

Pronominal anaphora resolution in bilingual speakers: the wider picture

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Konstanz, 4 December 2008

Outline

- Instability of syntax-discourse interface in different bilingual populations.
- Syntax or processing? Crosslinguistic influence or default options?
- Comparing the interpretation of subject pronouns in Italian and Spanish.
- Reassessing crosslinguistic effects.
- Developmental and typological implications.

A generalization

- Research on different bilingual populations shows that some language phenomena at the **interfaces between syntax and other cognitive systems** present optionality and instability.
- In some cases, instability seems due to crosslinguistic influence.
- In other case, it seems due to more general bilingualism effects.

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Differentiating among interfaces at the developmental level

- Tsimpli & Sorace (2006) and White (2008) propose a distinction between “internal” and “external” interfaces.
- The syntax-semantics interface: phenomena that involve ‘internal’ formal features and operations within syntax and LF (e.g. Focus in Greek).
- **The syntax-discourse interface: phenomena that involve ‘external’ pragmatic conditions of contextual appropriateness.**

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Possible causes of optionality at interfaces

- **Underspecification** of properties in mental representations of grammatical knowledge.
- **Crosslinguistic influence**
 - in grammatical representations
 - in parsing strategies
- **Processing limitations**
 - inefficient (incremental) access to knowledge
 - inefficient coordination of information
- **Bilingualism *per se***
 - executive control limitations in handling two languages in real time, etc.
- **Quality/quantity of input**

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Addressing the role of crosslinguistic influence

- Important to compare different L1 groups ('same' vs 'different') acquiring the same L2.
- If crosslinguistic influence is at work, **it should affect only combinations in which L1 ≠ L2.**

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Addressing processing limitations

- This kind of limitation should be visible in **monolingual native speakers too**, especially monolingual children.
- It should be visible in bilinguals **regardless of language combination**.
- It should be visible **in other bilingual populations**.

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Pronominal subjects in near-native null-subject grammars

- Near-native L2 speakers of Italian overextend the scope of the overt subject pronoun to the scope of the null subject pronoun (Belletti et al. 2007; Sorace & Filiaci 2006; Tsimpli et al. 2004).
- This happens both in production and in comprehension.

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Pronominal subjects in near-native Italian

- Near-native L2 Italian speakers optionally produce (1b), where a monolingual Italian speaker would produce (1c).
- (1) a. Perchè Giovanna non è venuta?
Why didn't Giovanna come?
- b. Perchè **lei** non ha trovato un taxi.
- c. Perchè ___ non ha trovato un taxi.
Because she couldn't find a taxi.
- In contrast, errors involving null subject pronouns are not attested.

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(Mis)interpretation of overt pronominal subjects in anaphora

- Italian near-native speakers may interpret the overt pronominal subject of the embedded clause as coreferential with the lexical subject of the main clause:
- (2) a. La vecchietta saluta la ragazza quando *pro*_{i/?j} attraversa la strada.
- b. ?*La vecchietta saluta la ragazza quando *lei*_{?*i/j} attraversa la strada.
- “The old woman greets the girl when \emptyset /she crosses the road”.

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Recent studies of near-natives

- Belletti, Bennati & Sorace (2007): 17 near-native speakers; 10 native controls; all participants resident in Siena.
- Sorace & Filiaci (2006): 14 near-native speakers; 20 native controls.

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Interpretation of subject pronouns

La vecchietta saluta la ragazza quando lei/ø attraversa la strada.
(The old woman waves at the girl when she/ø crosses the street)

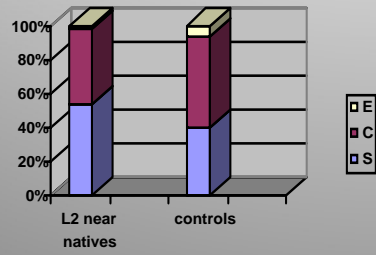


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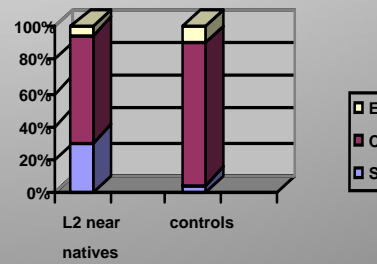
La vecchietta saluta la ragazza quando lei/___ attraversa la strada,

The old woman waves at the girl when she/___crosses the street

Null subjects



Overt subjects

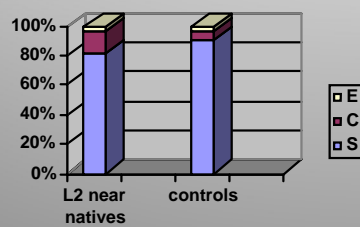


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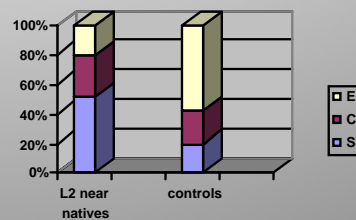
Quando \emptyset /lei attraversa la strada la vecchietta saluta la ragazza

When \emptyset /she crosses the street the old woman waves at the girl

• Null subjects



• Overt subjects



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An asymmetry

- Overt subject pronouns may replace null subject pronouns in both production and interpretation, but not vice versa.
- Near-native Italian speakers have fully acquired a null-subject grammar: they can produce and interpret both null and overt subjects correctly, and do so most of the time.

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Where does the problem lie?

- Null subjects are syntactically licensed but their distribution involves interpretive effects and is governed by discourse-pragmatic factors.
- The indeterminacy is at the level of the **discourse conditions** on the distribution of pronominal forms.

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“Narrow syntax” vs. “Interfaces”

- ‘Narrow’ syntax features drive syntactic derivations (and may be parameterized).
- Discourse interface features ‘exploit’ parametric options and have interpretive effects; they can be ‘read’ by the conceptual/intentional systems of cognition.
- Working hypothesis: narrow syntax features are acquirable in L2; interface features may not be acquired completely.

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Underspecification of [+TS]

(Tsimplici et al. 2004)

Using Cardinaletti & Starke’s (2001) typology:

- The monolingual Italian grammar:

OVERT => [+TS]

NULL => [-TS]

- The L2 Italian grammar:

OVERT => [+TS]

OVERT => [-TS]

NULL => [-TS]

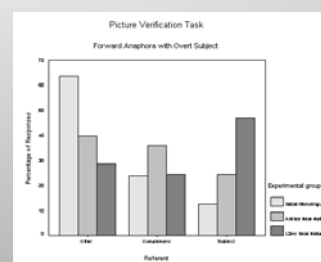
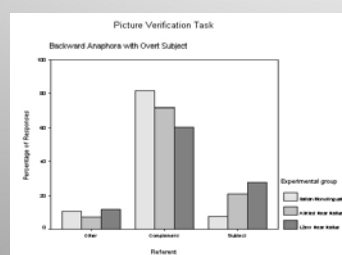
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L1 attrition of pronominal subjects in null-subject languages

- Attrition is the process that leads to changes in the L1 of individual speakers who have been exposed to a second language for a long time.
- The interface between syntax and discourse has been found to be affected in individual L1 attrition.

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Near-native L2 vs. L1 attrition



- The inappropriate extension of overt subject is attested in both bilingual groups but not to the same degree: it is greater in L2 near-native acquisition than in L1 attrition. Both groups, however, are significantly different from monolingual Italian speakers.

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Underspecification accounts of optionality in L2 acquisition/L1 attrition

- The residual optionality in L2 grammars/L1 attrition involves discourse interface conditions linked to a parametric choice that differs between the L1 and the L2.
- An interface condition (“+Topic Shift”) that is specified in L2 (or L1) for a particular syntactic structure remains/becomes underspecified due to the absence of a similar condition in L1 (or L2) in the same syntactic context.
- This underspecification gives rise to ambiguity and optionality.

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- The Italian grammars in both bilingual groups is then expected to show more “ambiguity” since conflicting options associated with L1 and L2 will be accessible at the interface.
- In contrast, narrow syntax feature values that distinguish between the parametric choices of L1 and L2 do not show optionality.
- No optional “syntax” is expected to be found.

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Directionality of crosslinguistic effects

- The language that instantiates the less restrictive option affects the other, but not vice versa.
- Endstate grammars in L2 acquisition may present neutralization of target L2 distinctions towards the less restrictive L1 option.
- L1 individual attrition involves neutralization of native distinctions towards the less restrictive L2 option.

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Bilingual L1 acquisition

- The overextension of overt subjects is also well-attested in simultaneous bilingual children who acquire a null-subject language and a non null-subject language.

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Recent studies of pronominal use in child bilingual acquisition

Study	Number of children and language pairs	Age and place of residence	Results
Paradis <i>and</i> Navarro (2003)	One child Spanish-English	1;9-2;6 UK	Overuse of overt subject pronouns in Spanish
Serratrice, Sorace, and Paoli (2004)	One child English-Italian	1;10-4;6 UK	Overuse of overt 3 rd subject pronouns in Italian
Hacohen and Schaeffer (in press)	One child Hebrew-English	2;10-3;4 Israel	Overuse of overt 1 st and 2 nd person subject pronouns in Hebrew
Pinto (2006)	Two children Dutch-Italian	1;9-4;1 2;9-3;9 The Netherlands	Overuse of overt subject pronouns in Italian
Müller, Kupisch, Schmitz, and Cantone (2006)	Five children German-Italian	1;7-3;1 1;8-3;1 2;0-3;5 1;9-3;5 1;6-3;0 Germany	Overuse of overt subject pronouns in Italian

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But is it always crosslinguistic influence?

- Overt pronouns are also overextended by bilingual speakers of two null subject languages.

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L1 Spanish speakers of L2 Italian

(Bini 1993)

- Q: Quanti anni ha Pedro?
How old is Pedro?
A: **Lui** ha ventitre.
He's 23
- Q: Che cosa fa tuo fratello?
What does your brother do?
A: ehm...**lui** studia
ehm...he studies
- Mia sorella e mio cognato escono per il lavoro e **loro** lavorano a Paseo de la Castellana.
My sister and my brother-in-law go out to work and they work at...

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L1 Greek speakers of L2 Spanish

(Margaza and Bel 2006)

- Greek intermediate and advanced learners of L2 Spanish.
- Intermediate learners overuse overt subjects in same-topic, non-contrastive contexts.
- No correlation between overuse of overt subjects and misuse of morphology.

	Matrix clauses	Subordinate clauses
INTERM	52 %	81.66 %
ADVAN	85.50 %	98.13 %
CONTR	96 %	100 %

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Older bilingual children

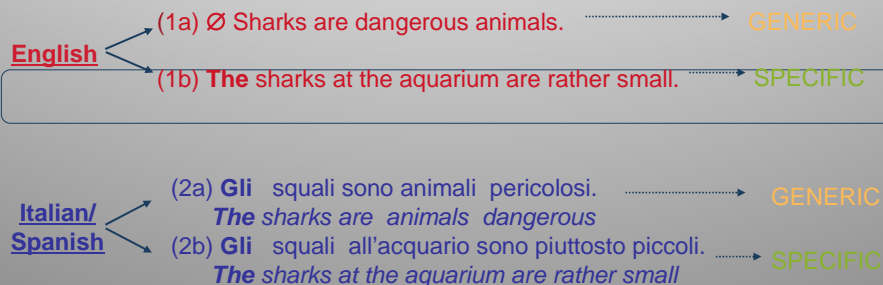
(Serratrice et al., in press; Sorace et al. in press)

- Two interfaces: **syntax-semantics** (specificity vs genericity in bare nominals) and **syntax-discourse** (null vs. overt pronouns).
- Large group (N=167) of older bilingual children: age ranges 6-8 and 9-10.
- Two language combinations:
 - Italian-Spanish
 - Italian -English
- Two acquisition settings for English-Italian bilinguals: UK and Italy.
- Monolingual child and adult controls.

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Articles/summary

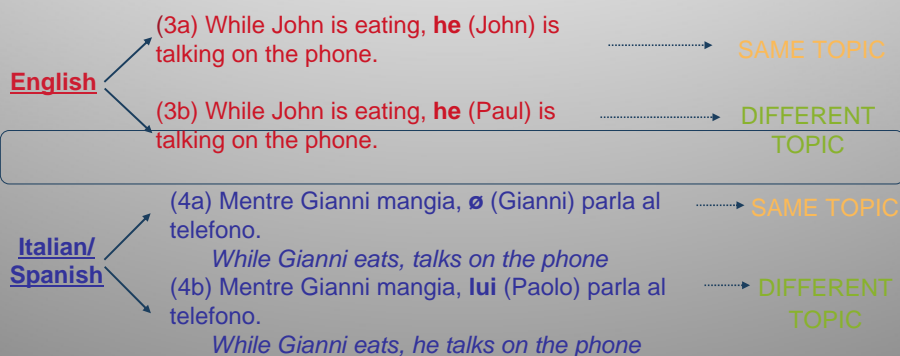
Distribution of definite articles with plural noun phrases in subject position and its semantics:



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Subject pronouns/summary

Distribution of subject pronouns and its discourse pragmatics:



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Potential crosslinguistic effects

If bilingualism leads to a crosslinguistic effect of the less complex language on the more complex language, we would predict:

- **DETERMINERS: I -> E** in I-E bilinguals
("the pigs usually don't fly")
- no effects in I-S bilinguals
- **PRONOUNS: E -> I** in I-E bilinguals
("Paolo_i va a casa perchè lui_i è stanco")
- no effects in I-S bilinguals

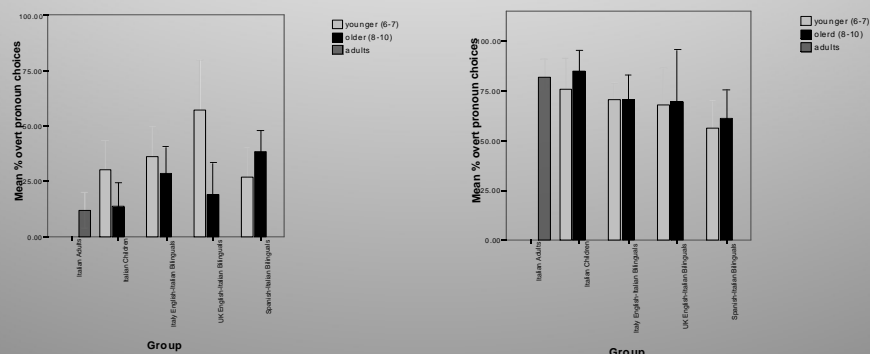
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Results

- No effect of language combination.
- Both I-E and I-S bilinguals accept overt subject pronouns in [-TS] null subject pronoun contexts (*Paperino, ha detto che lui, è caduto* ‘Donald Duck_i said that he_i fell’).
- Younger monolingual Italian children also accept a significant proportion of ‘redundant’ overt pronouns.

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Italian overt pronouns choices in [-TS] and [+TS] conditions



- Topic Shift

+ Topic Shift

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Age effects

- Older Spanish-Italian bilinguals in Spain actually accept MORE overt pronouns in null subject contexts than younger children (in contrast with English-Italian children in Italy, whose acceptances decrease with age).
- Why? (we'll return to this point).

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Where does this leave crosslinguistic influence?

- Overt pronouns may (also) be default forms to relieve processing overload and avoid ambiguity.
- Other recent studies support the view that L2 speakers - regardless of their L1 - make a **greater effort in integrating syntactic information with the appropriate discourse conditions** (Roberts, Gullberg and Indefrey 2008; Hopp 2007).
- One would expect native speakers to occasionally make the same “error” in situations of processing pressure. This is exactly what happens.

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Division of labour between null and overt pronouns in adult speakers

The Position of Antecedent Strategy (PAS):

In intersentential anaphoric contexts,

- null pronouns are consistently assigned to the constituent in Spec IP (normally, the subject).
- overt pronouns are generally, but not always, assigned to a constituent lower than IP (normally, a non-subject antecedent).

(Carminati 2002, 2005; Alonso-Ovalle et al. 2005)

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Weaker antecedent preferences of overt pronouns

- The antecedent preferences of overt subjects are more flexible than those of null subjects.
- Adult monolinguals sometimes disregard these preferences when the context is unambiguous (Ferreira's "Good Enough" principle).
- However, they tend to respect the division of labour between pronouns when the context is ambiguous.

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Flexibility of overt pronouns in unambiguous contexts

AMBIGUOUS CONTEXT (two plausible antecedents)

3. (a) Marta scriveva spesso a Piera quando \emptyset era negli USA.
M. wrote frequently to P. when \emptyset was in the US
- (b) Marta scriveva spesso a Piera quando lei era negli USA (*lei=Marta*)
M. wrote frequently to P. when she was in the US

UNAMBIGUOUS CONTEXT (one plausible antecedent)

- (c) Gianni ha detto che \emptyset andrà al matrimonio di Maria.
G. has said that \emptyset will go to the wedding of M.
- (d) Gianni ha detto che lui andrà al matrimonio di Maria. (*lui=Gianni*)
G. has said that he will go to the wedding of M.
- (3d) is more acceptable/less costly in processing and more likely to be produced than (3b) for adult speakers.

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Interim conclusion

- Subject pronouns involve an ‘external’ syntax-discourse interface that imposes processing costs in integrating the multiple types of information involved in the appropriate selection of a particular pronominal form:
- Exceeding the processing resources available favors the use of a ‘default’ option (i.e. the overt pronoun in Italian).
- This explanation seems to undermine the hypothesis that crosslinguistic influence from the most to the least economical language may be at the root of the overextension of overt pronouns.

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However....

- This logic presupposes the identity of null subject languages such as Italian and Spanish with respect BOTH (a) the licensing of null subjects and (b) the discourse conditions governing the distribution of null and overt subject pronouns.
- What is there is microvariation not only with respect to (a) but also with respect to (b)?

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Distribution of overt subjects in Spanish Alonso-Ovalle et al. 2002

- Alonso-Ovalle et al. (2002) found that overt subjects are ambiguous between a subject and an object assignment:

Juan pegó a Pedro. *Pro* / él está enfadado.
Juan hit Pedro. *Pro* / he is angry.

	Null	Overt
Subject antecedent	73%	50.2%

Filiaci 2008

Ambiguous sentences with pragmatic disambiguation in Italian and Spanish:

Dopo che Giovanni_i ha criticato Franco_j così ingiustamente,
After that Giovanni_i criticised Franco_j so unjustly,

a-b. lui_{i/j}/pro_{i/j} gli ha chiesto scusa.
he_{i/j}/pro_{i/j} apologised.

c-d. lui_{i/j}/pro_{i/j} si è sentito umiliato.
he_{i/j}/pro_{i/j} felt humiliated.

Después de que Juan_i criticó a Paco_j tan injustamente,

After that Juan_i criticised Paco_j so unjustly,

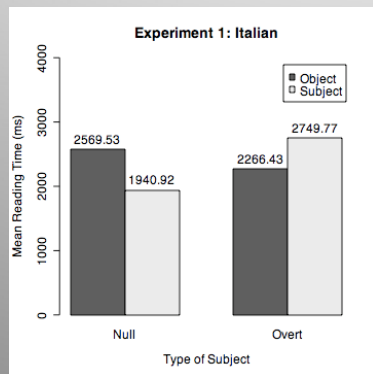
a-b. él_{i/j}/pro_{i/j} le pidió disculpas.
he_{i/j}/pro_{i/j} apologised.

c-d. él_{i/j}/pro_{i/j} se sintió muy ofendido.
he_{i/j}/pro_{i/j} felt very offended.

Reading times for sentences and reaction times for comprehension questions (e.g. “chi ha chiesto scusa?” *who apologised?*) were measured.

Results

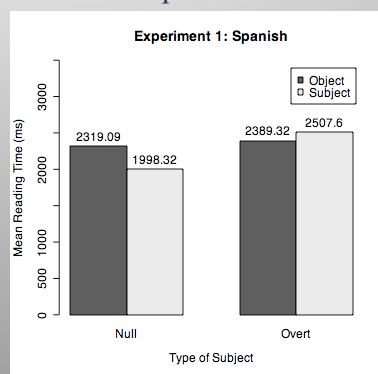
Italian



$F(1, 31) = 18.813; p < .001$

$F(1, 31) = 18.124; p < .001$

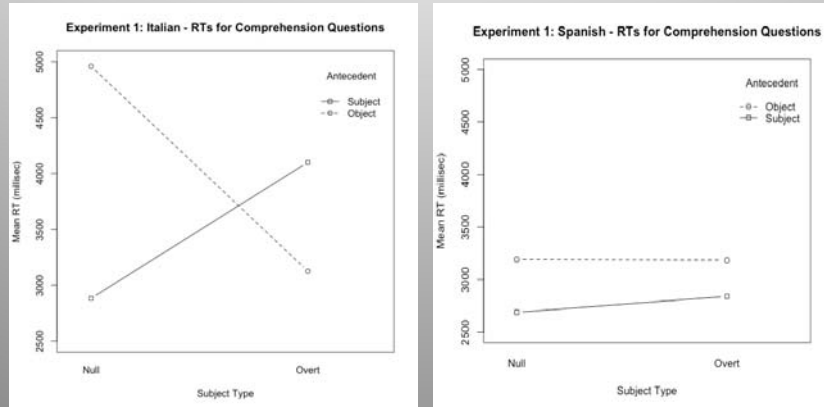
Spanish



$F(1, 31) = 5.0327; p = .032$

$F(1, 31) = .6496; p = .4264$

RTs for comprehension questions



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Italian overt pronouns \neq Spanish overt pronouns

- In Italian, the overt pronoun has a preference for a non-subject antecedent
- In Spanish, the overt pronoun has no clear preference and is ambiguous between a subject and a non-subject antecedent.
- Null pronouns have the same antecedent preferences in both languages.

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Recent views of *pro*

- Under a new recent view of *pro*, null subjects are a consequence of the deletion, at the PF interface, of the feature bundle associated with the pronoun that was selected from the lexicon and placed in the Numeration.
- All finite structures have a pronoun, but the phonological features of the pronoun are not always spelled out.
- When they are not, the result is a null subject structure.
- Knowledge of a language that allows feature deletion implies knowledge of the interpretive effects of this optional operation.

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The acquisition task for speakers of null-subject languages

- To work out that their language is the kind that licenses deletion under identity;
- To figure out:
 - (i) under what circumstances deletion must go ahead and under which it can/must be suspended
 - (ii) to learn that overriding this licensed possibility will result in certain interpretive effects.

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Microvariation among null subject languages

- Recent studies have highlighted the variation in licensing possibilities and the crosslinguistic correlations among null subject languages with respect to the surface syntactic properties associated to the null subject parameter (Holmberg 2005; Roberts 2007).
- There is another kind of constrained microvariation at the level of the syntax-discourse mapping properties of subject pronouns.

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Typological considerations

- The ‘distance’ between the null and overt pronoun may vary across languages,
- However, one basic relation obtains in all languages: the null subject pronoun prefers a more prominent topical antecedent than the overt pronoun.

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- It is the overt pronoun, not the null, that is responsible for the variation among null-subject languages.
- The overt pronoun either displays a preference for the non-subject/topic antecedent, or it is ambiguous between a subject/topic and an object/non-topic antecedent.

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Another look at Italian-Spanish bilinguals

- The attested overextension of overt pronouns in bilingual Italian-Spanish speakers may (also) involve crosslinguistic influence, from the language that allows the wider scope to the overt subject pronoun (Spanish) to the one that has the most restrictive scope (Italian).

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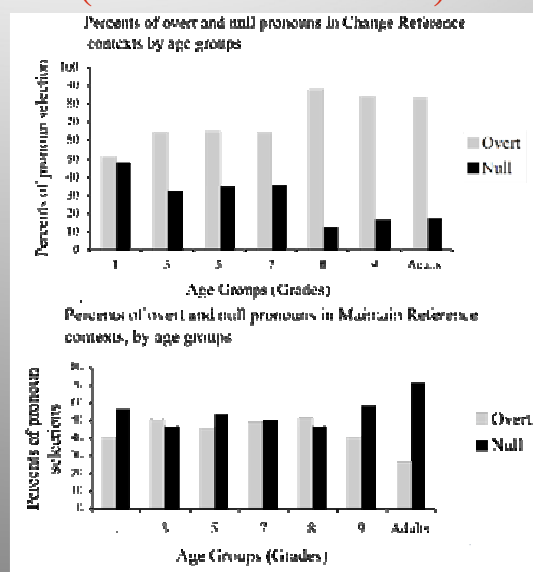
Revisiting age effects in Spanish-Italian bilingual children

- Older Spanish-Italian bilinguals in Spain actually accept MORE overt pronouns in null subject Italian contexts than younger children (in contrast with English-Italian children in Italy, whose acceptances decrease with age).
- This is because they have been exposed to more Spanish input, hence Spanish-Italian effects are stronger.

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Pronoun development in Spanish-speaking monolingual children (Shin & Cairns 2007)

Use of overt pronouns in Change Reference contexts develops much earlier than the use of null pronouns in Maintain Reference contexts.



Conclusions

- The performance of bilinguals with respect to subject pronouns may therefore involve a more complex combination of linguistic and processing factors than previously assumed.
- Crosslinguistic influence and processing limitations may not be mutually exclusive.
- These factors need to be assessed independently for bilingual speakers of different (null subject) language pairs in order to establish how they impact on one another in the comprehension and production of this type of anaphoric dependency. 55

THANK YOU!

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