegP}} \text{ } \emptyset \text{ [TP como}_i \text{ [VP } t_i \text{ [DP } \text{no} \text{]} \text{]} \text{]}]]$
I eat no bread

English NPIs

English: Negative Quantifier or
Polarity Item

(Strong Neg in D)

(16)a. $[_{\text{TP}} \text{ I do } [_{\text{NegP}} \text{ not } [_{\text{VP}} \text{ eat } [_{\text{DP}} \text{ any/no } \text{no} \text{]} \text{]} \text{]}]]$
bread]]]]

(16)b. $[_{\text{TP}} \text{ I } [_{\text{NegP}} \text{ } \emptyset \text{ [VP have } [_{\text{DP}} \text{ no} \text{]} \text{]} \text{]}]]$
bread]]]]

Hypothesis and prediction

- Crosslinguistic influence in weak features.
- Bilingual children who speak a heritage language in a subtractive bilingual environment will show instability in uninterpretable features of their heritage language that is sensitive to feature strength. Weak features in functional categories in the heritage language will be affected when the corresponding functional categories in the other language have strong features.
- Prediction: The children's production of negative sentences should remain unaffected but production of *wh*-questions and NPIs should be affected.

Study

- **Longitudinal study**

Role-play puppet show, Elicited Production Task.
Spanish Version and English Version
3 situations

- 1 Interrogative sentence
- 1 Negative sentence
- 1 NPI sentence

- 5 consecutive sessions:

Dates of interview 1: 10/28/2003, 11/11/2003
Date of interview 2: 4/1/2004
Dates of interview 3: 11/09/2004, 11/16/2004
Date of interview 4: 11/29/2005
Date of interview 5: 6/21/2006

Population in NJ 2000 Census

LANGUAGE SPOKEN AT HOME		
Population 5 years and over	7,856,268	100.0
English only	5,654,676	74.5
Language other than English	2,001,690	25.5
Speak English less than "very well"	873,886	11.1
Spanish	967,741	12.3
Speak English less than "very well"	483,069	6.1
Other Indo-European languages	669,246	8.4
Speak English less than "very well"	241,627	3.1
Asian and Pacific Island languages	275,832	3.5
Speak English less than "very well"	119,681	1.5

Participants

- 13 school-age children (ages 5:00-8:00, at first interview)
- Sex: male=3, female=10.
- Native Spanish speakers. Place of birth: New Jersey=11, Honduras =2.
- Learning English as a second language in New Jersey.

Interviews



Data elicitation –Sample situation 2 (Negation)

Spanish

Tía: *Hola, ¿Cómo estás, hijo?*
Aunt: *Hello, How are you, son?*

Mario: *Estoy más o menos. Hoy comieron pastel en casa y yo no como pastel.*

Mario: *I am OK. Today they had cake at home and I don't eat cake.*

Tía: *Ay, no lo escucho. ¿Qué dijo?*

Aunt: *I can't hear him. What did he say?*

Participant: _____

English

Grandpa: *Hi, how are you, Ana?*

Ana: *I'm ok, but today at home we ate bread and I don't like bread.*

Grandpa: *I didn't hear that. What did she say?*

Participant: _____

Results: Spanish Interrogatives (development over sessions)

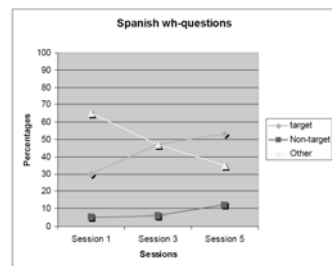


Figure 2: Response types, Spanish Interrogatives

English Interrogatives (development over sessions)

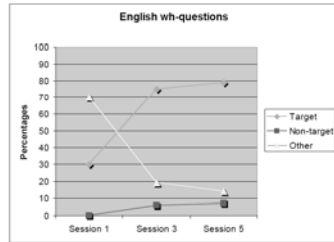


Figure 3: Response types, English Interrogatives

Statistical analysis of target-like wh-questions

Table 8: Chi-square analysis of the target-like use of wh-questions (13 subjects)

Session	Spanish	English	Total
1	30	30	60
3	47	75	122
5	53	79	132
Total	130	184	314

$\chi^2 = 2.33$, $df = 2$, $p > .30$

Examples of children's responses (Wh-questions)

Spanish

Post-verbal subject (target)

(17) ¿Qué comen tus papás?
what eat your parents

Pre-verbal subject (non-target)

(18) ¿Qué tus papás comen?
what your parents eat

Other

(19) Polenta

English

Pre-verbal subject, wh-with do (target)

(20) What do your parents eat?

Pre-verbal subject, wh-w/o do (non-target)

(21) What your parents eat?

Other

(22) Do you wanna eat ice cream?
(23) Cake chocolate?

Spanish negative sentences (development over sessions)

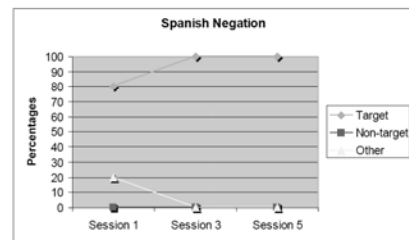


Figure 4: Response types, Spanish negative sentences

Spanish negative sentences (development over sessions)

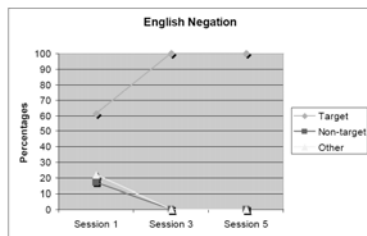


Figure 5: Response types, English negative sentences

Statistical analysis of target-like negative questions

Table 11: Chi-square analysis of the target-like use of negation (13 subjects)

Session	Spanish	English	Total
1	80	61	141
3	100	100	200
5	100	100	200
Total	280	261	541

$\chi^2 = 1.9$, $df = 2$, $p > 0.30$

Children's responses (Negative sentences)

Spanish

Target

- (24) No come pastel
Not eat-3s cake
'He does not eat cake.'
(25) *Que él no com-o pastel
That he not eat-1s cake
'That he/I not eat cake'

Non-target

- (26) Que come pastel
That (he) eat-3s cake
'That he eats cake'

Other

- (27) No sé
Not know
'I don't know'

English

Target

- (28) She said that she doesn't like bread

Non-target

- Aux+negation w/o agreement*
(29) *He don't likes bread, her don't like bread

Other

- (30) She likes bread
(31) Use of the past, no answer

SPANISH NPIS (development over sessions)

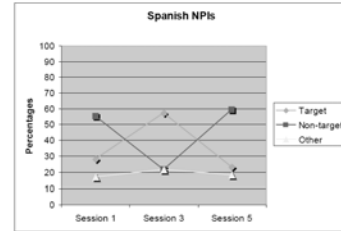


Figure 6: Response types, Spanish NPIS

English NPIS

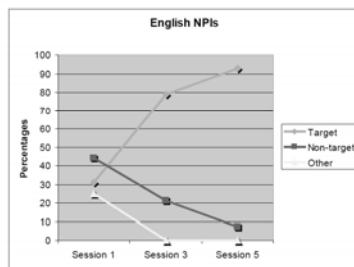


Figure 7: Response types, English NPIS

Statistical analysis of target-like NPI sentences

Table 14: Chi-square analysis of the target-like use of negative polarity items (13 subjects)

Session	Spanish	English	Total
1	28	31	59
3	57	79	136
5	23	93	116
Total	108	203	311

$\chi^2 = 18.7, df = 2, p < 0.0001$

Children's responses (NPI sentences)

Spanish

Target

- (32) No come/le gusta ningún pastel
Not eat/ cl like any pie
'He doesn't eat/like any pie'

Non-target

- (33) ?No le gusta ni un pastel
Not like not a pie
'He doesn't like any pie'

English

Target

- (34) She said she doesn't like any bread

Non-target

- (35) Don't like any breads
(36) No like any banana

Children's responses Situation 3 (NPI sentences)

Spanish

Non-target

- Lack of NPI*
(37) *Que él no lo gusta pastel
That he not cl like pie
'That he does not like pie'

Lack of negation

- (38) *Le gusta ningún/no pastel
Cl likes any/ no pie
'He likes any/no pie'

Other

- (39) Que el no co...medicina
That he no ea...medicine
'That he doesn't e(at) medicine'

English

Non-target

- Lack of any*
(40) She said she don't like no bread.

Other

- (41) I don't not bread

Data Discussion: Wh-questions

- Spanish
 - Evidence in favor of language attrition: the children did reach a high level of correct uses of interrogatives up to session 4. However, their performance in session 5 fell significantly and in sharp contrast with their performance in English.
- English
 - There was a noticeable increase in the correct production of interrogatives and the use of 'do-support' between sessions 1 and 5.
 - In English but not in Spanish, children used yes/no questions as a strategy.

Data Discussion: Negation

- Spanish:
 - Data from negative sentences do not show a significant difference between the children's performance in English and in Spanish and are not compatible with language attrition.
 - Most errors due to problems with the dative experiencer verb *gustar* (to like).
- English:
 - No absence of *do*-support.
 - Absence of agreement.

Data Discussion: NPIs

- Spanish:
 - Data show the clearest evidence of first language loss. There is a decline from session 3 to session 5 in Spanish. While production of NPIs improves in session 5 in English, the decline in Spanish deepens significantly.
 - There was no clear evidence of convergence towards English forms.
- English:
 - The production of NPIs in English improved steadily over the 5 sessions.

Conclusions

- Evidence of attrition: structures with weak features in Spanish and strong features in English such as NPI sentences were more affected than negative sentences.
- No evidence of incomplete acquisition.
- There is no evidence that contact with English is altering the position of post-verbal subjects in Spanish in the non-Caribbean speakers.
- The children show significant progress in English by session 5.

Current follow up study

- Union City study
- Picture-based frog stories
- K-2nd grade students

Acknowledgments

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