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Discourse conditions on subject pronoun realization: Testing the linguistic intuitions of older bilingual children

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Abstract

This study investigates the acceptability of Italian and English pronominal subject forms in −topic shift [−TS] and +topic shift [+TS] contexts in English-Italian and Spanish-Italian bilingual children aged 6–7 and 8–10, age-matched monolingual children, and monolingual adults. The aim was to disentangle possible effects of cross-linguistic influence from the more general effects of bilingualism and the use of 'default' forms. A further aim of the study was to test the influence of input and exposure to Italian by comparing bilinguals living in Italy and bilinguals living in the UK. The results showed no statistically significant differences in English: regardless of age, language combination, and language of the community, participants overwhelmingly rejected ungrammatical sentences with a missing subject and chose sentences with an overt subject pronoun. In Italian, by contrast, the patterns of results were much more varied. Younger monolingual and bilingual children chose significantly more pragmatically inappropriate overt subject pronouns than older children and adults. A significant interaction between age and language of the community also showed that at the age of 6–7 English-Italian bilinguals in the UK chose significantly more pragmatically overt pronouns than all the other groups of children, while at the age of 8–10 it was the Spanish-Italian bilinguals that performed significantly less accurately than all other groups of children. Bilingual children, regardless of age and language combination, also accepted some infelicitous null subject pronouns. This pattern of results indicates that variables beside cross-linguistic influence must be considered as explanatory factors in this particular domain. It also suggests that it is important to differentiate among different discourse conditions affecting subject pronouns in context.

Keywords: Cross-linguistic influence; Bilingualism; Discourse; Pronouns; Italian; English

1. Introduction

In spite of the general consensus that bilingual first language acquisition is characterized by independent and parallel acquisition of syntax (Meisel, 1989; De Houwer, 1990; Genesee et al., 1995), recent research has pointed out that interface areas between morphosyntax and discourse are vulnerable to cross-linguistic influence (Müller and Hulk, 2001; Paradis and Navarro, 2003; Serratrice and Sorace, 2003; Serratrice et al., 2004; Serratrice, 2007).

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According to Hulk and Müller's original proposal (Hulk and Müller, 2000; Müller and Hulk, 2001), cross-linguistic influence is likely to occur at the syntax–discourse interface when a syntactic construction in language A is ambiguous, in the sense that it lends itself to more than one underlying syntactic representation, and when language B provides positive evidence strengthening one of the possible (incorrect) representations. The hypothesis was originally tested by Müller and Hulk on young pre-school children who had not yet mastered constructions at the interface between syntax and discourse pragmatics, i.e. children who were not yet fully productive with linguistic constructions requiring a complementizer projection. The prediction was that cross-linguistic influence would result in syntactically ungrammatical omission errors. This hypothesis was subsequently extended by Serratrice et al. (2004) to older children who were already producing linguistic constructions at C. The results, confirmed by those of Serratrice (2007) and Argyri and Sorace (2007), provided new evidence that in older bilingual children cross-linguistic influence can lead to the use of syntactically correct but pragmatically inappropriate forms.

1.1. Pronominal dependencies at the syntax–pragmatics interface

Much of the evidence for the existence of cross-linguistic influence in bilingual acquisition is related to the choice of different subject pronominal forms, which has proved to be a fertile ground for testing hypotheses about the syntax–discourse interface. Pronominal subject realization is sensitive to a number of different factors, including syntactic knowledge (i.e. the syntactic options available in the language; see e.g. Rizzi, 1982), discourse-pragmatic knowledge (i.e. the assessment of the discourse-contextual conditions affecting the distribution of different forms; see Calabrese, 1986; Grimshaw and Samek-Lodovici, 1998), and socio-cognitive knowledge (i.e. the understanding of other people's mental states with the aim of evaluating the interlocutor's knowledge state and whether or not a referent is accessible to the listener; see Sorace and Skarabela, 2005). Moreover, the simultaneous coordination of these factors depends on the availability of specific processing strategies and efficient computational resources. In general, using and comprehending linguistic expressions without inherent semantic content – such as pronouns – is cognitively more costly and computationally more demanding than processing lexical nouns (Barss, 2003; Burkhardt, 2005 for evidence from psycholinguistics and cognitive neuroscience). The model of language architecture that we adopt here includes a distinct level of syntactic computation (''narrow syntax''), and a level of linguistic discourse, or information structure, where the syntactic output is interpreted via another series of symbolic operations (see Avrutin, 2004). The syntactic level is thus the level that generates morpho-syntactically well-formed linear strings of phrasal components, while the linguistic discourse is the symbolic level of representation responsible, among other things, for the resolution of the kind of pronominal anaphoric dependencies of interest in the present study. In the specific case of a *pro*-drop language like Italian the interpretation of null and overt pronouns is resolved at the level of the linguistic discourse where a topical subject antecedent is typically favoured as the antecedent of a null pronoun, and a non-topical non-subject antecedent is usually preferred as the antecedent of an overt pronoun. This is the kind of discourse-level knowledge that mature speakers of the language possess when it comes to pronominal interpretation. However, unlike the narrow syntax, which is an autonomous and encapsulated system, the linguistic discourse is a dynamic open system that interfaces with general cognitive and processing abilities, and as such it is prone to be affected by them.

1.2. Processing subject pronouns in null subject languages

Recent research also points to the existence of specific processing principles that govern the mapping between pronouns and their antecedents. Carminati (2002, 2005) and Alonso-Ovalle et al. (2002) propose that the division of labour between null and overt pronouns in intersentential two-referent contexts is based on a ''Position of Antecedent Strategy'' that assigns pronouns to antedecents in particular syntactic positions: null pronouns are generally assigned to the constituent in Spec IP (normally, the subject), whereas overt pronouns are generally assigned to a constituent lower than IP (normally, a non-subject antecedent). The sentences in (1) taken from Carminati (2002), illustrate this asymmetry. In (1a) adult native speakers have a preference for the subject ''Marta'' as the antecedent of the null pronoun. Conversely, in (1b) the preferred antecedent of the overt pronoun is the object ''Piera''.

(1a) Marta scriveva frequentemente a Piera quando ∅ era negli Stati Uniti.
Marta wrote frequently to Piera when ∅ was in the United States.

(1b) Marta$_i$ scriveva spesso a Piera$_j$ quando lei$_{*i/j}$ era negli Stati Uniti.
Marta wrote frequently to Piera when she was in the United States.

However, the interesting generalization emerging from this research is that, while these principles are almost invariably applied in the interpretation of null subject pronouns, the antecedent preferences of overt subjects are more flexible than those of null subjects. Overall, ambiguity is a factor that adult speakers appear to take into account. Adult monolinguals may disregard the normal antecedent assignment strategies for overt pronouns when there is only one linguistic antecedent (as in 2b), or when the pronoun identifies the antecedent through its gender feature, as in (2c). In contrast, comprehenders tend to respect the division of labour between pronoun forms more clearly when the use of a gender-marked pronoun to refer to a subject antecedent in a two-referent context leads to miscommunication (as in 1b above).

(2a) Gianni ha detto che ∅ andrà al matrimonio di Maria.
Gianni has said that ∅ will go to the wedding of Maria

(2b) Gianni$_i$ ha detto che lui$_i$ andrà al matrimonio di Maria.
Gianni has said that he will go to the wedding of Maria

(2c) Quando Mario$_i$ canta, lui$_{i/j}$ è contento.
When Mario sings he is happy.

Thus, when ambiguity is not at stake native speakers may resort to a 'good enough' strategy (Engelhardt et al., 2006; Ferreira et al., 2002; Ferreira and Paxton, 2007) that involves shallow, least-effort encoding or interpretation. The greater flexibility of native speakers' antecedent preferences for overt subject pronouns is consistent with current developmental research on L2 acquisition and L1 attrition (Belletti et al., 2007; Montrul, 2004; Rothman, 2008; Sorace, 2003; Sorace and Filiaci, 2006; Tsimpli and Sorace, 2006) which reports the instability of overt subject pronouns in the production and comprehension of both native and non-native speakers of null subject languages in situations of prolonged language contact. The evidence from adult bilinguals suggests that the differences between native and non-native speakers, and between monolingual and bilingual native speakers, may be more quantitative than qualitative.

To sum up, competent use of subject pronouns in null subject languages involves:

a. the correct syntactic licensor at the level of knowledge representations;

b. the appropriate discourse conditions on the distribution of subject pronouns;

c. efficient interface processing principles to assess the relevant discourse conditions and establish the correct pronoun-antecedent dependencies in real-time language use.

These components of the pronominal system may be regarded as the 'target' for both monolingual and bilingual children exposed to a null subject language. However, some important differences between monolingual and bilingual children have emerged with respect to the use of null vs. overt subject pronouns.

1.3. Argument omission in monolingual and bilingual language development

It is a well-established fact that young monolingual children generally omit more subject arguments than adults in both *pro*-drop and non-*pro*-drop languages (see Guasti, 2002 for a review). Argument omission is however not indiscriminate: there is robust evidence to show that the distribution of overt and null arguments in child language obeys typological, structural and discourse-pragmatic constraints. Children who acquire a non-*pro*-drop language like English omit fewer subjects than children acquiring languages like Italian (Valian, 1991), Spanish, Catalan (Grinstead, 2000) or Brazilian Portuguese (Valian and Eisenberg, 1996) where null subjects are indeed grammatical. Unlike originally proposed by Hyams (1986), there is also good evidence that childhood subject omission is structurally different in *pro*-drop and non-*pro*-drop languages. Differently from children learning *pro*-drop languages, children learning non-*pro*-drop languages do not omit subjects in finite wh-questions or subordinate clauses (Valian, 1991).

Table 1
A survey of recent studies of pronominal use in bilingual acquisition.

Study	Number of children and language pairs	Age and place of residence	Results
Paradis and Navarro (2003)	One child Spanish-English	1;9 to 2;6 UK	Overuse of overt subject pronouns in Spanish
Serratrice et al. (2004)	One child English-Italian	1;10 to 4;6 UK	Overuse of overt 3rd subject pronouns in Italian
Hacohen and Schaeffer (2007)	One child Hebrew-English	2;10 to 3;4 Israel	Overuse of overt 1st and 2nd person subject pronouns in Hebrew
Pinto (2006)	Two children Dutch-Italian	1;9 to 4;1 2;9-3;9 The Netherlands	Overuse of overt subject pronouns in Italian
Müller et al. (2006)	Five children German-Italian	1;7 to 3;1 1;8 to 3;1 2;0 to 3;5 1;9 to 3;5 1;6 to 3;0 Germany	Overuse of overt subject pronouns in Italian

More recently, a number of researchers working in languages as diverse as English (Greenfield and Smith, 1976), Korean (Clancy, 1993, 1997), Inuktitut (Allen, 2000; Skarabela and Allen, 2002), Japanese (Guerriero, 2005), and Italian (Serratrice, 2005) have also provided extensive evidence for children's compliance with a number of discourse-pragmatic constraints in argument realization.

In contrast, it has been repeatedly observed in production data that bilingual children learning a null-subject language such as Spanish, Greek or Italian, together with a non-null-subject language like English, use overt subject pronouns in their null-subject language significantly more often than their monolingual counterparts (Paradis and Navarro, 2003; Serratrice et al., 2004; Müller et al., 2006. See also Hacohen and Schaeffer, 2007 on an Hebrew-English bilingual and Pinto, 2006 on a Italian-Dutch bilingual). Sparse evidence from comprehension and from grammaticality judgement experiments also shows that bilingual children are significantly more likely to accept subject pronouns in contexts in which monolinguals prefer a null subject (Argyri and Sorace, 2007; Serratrice, 2007). Table 1 summarizes these studies.

According to one interpretation, these results may be regarded as evidence for qualitative differences between the syntactic representations of bilinguals and monolinguals. Because of the additional knowledge of English, where subjects are typically always overtly expressed, bilingual individuals' representations of the discourse pragmatic constraints that regulate the distribution of null and overt pronouns are weakened in the null-subject language (Tsimpli et al., 2004). English, the language with the most economical syntax–pragmatics interface system (null subjects are typically not allowed) is thought to influence the language with a more complex interface system (Italian, Spanish or Greek) where null subjects are used alongside overt pronominal subjects, and where their distribution is regulated by subtle discourse pragmatic constraints. In other words, at the level of the linguistic discourse we would observe a qualitative shift in the discourse-pragmatic representations of bilinguals. The preference accorded to the discourse operation that links overt pronouns to non-topic non-subject antecedents in a language like Italian would gradually be superseded by a discourse operation where topic subject antecedents are equally appropriate for an overt pronoun.

The cross-linguistic influence explanation is further corroborated by the fact that, in the majority of the studies listed in Table 1, the data were collected from children who lived in the country where the non-null-subject language is spoken. It is reasonable to assume that children received more input in this language than in the null-subject language, although this situation does not automatically result in dominance in the non-null-subject language: in at least one case (Serratrice et al., 2004), the child (born and raised in the UK) was actually dominant in the home language (Italian) throughout his pre-school years. Aside from the more limited exposure to Italian input, the bilingual children in the UK are also likely to receive input that is qualitatively different from the input received by their monolingual peers in Italy. The bilingual children's Italian-speaking caregivers are bilingual speakers themselves, and there is evidence that language attrition affects the comprehension and production of null and overt pronouns (Tsimpli et al., 2004). In situations of individual and societal bilingualism, speakers of *pro*-drop languages have been observed to use a

non-trivial proportion of pragmatically infelicitous overt subject pronoun (Tsimpli et al., 2004; Lapidus and Otheguy, 2005; Rothman, 2008; Paradis and Navarro, 2003).

There is, however, the possibility that differences in performance may in actual fact reflect differences in language processing between bilingual and monolingual children along the lines of Clahsen and Felser's (2006) proposal for adult second language learners. Sorace (2006) and Sorace and Filiaci (2006) have made a similar suggestion for adult bilinguals and Serratrice (2007) for simultaneous bilingual children. The hypothesis is that bilinguals are less efficient than monolinguals in the integration of multiple sources of information (see Kilborn, 1992) and that they limit themselves to a 'shallow' computation of reference resolution processes. In this alternative view, the underlying nature of the bilinguals' stronger preference for a topic subject antecedent for an overt pronoun would therefore not be a qualitative change of discourse-pragmatic representations as such, but the less efficient implementation of the discourse operation linking pronouns to antecedents.

Some evidence supporting the plausibility of this processing hypothesis with respect to pronominal reference and choice comes from the literature on adult late bilinguals. For example, low-intermediate Spanish learners of Italian (Bini, 1993; see Sorace, 2005 for discussion) have been found to overuse 'redundant' overt subject pronouns in Italian. These findings suggests that, regardless of whether the bilingual's first language is a null-subject language (Spanish) or not (English), the process of reference resolution in a null-subject language like Italian may be significantly affected by the experience of having two languages, which may lead bilingual speakers to use overt subject pronouns as a compensatory 'default' strategy to offset processing load.[1] It is furthermore possible that these general processing effects of bilingualism may be relatively insensitive to input factors, such as the quantity and quality of input received in each of the bilingual child's languages.

1.4. Open questions

It is difficult to go beyond preliminary conclusions on the basis of the current literature. The first outstanding problem is the mixed ages of the children tested. In order to isolate representational and processing effects on discourse-pragmatics conditions it is necessary to ensure that children's syntactic knowledge is well in place, and it is therefore crucial to test older children who have continued to receive balanced input in the two languages. The second problem is the lack of comparative data from children exposed to language pairs in which both languages are typologically similar: only a systematic comparison between children acquiring different language pairs can allow proper assessment of the role of cross-linguistic influence. The third problem is the lack of data on the role of learning environment, which would allow the exploration of the role of language dominance. The fourth problem is the almost complete reliance on production data in the studies conducted so far: this restriction may have magnified the overproduction of redundant overt subject pronouns in maintain-reference contexts ([−topic shift]), which are perceptually more salient than null subject pronouns in a shift-reference context ([+topic shift]). Since some limited developmental problems with the latter have been attested in other bilingual populations (e.g. second language learners; see Montrul and Rodríguez-Louro, 2006), it is crucial to test both production and comprehension of both pronominal forms in bilingual children. The final problem is the reliance of existing studies on single individual children: although the consistency among individual case studies is certainly revealing, it is difficult to make any significant generalizations. The present study addresses some of these caveats.

[1] By 'processing load' we mean all those operations that are involved in the choice of a pronominal expression, including the integration of the information deriving from the syntactic frame in which the pronoun is inserted, and the information regarding the discourse status of the referent. The expression of the discourse pragmatic information is language-specific and there is cross-linguistic variation: in Italian null pronouns are the preferred option in cases of topic maintenance and overt pronouns are generally used to indicate a shift of topic. In English overt pronouns can be used in both cases. The bilingual speaker will therefore need to choose the language-specific appropriate form that reflects the discourse status of the referent in question. In the case of bilinguals the choice of the appropriate language-specific pronoun may be cross-linguistically primed by the routine processing of pronominal expressions in their other languages. The frequent and regular encounter with overt subject pronouns in the comprehension and production of English is thus likely to increase the occurrence of a syntactic frame including an overt pronoun in Italian. Effects of cross-linguistic priming are now well attested in the literature and may go some way to explain the overacceptance and overproduction of overt subject pronouns in bilingual speakers of null-subject languages (Meijer and Fox Tree, 2003; Loebell and Bock, 2003; Hartsuiker et al., 2004; Schoonbaert et al., 2007). In addition, any processing operation implies a certain cost that may be increased in the case of bilinguals because of the additional mechanisms of inhibition and control of the language A that are happening alongside the routine processing of language B. The data in this study do not directly address the issue of what, if any, processing costs underlie bilinguals' linguistic behaviour, nevertheless we believe that future research should address in more depth the sentence-level mechanisms of language production and comprehension for a better understanding of the phenomenon.

2. Objectives of the study

The aims of this study were the following:

(1) To determine the acceptability status of different Italian subject pronoun forms in school-age bilinguals;[2]
(2) To tease out the actual effects of cross-linguistic influence from the effects of the simultaneous acquisition of two languages;
(3) To provide evidence for or against the unidirectionality of cross-linguistic effects;
(4) To complement existing production data on pronominal use in bilingual and monolingual acquisition with comprehension data;
(5) To investigate the role of the language of the community on cross-linguistic influence.

The participants in the study were 90 bilingual children who were regularly exposed to two languages from birth, used both on a daily basis and had a similar degree of competence in both according to parental reports. The advantages of this substantial dataset are twofold: first, it makes it possible to draw conclusions about patterns of behaviour that apply to a group and not just to individuals, as has often been the case in research in bilingual first language acquisition until recently (but see Argyri and Sorace, 2007; Nicoladis, 2006; Serratrice, 2007, for group studies). Second, it is possible to divide the children into a younger (6;2 to 7;11) and an older group (8;0 to 10;10) and track performance differences over time, thus addressing the first objective. Control data were collected from monolingual adults, as well as children matched in age to the bilinguals.

To address the second objective, the performance of the English-Italian bilingual children was compared to that of two age-matched groups of Spanish-Italian bilingual children. The rationale was to investigate to what extent any differences observed between the English-Italian bilingual children and their Italian monolingual counterparts was a result of the influence of English over Italian, or more generally a consequence of their simultaneous acquisition of two languages. Spanish and Italian are typologically related languages that pattern alike with respect to the linguistic phenomena considered in this study.[3] By contrast, English and Italian differ in terms of the repertoire of subject pronouns available. The prediction was that if bilinguals' errors are the result of cross-linguistic differences the English-Italian bilinguals should be significantly different from both the Italian monolinguals and the Spanish-Italian bilinguals. If, on the other hand, it is the effort of learning any two languages that is at the root of the errors, both sets of bilinguals should behave alike and should be significantly different from the Italian monolinguals.

The third objective was addressed by administering the same test materials in English and Italian to English-Italian bilinguals, in order to establish whether possible transfer effects take place at interfaces from the language with the most economical settings to the one with the most complex ones, as suggested in the literature (see Sorace, 2005 for discussion).

In order to meet the fourth objective, the task employed in this study involved the comprehension of utterances in context and the expression of acceptability judgements on the part of bilingual and monolingual child participants.

Finally, the influence of the language of the community was investigated by testing two groups of English-Italian bilinguals, one resident in the UK and one in Italy. If language dominance (in terms of overall quantity of input available) is a crucial factor, the magnitude of cross-linguistic influence from English to Italian should be greater for those children born and raised in the UK, where exposure to English is inevitably greater than for the bilinguals living in Italy.

3. Method

3.1. Participants

A total of 167 children between the ages of 6;2 and 10;10, 30 monolingual English-speaking adults and 30 monolingual Italian-speaking adults participated in the study. There were two groups of English-Italian bilingual

[2] This study is part of a wider project that targeted two further interface areas between syntax and semantics/pragmatics: the acceptability of plural noun phrases in specific and in generic contexts (Serratrice et al., in press), and the acceptability of preverbal and postverbal object pronouns.

[3] However, there may be microvariation between aspects of the pronominal systems of Italian and Spanish that will not be discussed here in detail (see e.g. Ordóñez, 1998).

Table 2
Mean age, S.D. and age range of child participants.

Group	Number	Mean	S.D.	Range
English-Italian (I)				
Younger	16	6;8	0;5	6;2 to 7;9
Older	23	8;8	0;6	8;0 to 10;2
English-Italian (UK)				
Younger	10	6;9	0;5	6;3 to 7;6
Older	10	8;8	0;6	8;4 to 10;6
Spanish-Italian				
Younger	14	6;7	0;4	6;4 to 7;10
Older	17	9;0	0;5	8;3 to 10;10
Italian-speaking monolinguals				
Younger	15	6;8	0;4	6;2 to 7;11
Older	23	8;9	0;7	8;0 to 10;8
English-speaking monolinguals				
Younger	15	6;7	0;5	6;2 to 7;11
Older	24	8;9	0;7	8;0 to 10;6

children, one group living in the UK ($N = 20$) and one group living in Italy ($N = 39$), a group of Spanish-Italian bilingual children living in Spain ($N = 31$), a group of monolingual English-speaking children in the UK ($N = 39$) and a group of monolingual Italian-speaking children in Italy ($N = 38$). The children were divided into a younger (6;2 to 7;11) and an older group (8;0 to 10;10). No statistical age differences existed between the groups either for the younger ($F < 1$) or the older group ($F < 1$). Details for the child participants are provided in Table 2.

In Italy the bilinguals (English-Italian) were recruited mainly among the pupils of international primary schools in which English is the medium of instruction. In the UK we recruited through personal contacts and with the help of a web-based forum for Italian nationals (http://www.corriere.it/solferino/severgnini). The Spanish-Italian bilinguals were recruited through personal contacts in Spain and Italy, and through the Italian School of Barcelona.[4] Rigorous selection criteria were applied: bilingual children were selected for inclusion only if they had regularly been exposed to both languages from birth and used them on a daily basis with similar competence according to teachers' assessment and parental reports. To screen for suitable participants, bilingual families were invited to complete a questionnaire providing information about the patterns of language exposure and use throughout the children's lives. The monolingual control groups were recruited in primary schools in Northern Italy and in Scotland. The monolingual adults were recruited among university students in Italy and in England; these participants had no functional competence in a second language, although they had received some formal language instruction at school.

3.2. Procedure

The study consisted of an acceptability judgement task that followed a story based on short animations. Two versions of the task were created, one in Italian and one in English. The materials were embedded in a PowerPoint presentation delivered by a 15″4 screen laptop. The participants' responses were digitally recorded via the laptop. English-Italian bilinguals were administered the experiment twice, once in Italian and once in English, with a minimum of a 1-week interval between the sessions. Half of the children received the English task first and half the Italian task first. Each language was administered by a different researcher who spoke to the participant only in the language in which the experiment was being carried out. The instructions were recorded and given in the language in which the experiment was being carried out. Each task was preceded by a short training session. Spanish-Italian bilinguals were administered only the task in Italian.

[4] As it can be expected, the children recruited in Barcelona had been exposed to different extents to Catalan as well as Italian and Castilian. However, this situation of trilingualism does not affect this study since the pronominal systems of Castilian and Catalan are governed by the same syntactic rules and obey similar pragmatic conditions (Mayol, 2006; Vallduví, 2002).

The participants were told that the characters were learning English/Italian and were instructed to decide which one of the last two spoke 'better' Italian/English. Care was taken to ensure that the intonation of sentences, in both languages, was the same when the subject pronoun was present and when it was absent. The filler items had the same structure as the experimental ones, but one of the sentences uttered by the last two characters was obviously ungrammatical (i.e. with wrong subject–verb agreement, or wrong pronoun gender). The aim of these items was to check that the participants had understood the task and were focusing on the structure of the sentences that were presented to them.

3.3. Materials: Italian

The experimental materials consisted of 16 experimental items and 10 fillers. Each item consisted of a short video clip showing four characters (Mickey Mouse, Minnie Mouse, Donald Duck and Daisy). In the experimental items (see Appendix for a list of the experimental stimuli), one character performed an action which was commented upon either by the character himself ([−topic shift] (−TS) condition) or by a second character that witnessed the action but was not involved in it ([+topic shift] (+TS) condition. The focus then shifted to a pair of characters in the background who would repeat one after the other the sentence just uttered, starting with the phrase: 'X said that ...' followed by a subordinate clause. One character would begin the subordinate clause with a null subject and the other with an overt subject (he/she, lui/lei). The order in which the grammatical and the ungrammatical sentences were presented by the background character was counterbalanced throughout.

(3a) −topic shift condition (−TS)
(Minnie and Daisy in the foreground; Mickey and Donald in the background)
Minnie: sono caduta!
'I've fallen!'
Donald: Minnie ha detto che è caduta.
'Minnie has said that (she) has fallen.'
Mickey: Minnie ha detto che lei è caduta.
'Minnie has said that she has fallen.'

(3b) +topic shift condition (+TS)
(Minnie and Daisy in the foreground; Mickey and Donald in the background)
Minnie: Daisy è caduta!
'Daisy has fallen!'
Donald: Minnie ha detto che è caduta.
'Minnie has said that (she) has fallen.'
Mickey: Minnie ha detto che lei è caduta.
'Minnie has said that she has fallen.'

The two foreground characters were always of the same gender (e.g. Minnie and Daisy), so that, in principle, the subject pronoun could refer ambiguously to either of them. In the −TS condition, as in (3a), the sentence uttered by Donald is the most pragmatically appropriate option because the antecedent of the null pronoun in the subordinate clause is the subject 'Minnie' in the main clause. In the +TS condition, illustrated in (3b), the most felicitous option is the sentence uttered by Mickey because the preferred antecedent of an overt pronoun is typically not a subject.[5,6]

[5] Although the sentences that the participants had to choose from included only one intra-sentential linguistic antecedent in the subject of the main clause, there was another potential extra-linguistic non-subject antecedent that was always visually available. Our hypothesis was therefore that, in +TS contexts in which the initial character commented on someone else's action, the extra-linguistic referent would have been a strong candidate for the antecedent of the overt pronoun even in the absence of linguistic mention, as it was still part of the context, albeit not of the linguistic context. Here we adopt Avrutin's (2004:73) definition of context as a "non-linguistic system that can be modified by different means, including, but not limited to, linguistic ones". For recent experimental evidence that both the linguistic and the extralinguistic context affect the choice of referring expressions, see Fukumura et al. (2008).

[6] As one of the reviewers pointed out, the most felicitous sentence in (3b) would be a sentence in which the full DP 'Daisy' is repeated as in "Minnie ha detto che Daisy è caduta" (Minnie has said that Daisy has fallen). However, the main purpose of the forced-choice acceptability judgement in this study was to test participants' preferences for null vs. overt pronouns in −TS and +TS conditions. We acknowledge that this task did not therefore capture all the options allowed by the participants' grammar, but only a subset of them.

3.4. Materials: English

In the English version of the task, the materials were presented in the same −TS and +TS contexts used in Italian. The sentences in (4a) and (4b) illustrate the type of sentences included. Because English is a non-null subject language the only grammatical sentences were those including an overt pronoun.

(4a) −topic shift condition (−TS)
(Mickey and Donald in the foreground; Minnie and Daisy in the background)
Mickey: Donald sang!
Daisy: 'Mickey said that sang.'
Minnie: 'Mickey said that he sang.'

(4b) +topic shift condition (+TS)
(Minnie and Daisy in the foreground; Mickey and Donald in the background)
Daisy: Minnie sneezed!
Donald: Daisy said that she sneezed.
Mickey: Donald said that sneezed.

3.5. Differences between the Italian and the English task

It is worth noting that because of the differences between English and Italian the nature of the task was not the same in the two languages: in English, children had to reject ungrammatical sentences with null subject pronouns, whereas in Italian they had to assess the context to reject pragmatically inappropriate pronominal forms. To succeed in the English task, participants had to provide grammaticality judgements purely on the basis of their syntactic knowledge of English as a non-*pro*-drop language where null subjects are never allowed in subordinate clauses, regardless of the discourse-pragmatic context. In contrast, in Italian the task required the integration of the syntactic knowledge of Italian as a *pro*-drop language, the knowledge of the discourse-pragmatic constraints that regulate the distribution of null and overt subject pronouns as a function of ±topic shift, and the efficient processing of these discourse conditions to establish the correct pronoun-antecedent dependency in real time. Previous research on the metalinguistic skills of pre-school and school-age bilingual and monolingual children (Galambos and Goldin-Meadow, 1990) has shown that children find it especially difficult to provide grammaticality judgements for sentences where they have to integrate more than one source of information, while they perform significantly better with sentences where they can simply rely on the presence/absence of a morpheme. Similarly, Gathercole and Montes (1997) and Gathercole (2002a) report that Spanish-English bilingual children provide significantly more accurate judgements on the ungrammaticality of sentences without a complementizer in that-trace constructions in Spanish (e.g.*¿ Quién pensas tiene ojos verdes?) than on the ungrammaticality of sentences with a complementizer in English (e.g. *Who do you think that has green eyes?). In Spanish complementizers are always obligatory, not only in that-trace structures, but also in complement clauses and relative clauses. In contrast, in English the complementizer is optional, unless it is the subject which is relativized. The evidence available in the Spanish input for the obligatoriness of complementizers is considerably more reliable than in English where their use is optional and it is banned in complement clauses where movement has occurred. In line with these findings from metalinguistic awareness tasks, in the present study we expect children to perform significantly more accurately in English (a language where overt subjects are virtually always obligatory) than in Italian (a language where overt subjects exist alongside null subjects). We also expect that in English bilingual children should be as accurate as their monolingual counterparts and reject ungrammatical sentences with a null subject. We would expect bilinguals to accept ungrammatical null subjects in subordinate clauses only if they treated English as a null-subject language, a re-setting of the *pro*-drop parameter that we exclude in the case of simultaneous bilingual children. Although we consider this an unlikely possibility we decided to conduct the test in English to prove that cross-linguistic influence, if it exists, it is truly unidirectional.

4. Results

For the purpose of the analyses the five groups of children were divided into a younger group (6–7-year-olds) and an older group (8–10-year-olds) as shown in Table 1. The data were analysed in a series of three-way ANOVAs with

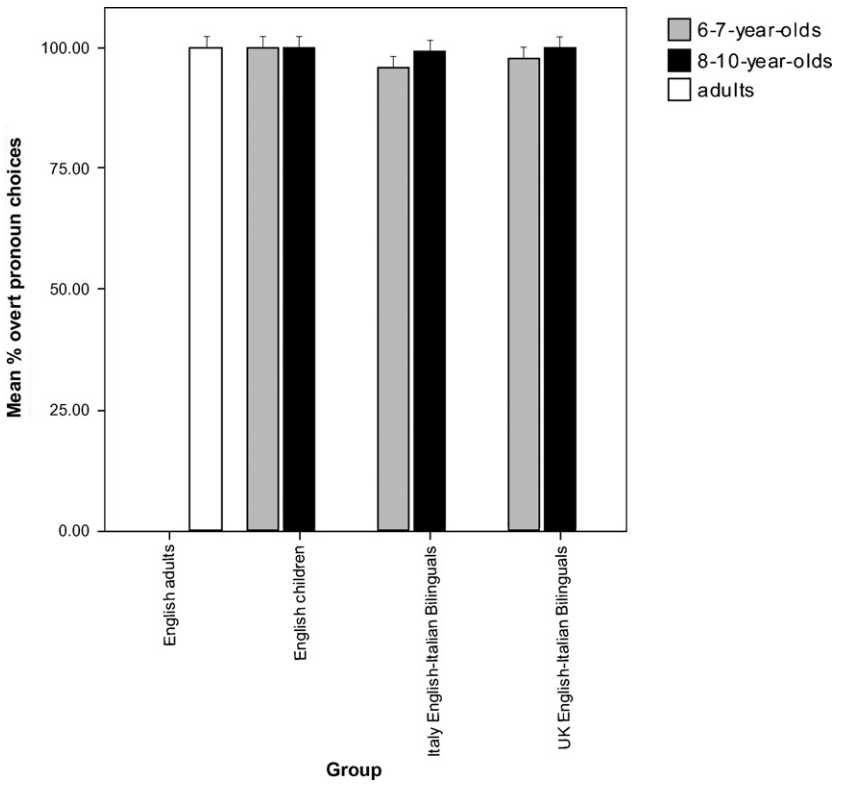

Fig. 1. Mean percentage of English overt pronoun choices in the −TS condition as a function of age, language of the community and language background.

participant and item mean percentage of overt pronoun choices as the dependent variable, and age (younger children, older children, adults), language of the community (Italian, English, Spanish), and language background (English-Italian, Spanish-Italian, monolingual Italian/monolingual English) as independent variables. The analyses for the English and the Italian data are reported separately.

4.1. Pronominal preferences in English

Fig. 1 reports the mean percentage of overt pronoun choices in the −TS condition.[7]

The adults' and the monolingual children's performance was at ceiling. The older bilingual children also scored 100% correct on the task, while the younger bilingual children in both the UK and in Italy performed slightly less accurately. A three-way ANOVA with age (younger children, older children, adults), language of the community (English, Italian) and language background (English-Italian, English) as independent variables however showed no significant main effects or interactions (all $ps > .05$) confirming that the bilingual children were as accurate as the monolingual children and the adults in choosing sentences with an overt pronoun in the [−TS] context in English.

Fig. 2 reports the mean percentage of overt pronoun choices in the +TS condition.

The pattern of performance in the +TS condition is very similar to the results for the −TS condition. Here too the monolingual adults and children performed at ceiling and chose overt pronouns 100% of the time. The older bilinguals did the same, while the younger bilinguals were marginally less accurate. A three-way ANOVA with age, language of the community and language background revealed no significant main effects (all $ps > .05$), but we did find a significant interaction between age and language background ($F1\ (1,\ 127) = 7.88, < .01,\ \eta^2 = .06$; $F2\ (1, 44) = 10.41, < .01, \eta^2 = .003$) showing that the younger bilingual children were significantly less accurate than

[7] Null pronoun choices are not reported for either the English or the Italian results because they are the exact complement of overt pronoun choices in the two-way forced-choice task employed in this study.

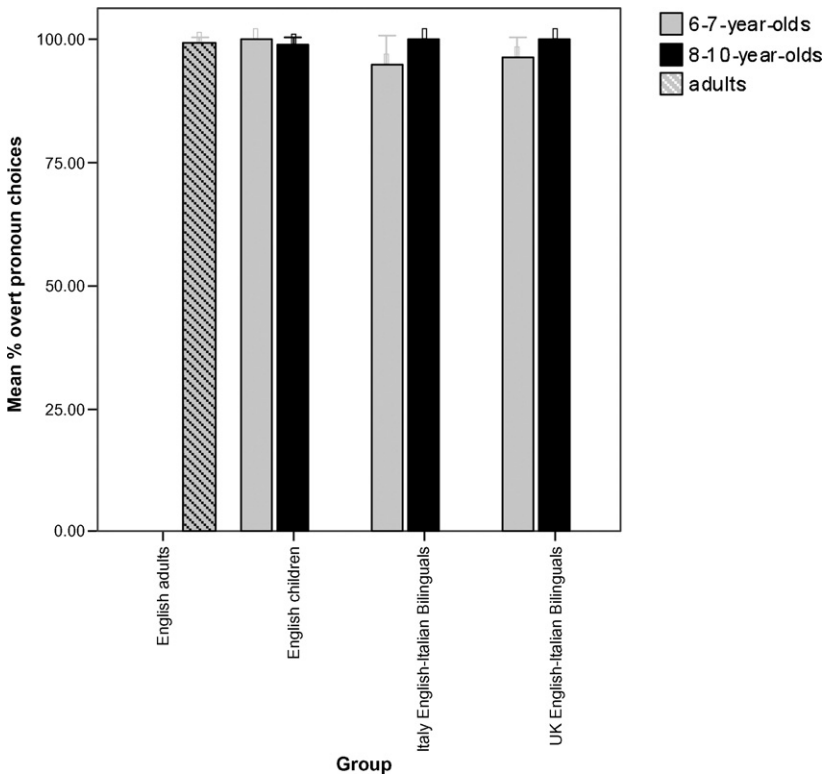

Fig. 2. Mean percentage of English overt pronoun choices in the +TS condition as a function of age, language of the community and language background.

the monolinguals in choosing the option containing an overt subject pronoun ($p < .01$). Six bilingual children (three in the UK and three in Italy) incorrectly chose the sentence with a null subject in one out of eight items. Although significant, these results must be seen in the context of extremely accurate performance overall in the English task.

4.2. Pronominal preferences in Italian

While grammatical sentences in English were chosen virtually 100% of the time by all groups in both conditions, the pattern in the Italian data is very different. Firstly, even the adults did not choose the more pragmatically appropriate option 100% of the time. These results are in line with findings from other studies in which monolingual Italian adults (Carminati, 2002; Tsimpli et al., 2004; Sorace and Filiaci, 2006) have been shown to accept a limited proportion of overt pronouns in the −TS condition. These findings also show that, similarly to contexts with two intra-sentential linguistic antecedents, in contexts with one intra-sentential linguistic antecedent, and one extra-sentential linguistic antecedent, Italian speakers are equally likely to disregard the intra-sentential subject antecedent for an overt pronoun.

Secondly, significant differences existed across groups and across conditions. Fig. 3 shows the mean percentage of overt pronoun choices in the −TS condition.

A three-way ANOVA showed a significant main effect for age ($F1$ (1, 148) = 6.12, $p < .01$, $\eta^2 = .07$, $F2$ (2, 63) = 13.94, $p < .001$, $\eta^2 = .30$), a main effect for language of the community which was highly significant by items but not by participants ($F1$ (1, 148) = 1.03, n.s., $F2$ (1, 63) = 7.04, $p < .01$, $\eta^2 = .10$), and a significant interaction between age and language of the community ($F1$ (1, 148) = 7.02, $p < .01$, $\eta^2 = .04$, $F2$ (2, 63) = 16.07, $p < .001$, $\eta^2 = .20$). Bonferroni post hoc test revealed that younger children chose significantly more overt pronouns than older children ($p < .05$) and adults ($p < .01$), and that in turn older children selected the overt pronoun option significantly more often than the adults ($p < .01$). To rule out the possibility that the significant interaction between age and language of the community was due to the inclusion of the monolingual adults alone, we repeated the

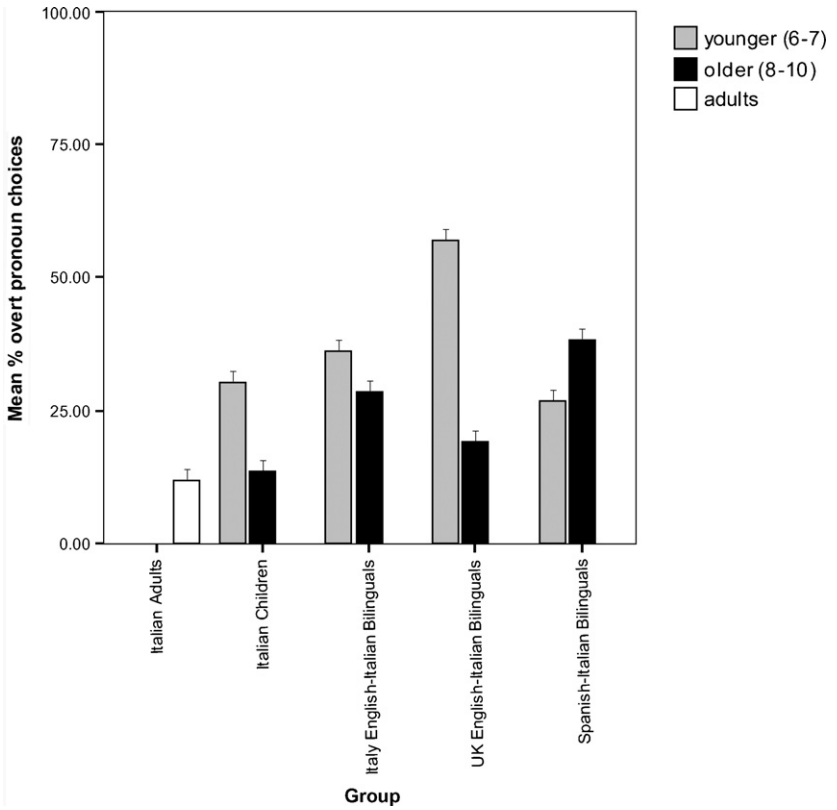

Fig. 3. Mean percentage of Italian overt pronoun choices in the −TS condition as a function of age, language of the community and language background.

three-way ANOVA without the adult participants. The results of this additional ANOVA confirmed the same pattern: a significant main effect for age ($F1\,(1, 121) = 5.20, p < .05, \eta^2 = .04, F2\,(1,63) = 24.14, p < .001, \eta^2 = .30$), a main effect for language background which was highly significant by items but not by participants ($F1\ (1,\ 121) = .87$, n.s., $F2\ (1,\ 63) = 6.4,\ p < .001,\ \eta^2 = .10$), and a significant interaction between age and language of the community ($F1\,(1, 130) = 5.90, p < .01, \eta^2 = .04, F2\,(2, 29) = 14.72, p < .001, \eta^2 = .20$). The age × language of the community interaction was further explored in two one-way ANOVAs, one for the younger age group and one for the older age group. In the first ANOVA the significant effect of language of the community ($F1\ (2,\ 52) = 6.88,\ p < .01,\ \eta^2 = .20$, $F2\,(2, 29) = 9.99, p < .001, \eta^2 = .40$) showed that children with English as their community language were significantly more likely than the children with either Italian ($p < .01$) or Spanish ($p < .01$) as their community language to choose a pragmatically inappropriate overt pronouns in −TS contexts between the ages of 6 and 7. For the 8–10-year-olds we also found a significant effect of language of the community ($F1\,(2,68) = 5.83\,p < .001, \eta^2 = .14, F2\,(2, 63) = 7.92, p < .01$, $\eta^2 = .35$), but at this older age the difference between children with English or Italian as community languages was not significant. By contrast, the Spanish-Italian bilinguals were significantly more likely to opt for an overt pronoun than the monolinguals ($p < .01$), but they were not significantly different from the English-Italian bilinguals ($p > .05$).

Fig. 4 reports the mean percentage of overt pronoun choices in the +TS condition.

A three-way ANOVA only revealed a significant main effect for language background ($F1\,(1, 148) = 5.03, p < .05$, $\eta^2 = .03,\ F2\ (1,\ 63) = 8.19,\ p < .01,\ \eta^2 = .11$) with monolinguals choosing significantly more overt pronouns than English-Italian bilinguals ($p < .01$), and than Spanish-Italian bilinguals ($p < .001$). To ascertain whether the significant effect was driven by the monolingual adults we repeated the analysis on the children data only. In this new three-way ANOVA, we still found a significant main effect for language background ($F1\ (1,\ 121) = 5.07,\ p < .05$, $\eta^2 = .04, F2\ (1,\ 63) = 8.19, p < .01, \eta^2 = .11$). Bonferroni post hoc tests showed that the monolingual children chose significantly more overt pronouns in the +TS condition than the English-Italian bilinguals ($p < .05$) and than the Spanish-Italian bilinguals ($p < .001$).

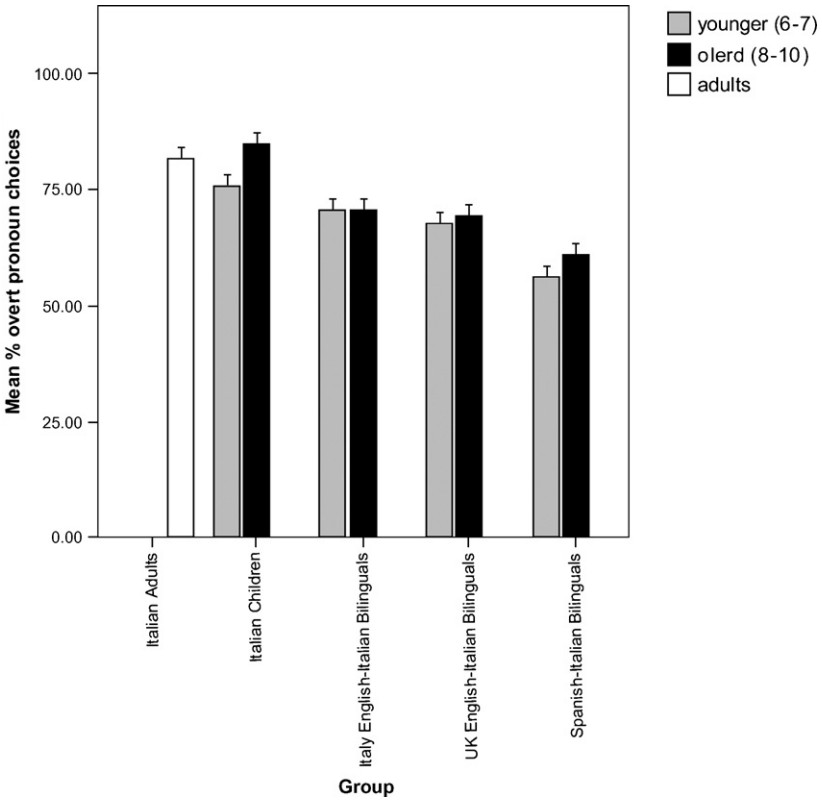

Fig. 4. Mean percentage of Italian overt pronoun choices in the +TS condition as a function of age, language of the community and language background.

4.2.1. Comparison between −TS and +TS contexts

To establish whether participants were more likely to choose an overt subject in [−TS] contexts than a null subject in [+TS] contexts we performed an additional ANOVA with pronoun form as a within-subjects variable (inappropriate overt pronouns, inappropriate null pronouns), and age (younger children, older children, adults), language of the community (English, Italian, Spanish) and language background (English-Italian, Spanish-Italian, monolingual Italian) as between-subjects variables. The only significant result was the three-way interaction between pronominal choice, language of the community, and age ($F1$ (1, 148) = 5.96, $p < .05$, $\eta^2 = .04$, $F2$ (1, 63) = 4.02, $p < .05$, $\eta^2 = .04$). Further inspection of the data indicated that younger children with English as language of the community chose significantly more overt pronouns in [−TS] contexts than null pronouns in [+TS] contexts. This shows that, at least at a younger age, the magnitude of the inaccurate pronominal choice is significantly skewed towards the choice of a redundant overt pronoun than towards the choice of an ambiguous null pronoun. It also indicates that input plays a crucial role in the phenomenon as bilingual children who receive more English input are more likely to opt for the redundant pronoun than children with Italian or Spanish as community language.

5. Discussion

5.1. The acceptability status of subject pronouns

Let us now return to the original questions that motivated this study. The first aim was to further test the linguistic intuitions about different Italian pronominal forms in school-age bilingual and monolingual children, in order to ascertain whether the patterns of subject preferences found in previous research on younger bilingual children would also obtain at a later stage of bilingual language development. First of all, the results confirm the pattern of extension of the scope of overt subject pronouns to contexts in which a null subject pronoun would be the most appropriate choice. The bilingual children in this study are significantly more tolerant than monolingual children of 'redundant' overt

pronouns in −TS contexts. However, this pattern is not exclusive to the bilinguals' performance: monolingual Italians also go through a protracted stage in which they exhibit such tolerance. Consistently with the results of Shin and Cairns (2007) with Mexican Spanish-speaking school-age children, Italian monolingual children aged 6–7 are still significantly different from adult speakers in that they choose significantly more overt pronouns than adults in [−TS] contexts. Second, and in contrast with previous studies, the pattern is not completely asymmetric: the results for the [+TS] condition show no effect of age and language of the community, but an effect of language background that was found to be significant even when the child data were analysed on their own. This effect is due to the fact that the bilingual children – regardless of language combination – accept more null subject pronouns in this condition than the monolingual Italian children. The overall pattern of results for overt subject pronouns in Italian suggests that being bilingual leads to greater difficulty in the acquisition of the discourse conditions governing the distribution of subject pronouns. Moreover, it suggests that that the problem experienced by bilingual children is not restricted to the distribution of the overt pronoun in [−TS] contexts, as the previous literature claims on the basis of production data: it also involves some variability related to the acceptance of null pronouns in [+TS] contexts. As Shin and Smith show for monolingual Spanish children, the ability to reject pragmatically inappropriate null pronouns in this context increases with age and reaches stability at an earlier stage than the ability to reject overt pronouns in [−TS] contexts. Thus, sensitivity to discourse conditions on subject pronouns in a null subject language may follow two different trajectories in monolingual development depending on whether it involves a preference for null pronouns in [−TS] contexts or a preference for overt pronouns in [+TS] contexts, with the former reaching adult standards earlier than the latter: this is reflected in the monolingual data of the present study. Differential sensitivity to discourse conditions is also present in the bilingual data, affecting both contexts to unequal extents: for the bilinguals, as for the monolinguals, it is more difficult to avoid an overt pronoun in [−TS] contexts than to avoid a null pronoun in [+TS] contexts, especially at a younger age and when more input is received in a language, like English, where overt subject pronouns are obligatory both in [−TS] and [+TS] contexts. This split may in turn be due to the different functional weight involved in using the appropriate pronoun in each context. While inappropriate null pronouns in [+TS] contexts give rise to ambiguity and prevent the successful identification of the pronoun antecedent, inappropriate overt pronouns in [−TS] contexts give rise to redundancy without compromising the assignment of pronouns to their antecedents Monolingual children learn to avoid ambiguity sooner than they learn to avoid redundancy. Bilingual children have more protracted problems with both, but make proportionally more errors involving redundancy than ambiguity.[8]

5.2. *Cross-linguistic influence vs. the effects of bilingualism*

The second aim of this study was to begin to disentangle the effects of cross-linguistic influence from the effects of the simultaneous acquisition of two languages.[9]

The data show that Spanish-Italian bilingual children behave like their English-Italian speaking peers in accepting overt subject pronouns in [−TS] contexts significantly more often than monolingual children and adults. This pattern of behaviour interacted with age: while the English-Italian children in the UK were significantly different from the monolinguals and the Italian-speaking peers in the younger age group, for the Spanish-speaking children the effect was significant in the older age group. This finding supports the view that the acceptance of redundant over subject

[8] Adult L2 learners also make both kinds of errors in the course of development, but exhibit only redundant overt pronouns at the near-native level (see Lozano, 2006; Sorace and Filiaci, 2006).

[9] We do not deny the possibility that *both* cross-linguistic influence and processing factors may interact in determining bilinguals' use of grammatical structures at the syntax–pragmatics interface. In particular, we do not rule out the fact that bilinguals have two sets of grammatical representations for subject pronouns (the "multiple grammar perspective", as a reviewer suggests), possibly involving different pragmatic conditions, which lead to different solutions to anaphora resolution. We do not see, however, why consideration of the bilingual speaker's multiple grammars would exclude an analysis of processing effects and costs imposed by the selection and application of one grammar rather than the other. It seems to us that regarding both representations and processing as potential sources of the bilingual preferences in comprehension allows us a more sophisticated explanation of the findings. For example, the convergences among bilingual speakers of different ages and language combinations, and that between bilinguals and monolinguals, indicates the existence of a common denominator; on the other hand, patterns that are specific to speakers of particular language pairs – but not found in monolinguals – might speak of representational effects of multiple grammars (see discussion in Serratrice et al, in press). Furthermore, the fact that many studies have reported asymmetries and directionalities in the use of grammatical options strongly suggests that bilingual speakers do not access both their grammars in the same way—a fact that needs to be explained. While it is necessary to refine the notions of both 'processing load' and 'multiple grammar', it is advantageous to examine the possible effects of both factors independently.

pronouns cannot only be attributed to the effect of cross-linguistic influence from English. Together with the fact that the same acceptance pattern is found among monolingual Italian children, the results of the comparison of children acquiring different language pairs strongly suggests that learning the efficient coordination of the multiple factors involved in the choice of pronominal forms, and especially sensitivity to redundancy, is a demanding task that requires many years of exposure to be completely acquired and that may be particularly taxing for bilingual speakers. Moreover, the fact that it is predominantly the overt pronoun form that is extended over the other confirms previous indications that such a form may have the status of a default that both bilingual and monolingual speakers resort to when they do not yet have the necessary resources to coordinate the different facets of pronominal choice: either because they are still developing them (in the case of the monolingual children) or because, in addition, they have two language systems (in the case of the bilingual children).[10] The fact that the acceptance of redundant overt pronouns increases with age in the Spanish-Italian group may signal that the scope of the overt pronoun in Spanish is actually wider than in Italian (a type of micro-variation mentioned in Carminati, 2002) and that Spanish-Italian bilinguals, all of who were tested in Spain, become increasingly sensitive to the Spanish distribution of pronouns.

5.3. The directionality of cross-linguistic effects

The third aim of this study was to provide evidence for or against the unidirectionality of cross-linguistic effects. As shown by the comparison between English-Italian children's judgements on pronouns in Italian and English, there is no evidence of any effect of Italian on their preferences in English such as an acceptance of null subject pronouns: bilingual children's judgements on English subject pronouns are completely correct and at ceiling. The excellent performance in the English task regardless of age or language of the community shows that ungrammatical options are clearly disregarded by all participants, while discarding pragmatically less optimal options in Italian proves considerably more difficult, as previously found in other research on the metalinguistic abilities of bilingual and monolingual children (Galambos and Goldin-Meadow, 1990; Gathercole and Montes, 1997; Gathercole, 2002a).

The same unidirectionality of the effects has been reported in other studies of adult late bilingual speakers (Belletti et al., 2007; Sorace and Filiaci, 2006), which have pointed out how any effect of Italian on English in this particular domain would be syntactically illicit because inconsistent with the parametric structure of English. Such effects would also be inconsistent with the status of overt subject pronouns as defaults.

5.4. Evidence from comprehension

The fourth aim of the study was to explore the acceptability status of pronominal forms in context in bilingual children's linguistic intuitions, in order to complement the predominant emphasis in the literature on production data. Besides confirming the already well-attested pattern of over-extension of redundant subject pronouns, the use of acceptability judgements has revealed less obvious problems with the inappropriate extension of null subject pronouns to contexts that would require an overt pronoun. It is possible that this problem may have been overlooked in the analysis of production data in previous studies since ambiguity is less salient than redundancy.

5.5. The role of language of the community

The final aim of the study was to investigate the role of the language of the community and the relevance of input and exposure (or 'dominance' as normally understood). The data collected in this study do not allow for an evaluation

[10] At first sight, the view that early bilingualism carries a cost in terms of processing efficiency may appear inconsistent with recent research showing that bilingualism has specific cognitive advantages at the level of executive control functions. Because of their extensive practice in exercising inhibitory control of one language when they speak the other, early bilinguals have been shown to have an enhanced ability to inhibit distracting information in non-linguistic tasks (Bialystok et al., 2004). Similar advantages have been found in attentional tasks by Costa et al. (2008). However, there are also demonstrated executive control costs associated with bilingualism. For example, Argyri et al., 2007 and Treccani et al., in press have demostrated in negative priming experiments that the better inhibitory control abilities of bilinguals can be an advantage in some conditions, but also a disadvantage in other conditions which require access to previously inhibited information. The same costs have been reported for lexical access (Meuter and Allport, 1999). While more research is needed to determine the exact processing operations involved in the comprehension and production of pronominal dependencies, it is likely that general executive control functions may be a component of the ability to integrate syntactic and pragmatic information in real time (see Sorace, 2007 for discussion).

of the quality of the input the children received in the three countries. It is possible that the bilingual children in the UK and in Spain had been exposed to an attrited variety of Italian that diverged from the input addressed to monolingual Italian children in Italy. An exploration of caregiver input to bilingual children would no doubt be relevant, but it was beyond the scope of the present study. Nevertheless, the results of the comparison between bilingual children acquiring Italian and English in Italy and in the UK support the view that input is a relevant factor only with respect to the overacceptance of redundant subject pronouns in [−TS] contexts. In the younger bilingual group, in fact, the acceptance of redundant over subject pronouns is significantly higher in the bilingual group living in the UK than in the group living in Italy. In contrast, the language of the community does not seem to affect the rates of acceptance of ambiguous null pronouns in [+TS] contexts inasmuch as both groups of English-Italian bilinguals and the Spanish-Italian bilinguals accepted more pragmatically ambiguous null subjects than the monolinguals. How can these selective effects be explained?

One possibility is that, as suggested earlier, the redundant overt pronoun may be a default form used in contexts in which ambiguity is not at stake (Carminati, 2002). Over time, speakers learn to avoid redundancy, although even adult native speakers may occasionally employ or accept redundant forms. Italian-English bilingual children in the UK are exposed to predominant English input that presents a quantitative predominance of overt pronouns – since only this form is allowed – and possibly also to Italian spoken by native speakers affected by attrition and by L2 speakers of Italian, which presents a higher rate of overt subject pronouns (Sorace, 2005; Paradis and Navarro, 2003; Tsimpli et al., 2004). Bilingual children in Italy, in contrast, may be exposed to occasional redundant uses of overt pronouns by native Italian speakers, but the low frequency of these uses is insufficient to affect their grammar.

The ambiguous null pronoun in [+TS] contexts, on the other hand, cannot be reinforced by the predominant input in either language community: in the UK because English does not allow these forms, and in Italy because adult native Italian speakers normally avoid ambiguity. The higher acceptance of ambiguous null pronouns in [+TS] contexts may therefore be due to the bilingual children's more taxed processing resources.

6. Conclusions

The findings of the present study, based on large groups of participants, shed new light on the comprehension of pronominal subjects in the bilingual and monolingual acquisition of Italian and English. In addition, the inclusion of two discourse-pragmatic contexts (−topic shift and +topic shift), two age groups (6–7-year-olds and 8–10-year-olds), two language combinations (English-Italian and Spanish-Italian), and two different input settings (UK and Italy) have allowed us to gain a more sophisticated understanding of the nature of pronominal resolution in bilingual and monolingual children.

Our results are in line with previous work on both younger and older bilinguals showing that pragmatically inappropriate overt pronominal subjects are a feature of bilinguals' linguistic intuitions. At the same time we also showed that judgements in switch-reference contexts [+TS] are also significantly different between bilinguals and monolinguals showing that metalinguistic judgements in bilingual populations are overall less accurate than in monolingual populations (see Gathercole, 2002a,b, 2007 for similar findings). The role of age, language combination, and language of the community have also been shown to play a significant role in bilingual children's off-line linguistic intuitions. Future research will have to address to what extent bilinguals and monolinguals also differ in the way in which they process different anaphoric expressions on-line.

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