

# Crosslinguistic influence at the syntax–pragmatics interface: Subjects and objects in English–Italian bilingual and monolingual acquisition\*

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*The findings from a number of recent studies indicate that, even in cases of successful bilingual first language acquisition, the possibility remains of a certain degree of crosslinguistic influence when the choice between syntactic options is affected by discourse pragmatics. In this study we focussed on the use of referring expressions, prime candidates to test the interaction between syntax and pragmatics, and we compared the distribution of subjects and objects in the Italian and English of a bilingual child (1;10–4;6) with that of two groups of MLUw-matched monolinguals. All arguments were coded for syntactic function and for a number of discourse pragmatic features predicted to affect their realisation. Our main prediction was that unidirectional crosslinguistic influence might occur for the English–Italian bilingual child with respect to pronominal subject and object use after the instantiation of the C system. Specifically we predicted that in Italian the bilingual child might use overt pronominal subjects in contexts where monolinguals would use a null subject, and that he might use postverbal strong object pronouns in Italian instead of preverbal weak pronominal clitics. Conversely, we did not expect the overall proportion of overt objects, whether noun phrases or pronouns, to vary crosslinguistically as objects are always obligatorily overt in both languages regardless of discourse pragmatics. Our results confirmed these predictions, and corroborated the argument that crosslinguistic influence may occur in bilingual first language acquisition in specific contexts in which syntax and pragmatics interact.*

## Introduction: The interface between syntax and pragmatics

Much of the research on bilingual language acquisition in the last fifteen years has focussed on the issue of language separation, i.e. on whether children who are regularly exposed to two languages from birth are capable of acquiring them as two separate grammatical systems. The consensus nowadays is that children can and do treat their two languages as separate and largely independent problem spaces. From early on there is evidence of language differentiation in speech perception (Bosch and Sebastián-Gallés, 2001), language-specific lexical choices (Quay, 1995), socio-pragmatic sensitivity to the language of the interlocutor (Genesee, Boivin and Nicoladis, 1996), and morphological and syntactic differentiation (Meisel, 1989, 1994; De Houwer, 1990; Genesee, Nicoladis and Paradis, 1995; Köpcke, 1996).

More recently the research focus has shifted to issues of crosslinguistic influence, i.e. to instances in which, despite an assumption of language separation, the two systems interact at some level. Even if it is the case that two languages can coexist with distinct phonological, morphological and syntactic systems, the possibility remains of a certain degree of osmosis between them. The separation of the systems does not necessarily entail that they will be impermeable to each other. Bilingual children have to deal with two systems simultaneously by relying on one and the same set of cognitive and processing resources, and, unlike second language learners, they cannot exploit the well-established knowledge of an L1 when dealing with their L2. To become competent speakers of their languages not only do they have to learn the inventory of morphosyntactic constructions available, more importantly, they must also learn how to use them in pragmatically appropriate ways. In essence they must map universal pragmatic principles onto language-specific structures, and then select only those options that are syntactically viable in the target language. There is evidence in the literature on monolingual acquisition that the integration of syntactic information within an appropriate discourse framework is a demanding task

\* This research was supported by an award to the first two authors by the UK Economic and Social Research Council (grant number R000223762). Parts of this paper were presented at the 27th Annual Meeting of the Boston University Conference on Language Development, and at the Fourth International Symposium on Bilingualism.

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for children, one that causes them protracted difficulties and initially leads to the omission of obligatory syntactic material (Sano and Hyams, 1994; Hyams, 1996, 2001; Avrutin, 1999; Platzack, 2001).

The syntax–pragmatics coordination problem has essentially two sides to it. At the stage when children overwhelmingly omit obligatory language-specific morpho-syntactic elements (e.g. determiners, subjects, objects, tense/agreement morphology), they rely on discourse licensing for the interpretation of missing categories. Omissions are pragmatically justified by the “richer, and partly unwarranted assumptions” that children make about how much shared inferential information interlocutors have (Roeper, 1999, p. 172). Recourse to a discourse pragmatic licensing strategy, whereby omitted elements are interpreted via discourse and not via syntactic operations, is a defining trait of earlier stages of acquisition whose prominence declines over time together with omission rates.

#### ***Language separation and crosslinguistic influence in bilingual first language acquisition***

If the syntax–pragmatics coordination task is demanding for monolingual children, it can be twice as daunting in the case of bilingual children who have to map a larger array of language-specific morphosyntactic constructions onto a restricted set of language-universal pragmatic principles.

In a number of recent papers Hulk and Müller (Hulk and Müller, 2000; Müller and Hulk, 2000, 2001) have in fact argued that crosslinguistic influence in bilingual acquisition is likely to occur in structures at the interface between syntax and pragmatics. More specifically they argue that crosslinguistic influence may take place if the following three conditions are satisfied: (i) language A allows for more than one possible structural analysis of a syntactic construction; (ii) language B contains significant positive evidence for one of the analyses allowed by language A; and (iii) the structural analysis shared by language A and language B maps directly onto universal pragmatic principles and is not grammatical in language A. Their central claim rests on the vulnerability of the C-domain where syntactic and pragmatic levels of grammatical representations have to be coordinated (Platzack, 2001; Rizzi, 2002). The choice between syntactic options in language A may be influenced by the availability of one of the options in language B, if such option is compatible with a universal pragmatic licensing strategy. Müller and Hulk (2001) analysed object omissions in monolingual German-, Dutch-, French- and Italian-speaking children, and in Dutch–French and German–Italian bilinguals, and proposed that the higher rates of object omission in the Romance language of these bilingual children are the result of crosslinguistic influence from their Germanic language. In German and in

Dutch, objects can be omitted when they are in sentence-initial position, i.e. when they have the pragmatic function of topic, but object drop is not allowed in sentence-internal position when the internal argument is not a topic. Young learners of Dutch and German are therefore confronted with a choice between two syntactic options: null or overt objects.

Unlike German and Dutch, French and Italian never allow null objects, regardless of their topic status. However, in cases in which the object is cliticised and appears to the left of the finite verb, the canonical postverbal position remains empty, an ambiguous cue to Romance-speaking children that objects might be null. Similarly to their German and Dutch counterparts, French- and Italian-speaking children also omit objects, although to a lesser extent than their Germanic-speaking peers. Given this premise, the pattern of object omission in Germanic–Romance bilinguals is a prime candidate for potential crosslinguistic influence. Language A (Italian or French) allows a potentially ambiguous analysis of objects as optionally null elements, while the input in language B (German or Dutch) contains substantial positive evidence for the analysis of objects as null elements. Finally, object drop is compatible with a universal pragmatic licensing strategy.

In such a situation the topic-drop nature of German or Dutch drives the bilingual Italian- or French-speaking child to opt for a pragmatically based strategy for longer than her monolingual peers. Monolinguals do not receive this kind of extra evidence, and will readjust their analysis more quickly purely on the basis of the input. For both sets of children it is only when the C-domain becomes well established that universal pragmatic strategies will be correctly mapped onto language-specific syntactic options.

#### ***A pragmatic approach to the distribution of arguments***

The proposal that children’s non-target grammatical behaviour may be explained through their excessive reliance on pragmatics is not new. Chien and Wexler (1990), Sano and Hyams (1994), Hoekstra, Hyams and Becker (1996) and, more recently Roeper (1999) and Rizzi (2002), have all argued for the role played by discourse in accounting for optionality in early grammar. However, as Allen (2001) noted, all too often children’s reliance on pragmatics is invoked without a systematic analysis of the actual discourse-pragmatic status of the omitted elements. Müller and Hulk (2001) also appealed to the crucial role of pragmatics as a determinant of syntactic choice, but they did not provide a substantial analysis of the pragmatics of object drop. In a reanalysis of their examples of target-deviant object drop Allen (2001) showed that the children’s omitted objects were perfectly justifiable from a discourse pragmatic point of view inasmuch as they

identified highly salient referents for which a reduced pronominal form, in this case a zero pronoun, was entirely appropriate.

Although Müller and Hulk (2001) did not explore the pragmatics of object omission in any great depth in their study, there is a substantial body of developmental literature on the effect of discourse pragmatics on argument realization. Greenfield and Smith (1976) originally proposed that children's early utterances are organised around a 'principle of informativeness' whereby the information encoded linguistically tends to be associated with aspects of an event that cannot be easily recovered by the hearer. Conversely, elements that are highly accessible to the hearer are initially more likely to be left out. Clancy (1993, 1997) further developed this idea with respect to argument realisation by using a number of pragmatic variables such as animacy, person, query, absence, contrast, and newness to predict the likelihood that an argument would be realised overtly in the spontaneous speech of young Korean children. Allen and Schröder (2003) and Allen (2000, in press) used some of Clancy's predictors and introduced some of their own (differentiation in discourse, differentiation in context) to investigate patterns of argument realisation in four Inuktitut-speaking children. Their results showed that several of the discourse variables investigated were statistically significant predictors of argument realisation in their sample, and that there was a cumulative effect of informativeness features. While arguments that were informative for only one of the features (e.g. third person, but physically present, and not new) were omitted in almost 70% of cases, arguments that were informative for two of the factors were realised overtly almost 60% of the time, and arguments that were informative for all of the eight features had an 80% chance of being overt. Skarabela and Allen (2002a, 2002b) also identified joint attention as another potential explanatory variable in children's argument realisation. They showed how a substantial proportion of new arguments that were unexpectedly realised as null in the speech of Inuktitut-speaking children, were in fact justified by the triadic joint attention context in which the children engaged with the interlocutor and the referent.

Similar results were reported by Serratrice (2002, submitted), and Serratrice and Sorace (2003) for the distribution of subjects in a longitudinal study of monolingual and bilingual Italian acquisition. The findings showed that for six monolingual Italian children (MLUw 1.3–6.7), and one bilingual English–Italian child (MLUw 1.1–4.8) a number of pragmatic informativeness features were reliable predictors of argument realisation. From as early as MLUw 2.0, the children in the sample did not omit subjects randomly, but did so in pragmatically sensitive ways. They were significantly more likely to omit arguments whose referents had a low informative status

(typically referents that were first or second person, old, highly active, present, neither contrasted nor in need of disambiguation), rather than arguments whose referents' informative status was high (e.g. third person referents, new to the discourse, not present in the physical context, contrasted, or in need of disambiguation). This type of evidence strongly suggests that children do in fact possess subtler pragmatic knowledge than they have generally been credited with.<sup>1</sup>

The languages investigated so far have been null-subject languages (Korean, Inuktitut, Italian) where a positive correlation is predicted between high informativeness and overt subjects on the one hand, and between low informativeness and null arguments on the other. In English, where null subjects are not a syntactic option in the majority of contexts, the relationship between degree of informativeness and argument realisation is more complex. While null subjects, wherever possible, are always associated with low informativeness, overt subjects do not necessarily always correlate with high informativeness. In English therefore the opposition is not between overt and null subjects, but between lexical (high informative status) and pronominal subjects (low informative status).

#### ***The distribution of null and overt subjects and objects in Italian and in English***

In this paper we focus on referential subjects and objects in the bilingual and monolingual acquisition of Italian and English. Language-specific syntactic properties interact with universal discourse-pragmatic principles in the selection and distribution of arguments and make this interface phenomenon an ideal test case for the crosslinguistic influence hypothesis.

Italian is a null-subject language where subject arguments can be omitted if the argument is co-referential with a topic antecedent (Grimshaw and Samek-Lodovici, 1998):

- (1) Ieri Laura<sub>i</sub> è uscita con Paolo. *pro*<sub>i</sub>  
 yesterday Laura is-3s gone-F out with Paolo  
 Si è divertita molto.  
 herself is-3s enjoyed-F very much  
 "Yesterday Laura went out with Paolo. She had a very good time."

<sup>1</sup> The findings reported in the studies cited relate to naturalistic situations in which children and adults mostly talked about referents that were physically present and jointly accessible. The question of whether children can exploit the same kind of informativeness features in more demanding conversational situations (e.g. when the referent and/or the interlocutor are not present) remains an open question. In an experimental study, Campbell, Brooks and Tomasello (2000) showed how the referent's discourse availability affected children's production of overt and null subjects in English.

The null option is also available in English, but only in a restricted number of contexts: coordinated clauses, (2), progressive participle constructions, (3), questions with an implied second person subject, (4), and topic drop, (5) (Haegeman, 1997; Zwanziger, Allen and Genesee, 2003).

- (2) Yesterday Laura went out with Paolo and (she) had a very good time.
- (3) a. What are you doing?  
b. Eating.
- (4) Want to go for a walk?
- (5) Went out last night, bumped into Mary, can't stand that woman.

In Italian an overt subject pronoun is a marked option signalling a shift of topic or focus. In the absence of marked prosodic contrast, an overt pronominal form cannot be coreferential with the antecedent in the adjoining clause:

- (6) Laura<sub>i</sub> ha abbracciato Maria<sub>j</sub> e poi lei<sub>j/\*i</sub>  
Laura have-3s hugged Maria and then she  
è uscita.  
is-3s gone out  
“Laura hugged Maria and then she went out.”
- (7) Laura<sub>i</sub> ha abbracciato Maria<sub>j</sub> e poi LEI<sub>i/\*j</sub>  
Laura have-3s hugged Maria and then she  
è uscita.  
is-3s gone out  
“Laura hugged Maria and then SHE went out.”

No such co-referential restrictions apply in English: the subject pronoun *she* in (8) can refer to either *Laura* or *Maria*.

- (8) Laura<sub>i</sub> hugged Maria<sub>j</sub> and she<sub>i/j</sub> left.

In contrast to the pattern of subject distribution, objects are obligatory in both languages regardless of discourse conditions. When the object is expressed by a noun phrase it appears in postverbal position:

- (9) Laura ha incontrato la sua amica.  
Laura have-3s met the her friend  
“Laura met her friend.”
- (10) Laura watched a film.

With respect to pronominal objects there is a crosslinguistic difference. In Italian they are realised as weak clitic pronouns in preverbal position, while in English they are realised as strong pronouns in postverbal position.

- (11) Laura l'ha vista.  
Laura her have-3s seen  
“Laura saw her.”

- (12) Laura saw her.

Strong pronouns in English are associated with [–focus] unless they are contrasted prosodically (e.g. *I saw him* vs. *I saw HIM not HER*). Strong pronouns in postverbal position are also found in Italian, but they are always associated with a contrastive focus interpretation.

- (13) L'ho visto.  
(I) him have-1s seen-MASC-SG  
“I saw him.”

- (14) Ho visto LUI non LEI.  
(I) saw him  
“I saw HIM not HER.”

To summarise so far, in Italian the morphosyntactic distribution of overt pronominal subjects ([+topic shift] or [+focus]), and of postverbal strong object pronouns ([+focus]), interfaces with the discourse pragmatics of topic shift and focus. In English, overt pronominal subjects can be [±topic shift] and [±focus], and postverbal object pronouns can be either [+focus] or [–focus]. The distribution of pronominal arguments in English does not interface with the pragmatics of topic shift and focus in the way in which it does in Italian.

Similarly to Italian English does not allow null objects. In neither language is the overt realisation of objects constrained by pragmatics, unlike in German or Dutch where object topics can be null. Objects must always be expressed overtly, either as noun phrases or as pronouns.

### *Persisting pragmatic effects*

On the basis of the evidence that children can, and indeed do pay attention to pragmatics from very early on in acquisition, we propose an extension of Müller and Hulk's (2001) hypothesis concerning a developmental stage subsequent to the instantiation of the C system. As it stands their prediction is that, before the C system is in place, in a case in which Language A provides the child with ambiguous input leading to two possible analyses, the option that is compatible with a universal discourse pragmatic licensing strategy may receive positive reinforcement, if Language B also allows this option in its grammar. This would create the conditions for the occurrence of SYNTACTIC omission errors in Language A, i.e. the child would choose a syntactic option that is allowed in the target grammar only in restricted contexts and extend it to contexts in which the target grammar disallows it. Recourse to discourse pragmatic licensing suggests that the child may omit

morphosyntactic elements that are overtly realised in the target grammar if their interpretation can be inferred directly on the basis of the verbal and/or non-verbal context of the utterance in question.

Let us now consider how Müller and Hulk's proposal would deal with the distribution of pronominal subjects in English and Italian. Language A (English) is a non-null-subject language where subjects are typically obligatory, although children do receive some ambiguous evidence of subjectless clauses in the form of imperatives, coordinated clauses, topic drop, and non-finite clauses. Language B (Italian) provides ample evidence for the availability of null subjects, Serratrice (submitted) reported that 68% of subject arguments were null in a sample of child-directed caregiver utterances. The null-subject option is compatible with Minimal Default Grammar (Roeper, 1999) where a universal pragmatic strategy allows for the general discourse licensing of null arguments (Rizzi, 1994). Following Müller and Hulk's rationale the prediction should be that English–Italian bilingual children would omit subjects in English to a greater extent than their monolingual counterparts for whom the pragmatic strategy does not receive additional support from exposure to a null-subject language like Italian.<sup>2</sup> Once the C-domain is in place the expectation is that the bilingual children would converge on the syntactic options allowed by their respective languages, hence there would be a decrease in the number of null subjects in English in line with monolingual acquisition. Note that, similarly to the case of syntactically target-deviant object drops in the Romance languages of bilingual children exposed to German, the result of the supposedly pragmatic-syntax influence is a syntactic error, e.g. the syntactically ungrammatical omission of subjects in a non-null-subject language.

Although this scenario is plausible and consistent with the hypothesis that discourse pragmatic licensing may serve as a relief strategy in early grammar, we would like to point out two limitations of the current model. The first, and more modest issue, is of an empirical nature. None of the few studies that have addressed the issue of subject realisation in children acquiring a null-subject Romance language and a Germanic non-null subject language have reported the kind of crosslinguistic influence that would be predicted by Müller and Hulk's model, i.e. a higher number of null subjects in the non-null subject language when compared to monolingual controls. Juan-Garau and Pérez-Vidal (2000), Cantone and Schmitz (2001), and Serratrice (2002) reported that for three English–Spanish, German–Italian and English–Italian bilingual children,

subject omission occurred at significantly different rates in their two languages, in line with monolingual peers. The current lack of empirical support for Müller and Hulk's hypothesis does not however invalidate their hypothesis per se. On account of the fact that individual variation clearly plays a crucial role in the acquisition process, the possibility remains that other bilingual children might behave differently from the ones that have been studied so far, and follow the predicted omission pattern.

The second limitation concerns the scope of their proposal. We agree with Müller and Hulk's original claim that coordinating syntactic and pragmatic information can be difficult for young children and can be a cause of crosslinguistic influence. However, in an extension of the original crosslinguistic influence hypothesis, we would like to propose that even once the C-domain is in place, a form of crosslinguistic influence is still possible. At this stage the outcome will NOT be syntactically ungrammatical omissions, as in the early stages, but the provision of pragmatically inappropriate overt forms. In the specific case of subject realisation in English–Italian bilingual acquisition we expect pragmatically infelicitous overt pronominal subjects in Italian instead of null subjects. In line with these predictions, Paradis and Navarro (2003) recently reported a higher proportion of overt subjects in the Spanish of an English–Spanish bilingual child compared to two monolingual Spanish-speaking children. Approximately a quarter of these overt subjects identified uninformative referents that should have been expressed by a null subject. Although *prima facie* these results could be interpreted as the effect of crosslinguistic influence, we are however inclined to treat this possibility with some caution because of the nature of the input the child received from her parents. An analysis of the informativeness value of the Spanish subjects in the parental input did reveal a larger proportion of uninformative overt subjects in the speech addressed to the bilingual child than in the speech addressed to the two monolingual children. The child's higher proportion of uninformative overt subjects might therefore be nothing more than a reflection of the input addressed to her, as also acknowledged by the authors. Additional empirical evidence from bilingual children exposed to a null-subject language and a non-null-subject language is now necessary to assess the impact of crosslinguistic influence on subject realisation.

To sum up so far, we envisage two phases in which different kinds of crosslinguistic influence are expected to occur: an early phase, before the instantiation of the C-system, when children are likely to commit omission errors that are syntactically ungrammatical, but pragmatically acceptable. This is the scenario reported by Müller and Hulk with respect to the ungrammatical

<sup>2</sup> Allen (2001) makes similar predictions for subject realisation in German–Italian bilinguals.

omission of object arguments in French and Italian under the crosslinguistic influence from Dutch and German respectively.

Our extension of Müller and Hulk's proposal regards the phase subsequent to the instantiation of the C-system. At this point in development children are becoming aware of the language-specific requirements of the language(s) they are acquiring. They are beginning to appreciate that, regardless of the availability of discourse licensing, there are contexts in which omissions are not syntactically allowed. Coordinating syntactic and discourse pragmatic information remains nevertheless a complex task, especially in the case of a bilingual child dealing with two languages with different syntactic options. In this second phase we expect children to commit pragmatic errors, i.e. under the crosslinguistic influence of language B we expect them to opt for pragmatically inappropriate choices in language A. In the following section we elaborate on the predictions that we make for this second phase of crosslinguistic influence with respect to subject and object arguments.

#### ***Predictions for crosslinguistic pragmatic influence in subject and object realisation***

Bilingual English–Italian children receive input in a null-subject language, where overt pronominal subjects are associated with [+topic shift] or [+focus], and in a non-null-subject language where the expression of overt pronominal subjects is pragmatically unconstrained by these interface features. We propose that regular and simultaneous exposure to English and Italian might lead to the bleaching of the interface features that constrain subject realisation in the latter. In Italian an overt pronominal subject is a marked option, in English it is the default option, when faced with a choice that requires the coordination of sophisticated pragmatic knowledge with two syntactic alternatives, the bilingual child might optionally select the pragmatically unconstrained option available in English. Satterfield (2003), Tsimpli, Sorace, Heycock, Filiaci and Boubas (2003), Tsimpli, Sorace, Heycock and Filiaci (in press) have independently made such a proposal for language attrition in near-native speakers of English with Spanish, Italian or Greek as their L1. In the case of advanced second language learners from a null-subject language L1 background, the effect of sustained exposure to English leads to the underspecification of the interpretable features responsible for the semantic-pragmatic interpretation of overt pronominal subjects in the L1. Overt subject pronouns lose their obligatory association with topic shift and focus, and might therefore be interpreted as coreferential with a topic antecedent or

as unfocused elements, options disallowed in non-attrited varieties.

In order to establish whether it is only syntactic phenomena that interface with pragmatics that pose problems for bilingual children, we decided to investigate object realisation alongside subject realisation. In Italian pronominal objects are typically realised as preverbal clitics. The preverbal cliticisation leaves the canonical postverbal object position empty, thus giving children an ambiguous cue that Italian allows null objects. However, unlike for the German–Italian and Dutch–French language pairs studied by Müller and Hulk, where the Germanic language provided positive evidence for the acceptability of object omission, English does not allow null objects. The syntactic availability of overt objects is not constrained by pragmatics in either language, we therefore do not expect that a bilingual English–Italian child to drop objects in Italian any more than his monolingual peers.

Syntax and pragmatics do however interface in the selection of pronominal objects. Italian has preverbal weak clitic pronouns associated with [–focus] and postverbal strong pronouns associated with [+focus]. English has only postverbal strong pronouns that are neutral with respect to the [±focus] feature, [+focus] is not marked by position or pronominal form, but by prosody (e.g. *I saw him* vs. *I saw HIM not HER*).

With respect to the realisation of pronominal objects, in principle we predict that crosslinguistic influence might occur here too in cases in which the bilingual child would use a postverbal strong pronoun in Italian instead of a preverbal clitic. Similarly to what we predicted for the use of overt pronominal subjects, we would expect that the feature [±focus] might become underspecified, and that strong pronouns might be used in Italian even when they are not associated with focus.

In the case of objects we are however inclined to predict that this is less likely to happen than in the case of subjects, although in principle the pragmatic conditions are very similar for both argument types. In the case of overt pronominal subjects, although certainly rarer than null subjects, there seems to be a critical mass in child-directed speech to provide sufficient positive evidence for the existence of this option in Italian, while this does not seem to be the case for postverbal object pronoun.<sup>3</sup> Although it is difficult to say what the minimal input threshold should be for a given construction to be noticed

<sup>3</sup> A search in the maternal utterances (N = 16623) of the Calambrone corpus (Cipriani et al., 1989) available on CHILDES (MacWhinney, 2000), yielded the following figures: 102 third person singular masculine subject pronouns, 2 third person singular masculine object pronouns in postverbal position, 57 third person singular feminine subject pronouns, and 2 third person singular feminine object pronouns in postverbal position.

Table 1. *Descriptive statistics for the Italian data.*

Child	Age range	MLUw range	N of child utterances	N of verb utterances	% of verb utterances
Carlo	1;10–4;6	1.1–4.8	7410	2173	.29
Diana	1;8–2;6	2.5–6.7	1947	620	.32
Guglielmo	2;2–2;11	2.0–4.8	1823	644	.35
Martina	1;7–2;7	1.3–2.7	3615	637	.18
Raffaello	1;7–2;11	1.3–3.8	3028	709	.23
Rosa	1;10–3;3	1.3–3.2	3254	682	.21
Viola	1;11–2;10	1.7–2.7	2261	313	.14

in the input, we would like to suggest that there may not be a sufficiently large number of postverbal object strong pronouns in the Italian input to give the bilingual child evidence for this syntactic construction. In the case of pronominal objects it is therefore a more clear-cut crosslinguistic opposition between preverbal clitics in Italian and postverbal pronouns in English.

In the following we provide an analysis of the informativeness status of subject and object arguments in a bilingual English–Italian corpus, and in two sets of monolingual Italian and English corpora. The investigation of the distribution of morphosyntactic forms in terms of discourse pragmatics will allow us to evaluate the extent to which domains at the interface between syntax and pragmatics are vulnerable to crosslinguistic influence in bilingual acquisition.

## Method

### *The data*

The bilingual English and Italian data come from a corpus of spontaneous adult–child interaction collected by the first author. The child, Carlo, was born in Scotland to an American father and an Italian mother. Both parents are very fluent in both Italian and English and learnt their non-native language as adults. From birth until the age of five months the father spoke to Carlo in English and he then switched to Italian; the mother always addressed her son in Italian. Throughout the period of data collection Carlo was also regularly addressed in Italian by a number of childminders who looked after him for five hours a day every weekday, and by his two siblings, a four-year older bilingual English–Italian brother, and an eleven-year older monolingual English speaker with some basic knowledge of Italian as a second language. Annual family holidays in Italy, and visits of the monolingual Italian-speaking grandparents also contributed to exposure to the language. At the age of eight months Carlo started attending a local crèche and then a nursery where all the

staff and children were monolingual English speakers. At home Carlo was exposed to English by frequent visits of monolingual family friends, and through observations and parental estimates we calculated that during the period of data collection the child spent 45% of his waking time in a monolingual Italian-speaking environment, 40% in a monolingual English-speaking environment and the remaining 15% in a context in which both languages were used.

The monolingual Italian data come from the six children from the Calambrone corpus (Cipriani et al., 1989) available on CHILDES (MacWhinney, 2000), and the monolingual English data come from the Brown (Brown, 1973), Suppes (Suppes, 1974) and Sachs (Sachs, 1983) corpora, also available on CHILDES.<sup>4</sup> The monolingual files included in the analyses were selected to match Carlo's data in Mean Length of Utterance in words (MLUw). The four English-speaking monolingual children chosen were the only ones available on CHILDES who matched Carlo's MLUw range. Although they are all native speakers of American rather than British English, this should not be a cause of concern for the purposes of the present study, as we are not aware of any dialectal differences in the distribution of subjects and objects between these two varieties. Tables 1 and 2 provide descriptive statistics of the age ranges, and MLUw ranges for Carlo and the monolingual controls in the two languages. Also included are the total number of

<sup>4</sup> Files from the CHILDES corpora included in the analyses

CHILD	CORPUS	FILES
Adam	Brown	5, 11, 15, 20, 24, 28, 38, 42, 46
Naomi	Sachs	13, 16, 19, 21, 25, 33, 53, 60, 71, 91, 92
Nina	Suppes	1, 2, 4, 11, 14, 15, 31, 35, 42, 51, 52, 55
Sarah	Brown	10, 18, 28, 34, 43, 66, 70, 82
Diana	Calambrone	All
Guglielmo	Ibid.	All
Martina	Ibid.	All
Raffaello	Ibid.	All except 11
Rosa	Ibid.	All except 1, 2, 4, 6, 8, 10, 12, 14, 16, 18, 20
Viola	Ibid.	All

Table 2. Descriptive statistics for the English data.

Child	Age range	MLUw range	N of child utterances	N of verb utterances	Proportion of verb utterances
Carlo	1;10–4;6	1.1–4.8	4723	1497	.32
Adam	2;5–4;4	1.2–4.7	7434	1935	.26
Naomi	1;10–4;7	1.6–4.4	2002	670	.33
Nina	1;11–3;3	1.8–4.4	7837	1558	.20
Sarah	2;4–3;10	1.5–3.4	1888	536	.28

utterances in each corpus, the number of utterances containing a verb that were selected to identify subject contexts, and the proportion of these utterances with respect to the total number of utterances in the corpora.

### Coding

The data were divided into four MLUw stages: Stage I (MLUw 1.5–2.0), Stage II (MLUw 2.0–3.0), Stage III (MLUw 3.0–4.0), Stage IV (MLUw > 4.0).<sup>5</sup> All of the referential subject and object arguments in the monolingual and in the bilingual corpora were coded for overtness (null = 0, overt = 1), and for morphosyntactic form: noun phrase, proper name, personal pronoun (weak or strong pronoun), demonstrative pronoun, other (e.g. indefinite pronouns, quantifiers). Non-referential subjects of meteorological verbs were excluded in both languages (e.g. *piove* “(it) rains” *fa freddo* “(it’s) cold”), as well as impersonal *si*-constructions in Italian (e.g. *si mette via il libro* “(one) puts the book away”). Imperatives, repetitions, partly unintelligible utterances, mixed language utterances, songs, and book reading were also excluded from the analysis. Each argument was further coded for the following informativeness features: PERSON, ABSENCE, ACTIVATION, CONTRAST, DIFFERENTIATION IN DISCOURSE, QUERY and PREDICATE’S TRANSITIVITY. A value of 1 was assigned if the argument was informative for the given feature, and 0 if the argument was uninformative. Note that in the case of objects, predicate’s transitivity is clearly irrelevant, as only transitive predicates can take a direct object; this feature was therefore not included in the analyses of object provision.<sup>6</sup>

<sup>5</sup> As one reviewer correctly noted, there is a degree of circularity in defining developmental stages in terms of MLU in words when investigating argument realisation. At present, however, there is no alternative, reliable and independent measure of development that would have allowed us to compare the children in our sample within and across languages.

<sup>6</sup> Although the present informativeness coding system is largely based on Allen’s (2000), the following differences must be pointed out. The feature animacy was not included, as Allen herself did not find it was a significant variable in predicting overt subject realisation. Predicate’s transitivity, although not a discourse-pragmatic feature in itself, was

With respect to person, third person subjects were coded as informative and first and second person subjects as uninformative.

Absence was coded as informative if the referent was physically absent from the room in which the recording took place, and as uninformative if the referent was physically present. In the case of the bilingual data we had access to the original video recordings to make our decisions, but for the monolingual data we had to rely exclusively on the transcripts. Both the English and the Italian corpora contain frequent contextual annotations that helped our judgements. For example, in (15) below, a comment line (%com) codes the maternal indexical gesture.

- (15) \*MOT: *codesto è un cane, ma io ti propongo questi, guarda un po’+ . . .*  
 %eng: this is a dog, but I show you these, look+ . . .  
 %com: *gli mostra altri animaletti.*  
 %eng: shows him other little toy animals.  
 (gug8.cha, lines 42–43)

Whenever explicit contextual comments were not provided we relied on linguistic information to decide whether a referent was physically present or not. For example, in (16) below the child is drawing his mother’s attention to a referent that must have been physically present since he is asking her to look at it.

- (16) \*CHI: *Mommy # this is channel four # look.*  
 (adam46.cha, line 915)

Activation was coded as informative if the referent was associated with a referent that had not been previously introduced in the discourse, i.e. if it was completely new, or if it signalled a shift of topic. Conversely, activation was considered uninformative if it was associated with topic maintenance. The coding system is exemplified in (17).

added to test whether, as predicted by Du Bois (1987), subjects of intransitive predicates are more likely to be overtly expressed than subjects of transitive predicates. The feature activation was introduced to control for the referent’s salience in discourse. Differentiation in context was not included because, for the monolingual data, we only had access to the transcripts and it was not always possible to determine what the participants were attending to.



- (17) \*CHI: è mio questo papà!  
 %eng: this daddy is mine!  
 %act: se lo stringe come per abbracciarlo.  
 %eng: holds on to it as if he were hugging it.  
 \*MOT: è il tuo papà?  
 %eng: is (it) your daddy?  
 \*CHI: sì.  
 %eng: yes.  
 \*MOT: perché c' ha i capelli grigi?  
 %eng: because (he)'s got grey hair?  
 \*MOT: allora questo chi è?  
 %eng: then who is this?  
 %gpx: indica.  
 %eng: points.  
 \*CHI: è [/] è mamma mia.  
 %eng: (it) is my mummy.  
 \*MOT: non torna mica + . . .  
 %eng: (she)'s not coming back + . . .  
 %gpx: scuote la testa.  
 %eng: shakes her head.  
 \*CHI: scappa, perché lo rincorre il papà pum@o  
 pum@o!  
 %eng: (she)'s running away because daddy is  
 chasing her.  
 %act: sposta i pupazzi.  
 %eng: moves the puppets.  
 (gug8.cha, lines 452–464)

In the exchange in (17) mother and child talk about two puppets that are identified as the child's father and mother. The level of activation of the two referents changes throughout the course of the conversation, depending on whether the topic is switched or maintained. Both the mother and the child signal the transition between changing levels of activation by using a range of different referring expressions (demonstrative pronouns, null subjects, and noun phrases). First the child introduces a new topic with a noun phrase containing a demonstrative determiner (*questo papà* "this daddy"). In the following two turns the mother maintains reference to the same active topic using two null subjects (*è* "is", *ha* "has"), she then switches topic and introduces a new referent with a demonstrative pronoun (*questo* "this"). Reference to the newly introduced referent is maintained first by the child, and then by the mother, through two null subjects (*è* "is", *non torna* "doesn't come back"). In the final turn the child maintains reference to the active topic with a null subject (*scappa* "runs away"), and re-introduces the now semi-active referent that was last referred to four turns earlier by using a noun phrase (*il papà* "the daddy").

The feature contrast was coded as informative if the referent was being contrasted with another referent, and it was coded as uninformative if no such opposition was evident in the transcript. This kind of information was typically gathered by the preceding and following

discourse context, and it was often necessary to examine several utterances before and after the utterance containing the target referent to make an informed decision.

- (18) \*CHI: perché loro 'un@d ce l' hanno 0w  
 medaglietta?  
 %eng: why don't they have (the) tag?  
 \*MOT: perché loro non ce l' hanno il padrone,  
 questo cane qui non ce l' ha il padrone,  
 è senza padrone e allora non ha la [/] la  
 [/] il collare invece i cani che hanno il  
 padrone c' hanno il collare con la  
 medaglietta capito?  
 %eng: because they don't have an owner, this dog  
 here doesn't have an owner, (he) is  
 without owner and so (he) is without the  
 collar, but the dogs who have an owner  
 have a collar with a tag, understood?  
 (gug7.cha, lines 574–579)

The target referent expressed by the pronoun *loro* "they", in the child's utterance was coded as informative in terms of contrast. This decision was arrived at by analysing the information in the mother's answer. From the mother's explanation it became clear that the child was comparing and contrasting two sets of dogs, a set of dogs with a collar and a set without.

Differentiation in discourse was coded as informative if there were one or more potential antecedents for the target referent, in addition to the actual antecedent, in the previous five utterances. As exemplified in (19), the child introduces two referents by using a noun phrase and a bare noun (*il pastorone* "the big shepherd", *pastorino* "little shepherd"), and the mother maintains the topic through a null subject to refer to both (*son* "(they) are"). In the final turn the child singles out one of the referents by using a noun phrase. In this context a null subject would have been ambiguous, as would have the overt pronoun *lui* "he", since the two referents are of the same gender.

- (19) \*CHI: e poi il pastorone af@o pastorino.  
 %eng: and the big shepherd af@o the little  
 shepherd.  
 \*MOT: però son tutti mezzi sbilenchi.  
 %eng: but (they) are all a bit lopsided.  
 \*CHI: e il pastorino ha un casco.  
 %eng: and the little shepherd has a helmet.  
 (gug6.cha, lines 563–565)

Query was coded as informative if the referent was the subject of or the response to a question, and as uninformative if there was no interrogative context. In the examples below *the knife* and *Nana* were coded as informative for query.

- (20) \*CHI: where's the knife? (n53.cha, line 46)

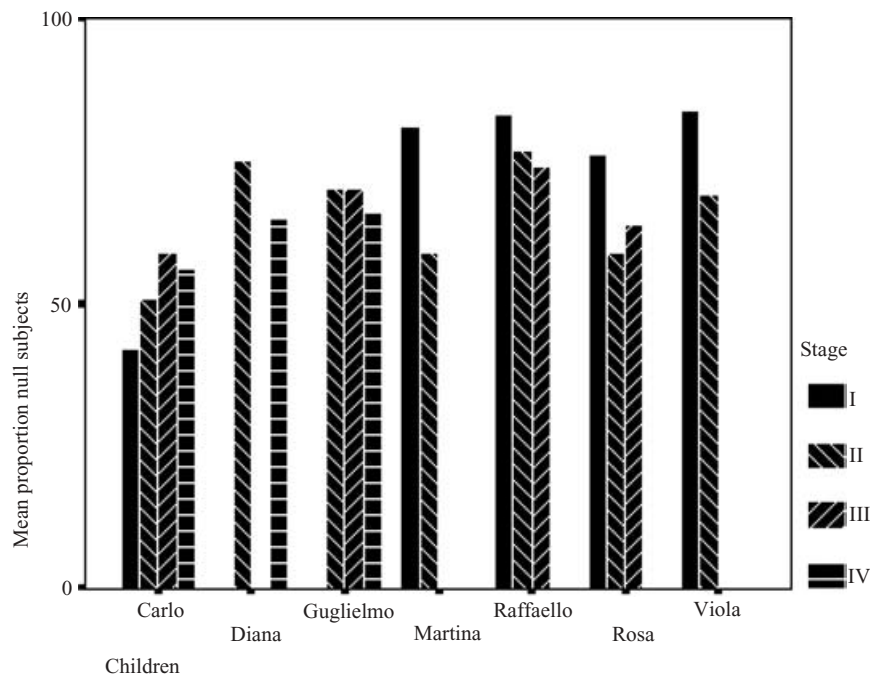


Figure 1. Proportion of null subjects in Italian.

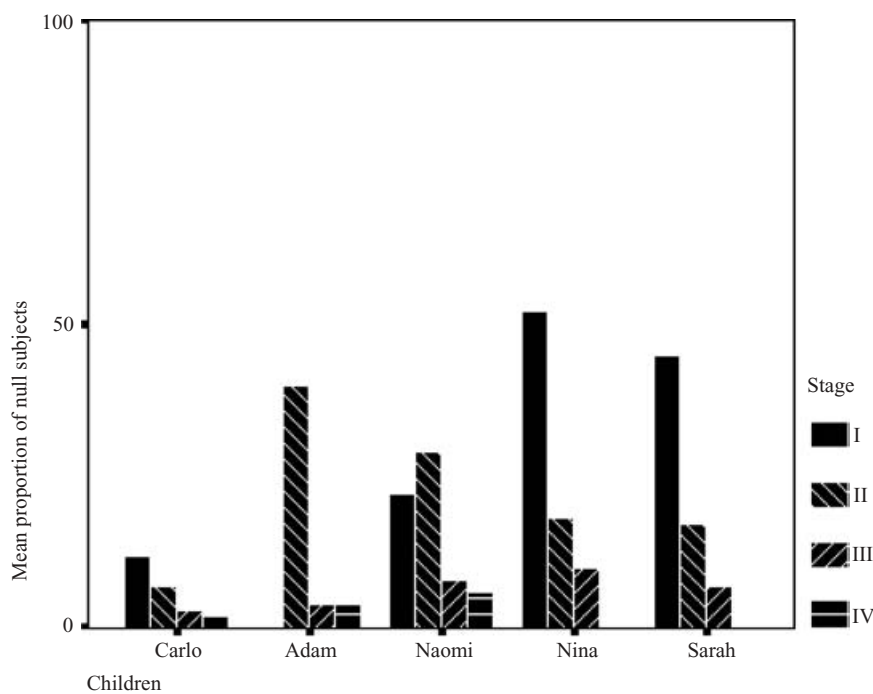


Figure 2. Proportion of null subjects in English.

- (21) \*MOT: (a)n(d) who slept with ya?  
 \*CHI: Nana. (sarah070.cha, lines 269–270)

Finally, predicate transitivity was coded as informative if the subject was associated with an intransitive predicate, and as uninformative if the predicate was transitive.

## Results

### Crosslinguistic data on subject and object omission

Figures 1–4 plot the percentage of null subjects and null objects in Italian and in English for Carlo and the monolingual children. The actual number and proportion

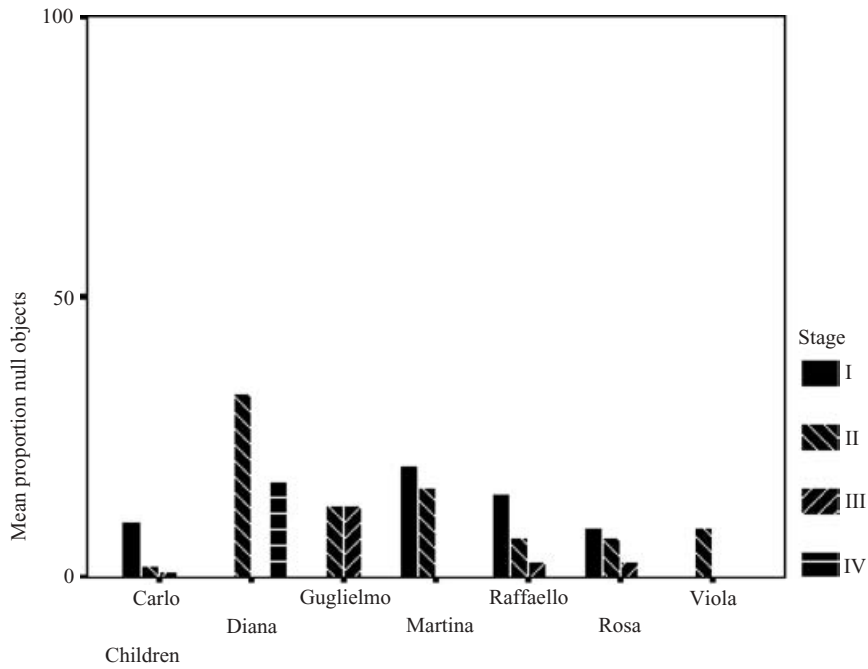


Figure 3. Proportion of null objects in Italian.

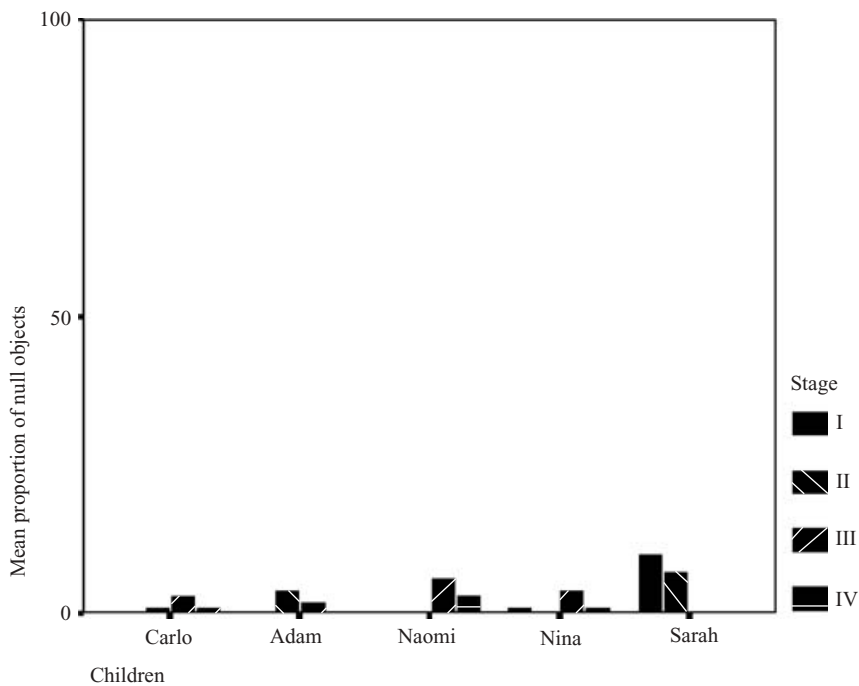


Figure 4. Proportion of null objects in English.

of null arguments are provided in Tables A–D in the Appendix.

The charts display two sets of asymmetries with respect to the omission of subject and object arguments from a crosslinguistic point of view. Firstly, at all MLUw stages Italian-speaking children drop subjects considerably more often than their English-speaking counterparts, an

indication that from very early on children are sensitive to the frequency with which arguments are omitted in the input.<sup>7</sup> By Stage III English-speaking children start to

<sup>7</sup> There is now a substantial body of research showing that the grammatical contexts in which children acquiring non-null-subject languages like English omit subjects are not the same as the contexts

Table 3. Proportion of Italian overt subjects in five person/number contexts for Carlo and the monolingual children.

P.N.	Stage							
	I		II		III		IV	
	Carlo	Monolingual range	Carlo	Monolingual range	Carlo	Monolingual range	Carlo	Monolingual range
1s	.29	0–.22	.53	.13–.47	.27	.16–.23	.17	.25–.46
2s	–	–	.21	0–.26	.19	.8–.32	.22	.10–.50
3s	.61	.12–.26	.53	.34–.52	.53	.36–.44	.64	.35–.39
1p	0	–	0	0–.33	.08	0	.17	0–.33
3p	–	–	.48	.13–.56	.41	.17–.35	.49	.50–.73

converge on the adult target and omit subjects in fewer than 10% of obligatory contexts. Similarly, Italian-speaking children's subject omission starts to come in line with the adults' omission rate (approximately 68% in a sample of child-directed speech) as early as Stage II. They too omit fewer subjects as their MLUw increases, however in their case convergence with the adult input does not lead to the elimination of null subjects altogether, but to the stabilisation of the omission rate at around 70%.

The second crucial piece of information is that in both languages there is a clear asymmetry in the omission of subjects and objects: at all stages subjects are omitted considerably more often than objects. The pattern of subject-object asymmetry in Carlo's data and in the data of the two sets of monolingual children suggests that, once again, children do not omit arguments indiscriminately. The asymmetry is even more revealing in English where neither null subjects nor null objects are possible options in the adult grammar. The lower rates of object omission not only show sensitivity to input frequency, but also to the informativeness value of objects versus subjects. Objects typically encode inactive or semi-active referents, their informativeness value is higher than those of subjects that are more likely to be associated with highly active topics, hence the greater chances that a subject, but not an object will be dropped.

In English, Carlo uses a larger number of overt subjects than the monolinguals, in fact his proportion of null subjects at Stage I (.12) and II (.07) falls well below the monolingual range (Stage I .22–.52; Stage II .17–.40). These results show no indication that being exposed to Italian, a language where subjects are null in the input

in which children acquiring a null-subject like Italian omit them. Contrary to Hyams' (1986) original proposal it is not the case that children universally start out by considering their language to be a null-subject language. Rizzi's (1994) Root Subject Drop indicates that children acquiring a non-null-subject language typically omit subjects only in the specifier of the root of a clause, therefore null subjects are not expected in *wh*-questions and subordinate clauses, environments where children acquiring null-subject languages like Italian are indeed allowed to use them.

approximately 70% of the time, had any impact on this bilingual child's use of overt subjects in English. On the contrary, from the earliest stages Carlo displays a remarkable sensitivity to the frequency of overt subjects in the target. By Stage III his performance and that of the monolingual children are virtually at ceiling with over 90% provision in obligatory contexts. With respect to object omission, the proportion of null arguments is typically low across all stages and well in line with the monolingual range.

The comparison with the Italian monolinguals provides a similar picture with respect to object omission: typically not as high as subject omission, and at the lower end of the monolingual range at all stages. As predicted, we did not find any evidence that Carlo's object omission was any higher than for the monolinguals in either language. In terms of subject omission, however, Carlo's proportion of null subjects is well outside the monolingual range at all stages: he does use more overt subjects than the Italian-speaking children. To get a clearer picture of what might lie behind his higher use of overt subjects we broke down the overall figures into the five person/number contexts attested in the data in Table 3. Recent work on the distribution of subjects in the acquisition of Italian (Serratrice, submitted) showed that some monolingual children use a non-trivial proportion of overt subject pronouns in first person contexts. We were therefore interested in comparing Carlo's provision of overt subjects in first person contexts with that of monolinguals. More importantly, our aim was to investigate whether Carlo used a higher proportion of overt subjects, specifically pronominal subjects, in third person contexts. Should that be the case, an analysis of the overt third person subjects in term of informativeness would be necessary to clarify whether they were found in pragmatically appropriate contexts.

In first person contexts at Stage IV Carlo uses fewer subject pronouns than the monolingual children, but he produces more overt subjects than the monolinguals in first person singular contexts at Stage II and III, and in third person singular and plural contexts at Stage I, III and

Table 4. *The number and proportion of null subjects with uninformative features in the monolingual Italian-speaking children.*

Feature	Stage							
	I		II		III		IV	
Person	110/295	.37	457/1051	.44	330/748	.44	196/370	.53
Absence	291/295	.99*	1009/1051	.97*	713/748	.95*	368/370	.99*
Activation	257/295	.87*	962/1051	.92*	655/748	.88*	305/370	.82*
Contrast	295/295	1*	1031/1051	.98*	746/748	.99*	369/370	.99*
Differentiation	278/295	.94*	1004/1051	.96*	717/748	.96*	351/370	.95*
Query	246/295	.83*	858/1051	.82*	636/748	.85*	321/370	.87*
Predicate's transitivity	133/295	.45	573/1051	.55*	465/748	.62*	259/370	.70*

Table 5. *The number and proportion of null subjects with uninformative features in the monolingual English-speaking children.*

Feature	Stage							
	I		II		III		IV	
Person	48/180	.29	203/324	.67*	78/131	.61*	34/56	.71*
Absence	177/180	.98*	311/324	.97*	122/131	.95*	47/56	.85*
Activation	163/180	.92*	278/324	.89*	120/131	.94*	50/56	.94*
Contrast	180/180	1*	324/324	1*	131/131	1*	56/56	1*
Differentiation	180/180	1*	323/324	.99*	131/131	1*	56/56	1*
Query	169/180	.94*	257/324	.79*	120/131	.92*	35/56	.62*
Predicate's transitivity	89/180	.49	236/324	.73*	104/131	.79*	42/56	.75*

IV.<sup>8</sup> However, without an analysis of the informativeness value of the overt subjects produced by the child we have no way of establishing to what extent they may actually be the result of crosslinguistic influence from English. The comparison across the two sets of Italian-speaking and English-speaking monolingual children, and Carlo's own data, did show that subject arguments were realized overtly more frequently in English than in Italian. One might therefore conclude that the larger proportion of overt subjects in Carlo's Italian is to be ascribed to the influence of the English input. Nevertheless we cannot rule out the possibility that the larger proportion of overt subjects in Carlo's Italian may simply be a reflection of the discourse context. For example, it could genuinely be the case that he found himself in situations in which he had to introduce, contrast or disambiguate a large proportion of the referents he chose to talk about, hence

the high percentage of overt subjects. To make a viable argument for crosslinguistic influence one needs to show that an overt subject appeared in contexts in which the only pragmatically appropriate option would have been a null subject. In essence we have to show that Carlo used pronominal third person subjects in contexts that required topic maintenance rather than topic shift. If this was the case we will have to investigate whether these pragmatically inappropriate choices are also found in the monolingual data, and if so to what extent.

#### *The discourse pragmatics of argument realization*

In this section we present the results of the pragmatic coding for subjects and objects in English and Italian for the bilingual child and the monolingual controls to assess children's reliance on discourse pragmatics in their choice of null arguments. In addition we will also determine whether any of the Italian overt third person subject pronouns were used in pragmatically inappropriate contexts by Carlo and/or the monolingual children.

#### *Subjects*

In Tables 4 and 5 we report the number and the proportion of null subjects with uninformative features

<sup>8</sup> At Stage I Carlo used 56 overt subjects in third person singular contexts, 41 of which had *questo* "this", as the subject of the fixed frame *questo è + x* "this is x". *Questo* only appeared once with a verb rather than *è* at Stage I; if we exclude these formulaic subjects from the count, we are left with a proportion of .14 overt subjects, that is within the monolingual range.

Table 6. *The number and proportion of Carlo's Italian null subjects with uninformative features.*

Feature	Stage							
	I		II		III		IV	
Person	6/42	.14	141/358	.40	336/578	.58*	133/225	.59*
Absence	41/42	.98*	328/358	.93	475/578	.82*	190/225	.84*
Activation	30/42	.71*	158/358	.44	419/578	.73*	156/225	.69*
Contrast	42/42	1*	357/358	.99*	578/578	1*	225/225	1*
Differentiation	39/42	.93*	341/358	.95*	577/578	.99*	220/225	.98*
Query	40/42	.95*	310/358	.87*	450/578	.78*	197/225	.87*
Predicate's transitivity	12/42	.29	193/358	.54**	403/578	.70*	162/225	.72*

Table 7. *The number and proportion of Carlo's English null subjects with uninformative features.*

Feature	Stage							
	I		II		III		IV	
Person	–	–	15/53	.28	6/10	.60	4/7	.57
Absence	4/4	1	49/53	.92*	8/10	.80*	3/7	.43
Activation	3/4	.75	43/53	.81*	8/10	.80*	6/7	.86
Contrast	4/4	1	53/53	1*	10/10	1*	7/7	1
Differentiation	4/4	1	53/53	1*	10/10	1*	7/7	1
Query	3/4	.75	45/53	.85*	9/10	.90*	6/7	.86
Predicate's transitivity	1/4	.25	25/53	.47	7/10	.70*	6/7	.86

for the Italian-speaking monolinguals, and for the English-speaking monolinguals, respectively. A series of chi-square tests were performed on the number of null subjects associated with uninformative and informative features to find out whether, as we predicted, they were associated with uninformative features significantly more often than with informative features. The asterisks in the tables indicate that there was a significant difference ( $df = 1$ ,  $p < .001$ ).

Both sets of children relied on a discourse pragmatic strategy in argument omission: with the exception of person in Italian, at all stages null subjects are significantly more likely to be associated with uninformative than informative features. The results from person show an unexpected trend: null subjects tend to be third person rather than first or second person. Although this finding goes against our predictions, it is important to remember that a referent is simultaneously associated with more than one informativeness feature at all times, and that the uninformative value of another feature, for example activation, might have overridden the informative value of person and resulted in an appropriate context for an overt subject.

The interaction of discourse pragmatics and syntax in Carlo's null subjects in Italian and in English is presented

in Tables 6 and 7. The asterisks in the tables indicate that the null arguments were associated with uninformative features significantly more often than with informative features ( $df = 1$ ,  $p < .001$ ).

Similarly to the monolingual Italian children Carlo relies on discourse pragmatics when omitting subjects. For him too a null subject is significantly more often associated with low informativeness. A similar picture emerges in English where subject omission follows a predictable discourse pattern associated with the low informative status of the referents in question. Once again the lack of significance of person is attributed to the overlap with other overriding features.

Overall the results on the informativeness status of null subjects provide substantial evidence that Carlo is sensitive to the discourse pragmatic status of referents and that he uses null subjects appropriately. We now turn to the issue of the pragmatic appropriateness of his overt subjects in Italian, specifically of his overt pronominal third person subjects.

Between Stage III and IV we counted a total of 36 third person singular subject pronouns (*lui* "he", and *lei* "she"), 16 of which were not justified by the discourse pragmatic context in which they appeared. Over the same period of time Carlo used 163 null subjects appropriately in third

Table 8. *The number and proportion of null objects with uninformative features in the Italian-speaking monolingual children.*

Feature	Stage							
	I		II		III		IV	
Absence	23/23	1*	79/84	.94*	30/31	.96*	46/48	.95*
Contrast	23/23	1*	83/84	.98*	31/31	1*	48/48	1*
Differentiation	23/23	1*	84/84	1*	28/31	.90*	48/48	1*
Query	21/23	.91*	72/84	.85*	28/31	.90*	39/48	.86*
Activation	22/23	.95*	76/84	.90*	26/31	.83*	45/48	.93*

person singular contexts. His pragmatically infelicitous third person subjects thus account for 9% (16/179) of all third person contexts in which a null subject was required.

None of these inappropriate pronominal forms served either a topic shift or a focus function, but were coreferential with a topic antecedent and as such should have been realized as null. Two examples are provided below:

- (22) \*LUD: no ma Rosarospa è cattiva o buona?  
 %eng: no but Rosarospa is bad or good?  
 \*CAR: um bé proprio simpatica.  
 %eng: um well really nice.  
 \*LUD: simpatica?  
 %eng: nice?  
 \*CAR: sí proprio simpatica perché lei è solo travestita da strega.  
 %eng: yes really nice because she is only dressed up as a witch.

(Carlo, 4;3.6)

- (23) \*CAR: questa <è la andl> [//] è la luna che è venuta via dalla sua casa.  
 %eng: this is the is the moon that comes away from its house.  
 \*LUD: ah e dov' è andata?  
 %eng: ah and where did (it) go?  
 \*CAR: e lei ha [/] ha braccia così lunghe.  
 %eng: and she has has arms this long.  
 \*LUD: <queste sono le braccia della luna> [>]?  
 %eng: these are the arms of the moon?

(Carlo, 4;6.8)

In both examples Carlo uses an overt pronominal form (*lei* “she”) to refer back to a highly active antecedent (Rosarospa in example (22), and the moon (*la luna*) in example (23)), when the only pragmatically appropriate option in Italian in such contexts is to use a null subject. Note that the first occurrences of pragmatically inappropriate third person subject pronouns appear at Stage III (MLUw 3.0–4.0) at a time when the C-system

is well established, as indicated by the frequency and complexity of subordinate clauses (N = 44 at Stage III, N = 25 at Stage IV). The example in (24) illustrates the use of two embedded subject relative clauses from the period of interest.

- (24) \*CAR: no è qualcuno al negozio <che aiuto> [//] <che aiuta le andpers> [//] che aiuta le fate che non possono volare.  
 %eng: no it's someone at the shop who helps fairies who can't fly.

(Carlo, 4;6.8)

In the monolingual group, one of the six children, Raffaello, also used a small number of third person subject pronouns in pragmatically inappropriate contexts. Overall he provided 4 infelicitous overt third person singular subject pronouns over a total of 137 null contexts, his percentage of inappropriate pronominal subjects is therefore a mere 3% (4/141). A chi-square test on the number of null and overt subject pronouns revealed a significant difference between Carlo and Raffaello ( $\chi^2 = 5.01$ ,  $df = 1$ ,  $p < .05$ ).

### Objects

The same coding procedure introduced for subject arguments was applied to objects, with the exception of predicate's transitivity, irrelevant in the case of objects, and person, since null objects were only found in third person contexts. The results for the Italian and the English-speaking monolinguals are presented in Tables 8 and 9. The asterisks in the tables indicate that the null objects were associated with uninformative features significantly more often than with informative features ( $df = 1$ ,  $p < .001$ ).

Similarly to what we reported for subject omission, object omission follows a predictable pattern whereby null objects are almost exclusively associated with uninformative features in both languages.

Table 9. The number and proportion of null objects with uninformative features in the English-speaking monolingual children.

Feature	Stage							
	I		II		III		IV	
Absence	4/4	1	24/28	.85*	10/11	.90*	2/2	1
Contrast	4/4	1	27/28	.96*	11/11	1*	2/2	1
Differentiation	4/4	1	28/28	1*	11/11	1*	2/2	1
Query	4/4	1	27/28	.96*	10/11	.90*	2/2	1
Activation	4/4	1	24/28	.85*	9/11	.81*	2/2	1

Carlo's object provision is practically target-like in both languages from very early on and therefore here too we have focussed only on the pragmatic viability of omitted arguments. No tables are provided in consideration of the very small number of null objects. In Italian all of the 13 null objects were in third person singular contexts, and all of these arguments were associated exclusively with uninformative features. In English we found only seven null objects, once again all in third person singular contexts. Five of the omitted objects were associated exclusively with uninformative features, while the remaining two identified referents absent from the physical context (absence = 1).

In terms of possible crosslinguistic effects with respect to the selection and the position of pronominal object forms, we found one example in which Carlo used a strong pronoun postverbally in a context in which a preverbal clitic was required:

- (25) \*LUD: +' ah la rana dalla bocca larga e io sono il leone che mangia le rane dalla bocca larga.  
 %eng: ah the frog with the big mouth and I am the lion who eats the frogs with the big mouth.  
 \*LUD: e allora <la andbo> [//] la rana dice +'/.  
 %eng: and then the frog says +'/.  
 \*LUD: +' uh sí?  
 %eng: ah yeah?  
 \*LUD: hai visto?  
 %eng: have you seen?  
 \*LUD: ha fatto +'/.  
 %eng: she went +'/.  
 \*LUD: +' uh sí?  
 %eng: ah yeah?  
 \*CAR: allora <il andra> [//] il leone ha mangiato lei?  
 %eng: then the lion has eaten her?

(Carlo, 4;4.6)

The Investigator introduces the referent *la rana* 'the frog', subsequently refers to it by using a null subject (*pro ha fatto* '(she) went') thereby setting up a context in which mention in object position should have been realised by a preverbal clitic, but Carlo uses a strong pronominal form in postverbal position instead. As expected, crosslinguistic influence in the domain of pronominal object is not significant, although possible in principle, most probably because in Italian the evidence for postverbal strong object pronouns is extremely limited.

## Discussion

The aim of this paper was twofold: following Müller and Hulk's (2001) hypothesis, we sought to establish whether there was any evidence of crosslinguistic influence in the distribution of subject and object arguments in an English-Italian bilingual child.

The other complementary objective was to explore the role of discourse pragmatics in argument realisation in this bilingual child and in ten monolingual English- and Italian-speaking MLUw-matched peers.

Our findings confirm a number of well-known facts on the crosslinguistic acquisition of null- and non-null-subject languages, and on the asymmetry between null subjects and null objects in young children's speech. More importantly, we provide new evidence for the relationship between discourse pragmatics and syntax in argument omission, and for crosslinguistic influence in bilingual first language acquisition. On the basis of these results we propose an extension of Müller and Hulk's original hypothesis to include cases of crosslinguistic influence after the instantiation of the C-system.

With respect to crosslinguistic differences Valian (1991) was the first to notice that the type of target language plays a crucial role in the rate of subject omissions. Children acquiring a non-null-subject language like English omit subjects significantly less often than MLU-matched peers exposed to null-subject languages such as Italian and Portuguese (Valian and Eisenberg, 1996). This is evidence that children pay attention to the language-specific frequency of subjects in their language. Recourse to a discourse-pragmatic strategy, whereby elements that can be recovered from the linguistic and extra-linguistic context are omitted, is mediated by language-specific syntactic options. Both grammatical and discourse constraints are necessary to account for crosslinguistic patterns of subject omission. An Italian-speaking child who uses a null subject for an uninformative referent makes the same pragmatically and syntactically appropriate choice that an adult would make. By contrast, in the case of a child acquiring English, where subjects are typically overt in the adult target regardless of informativeness status, the use of a null subject for an uninformative referent is at odds with



the adult syntactic norms. English-speaking children must realize that the pragmatic principle of informativeness, i.e. omit uninformative arguments, is subordinate to the syntactic requirement that all subjects be realized overtly, regardless of their pragmatic status. Nevertheless English-speaking children omit subjects to some degree in the early stages of acquisition, and our prediction was that they would do so whenever the pragmatic principle of informativeness overrides the overt subject syntactic requirement. Our crosslinguistic analysis of the relationship between informativeness status and argument realization did indeed show that, both in English and in Italian, null subjects and null objects were constrained by discourse pragmatics: null arguments were significantly more likely to be associated with uninformative than informative features. In line with our results, Paradis and Marcon (2003) recently showed that subject realization in six English-speaking children between MLU<sub>m</sub> 1.5 and 2.6 was reliably associated with discourse-pragmatic factors such as newness, person and absence. All children used null subjects more often for old vs. new information, all children used lexical subjects more often for absent vs. present referents, and four of the six children used null subjects more often in first and second person contexts than in third.

These findings show that a discourse pragmatic approach is necessary for a comprehensive understanding of the phenomenon of argument omission in child language. With respect to null-subject languages the principle of informativeness predicts a clear and testable correlation between overt subjects and high informativeness status, and between null subjects and low informativeness status. In the case of non-null-subject languages this approach can account for patterns of argument omission that cannot be either predicted or justified by a purely grammatical account. From a grammatical point of view, null arguments in non-null-subject languages typically occur in the specifier of the root of a clause. According to Rizzi (1994, 2002) early null subjects are antecedentless null constants base-generated in the specifier of the root whose content is identified directly through discourse. This is also the only position where null constants do not need an antecedent for their licensing that is instead carried out directly via discourse (Rizzi, 1994, 2002). Note however that if on the one hand, with very few exceptions, children learning a non-null-subject language do not omit subjects (and objects) in non-root positions, it is certainly not the case that they omit a subject every time that it is in a root specifier position: the correlation between position and omission is asymmetrically. It is perfect, or almost, for non-root position and overt subjects, i.e. in non-root position arguments are generally overt. By contrast, the predictive power of the grammatical constraint is considerably weaker in the case of the relationship between root position and null subjects, in

root position subjects may be null, but they are not systematically null. The grammatical constraint is thus NECESSARY to explain why null subjects are restricted to the root specifier position, but it is NOT SUFFICIENT to account for their distribution in the only position in which they are allowed to occur at all from a grammatical point of view. Only a proposal that takes into account discourse pragmatics can predict when a subject is more likely to be omitted at a stage when provision is not target-like yet. In essence a grammatical account will predict WHERE null subjects are permissible (i.e. in the specifier of the root), and a pragmatic account will predict WHEN a null subject is more likely to occur (i.e. when the argument is associated with uninformative discourse pragmatic features).

The second well-attested finding in our data is the clear asymmetry in both languages between the omission of subjects and objects: at all stages subjects are omitted considerably more often than objects. This pattern is well known in the developmental literature (Wang, Lillo-Martin, Best and Levitt, 1992), and a number of different, and to a certain extent complementary, grammatical, performance and pragmatic accounts have been proposed. According to Rizzi (1994, 2002) the subject-object asymmetry is explained in terms of the different positions occupied by the null constant: only in the case of a null subject is the null constant in the root of the clause. In the case of a null object it is base-generated as the complement of the verb, hence not in a root specifier position. This position lower down the clause requires an antecedent for the identification of the null constant, the absence of which rules out the null object option.

Proponents of a performance account (L. Bloom, 1970; P. Bloom, 1990; Valian, 1991) have argued that children are more likely to omit subjects than objects because the former typically are in sentence-initial position, and that is precisely where processing load is greater. Recently Rizzi (2002, p. 13) integrated this performance-limitation account into his grammatical model by acknowledging that “there is no contradiction between the two findings: it could very well be that early subject drop is a genuine grammatical option of the early system and that the child may use it to alleviate a processing problem”.

A third proposal on the relative informative value of discourse pragmatic features associated with subject and object arguments was made by Allen (1997). Allen’s ideas build on previous work by Greenfield and Smith (1976) and Clancy (1993, 1997) showing that the informativeness value of arguments is a reliable predictor of argument realisation. In her own work on subject and object realisation in child Inuktitut Allen showed that informative arguments appeared more frequently in object position than in subject position, and she concluded that “informativeness could well be an adequate explanation for the subject-object asymmetry” (Allen, 1997, p. 14).

Moreover, in addition to showing that a pragmatic account is a viable alternative to the grammatical account of the subject-object asymmetry, Allen showed that it can account for another asymmetry that is neither predicted nor explained by the grammatical account: that between the subjects of transitive predicates and the subjects of intransitive predicates. Starting from the statistical tendency observed by Du Bois (1987) that subjects of intransitive predicates are more likely to be realised overtly than subjects of transitive predicates, not only did Allen demonstrate that this was the case for the child Inuktitut data she analysed, but she also reported that informative features were more likely to be associated with the subject of intransitive predicates than with the subjects of transitive predicates. In our own data we also report that null subjects were significantly more likely to be associated with transitive than intransitive predicates. A grammatical account would not predict that predicate transitivity would affect the realisation of the subject as a null or overt argument, in this sense the pragmatic account is superior to the grammatical model inasmuch as it can account for hitherto unexplained empirical facts.

The pattern we report for the subject-object asymmetry in Carlo's data and in the data of the two sets of monolingual children suggests that, once again, children do not omit arguments indiscriminately. The asymmetry is even more revealing in English where neither null subjects nor null objects are possible options in the adult grammar. The significantly lower rates of object omission not only show sensitivity to input frequency, but also to the informativeness value of objects versus subjects. Objects typically encode new information, their informativeness value is higher than those of subjects that are more likely to be associated with old information, hence the greater chances that a subject, but not an object will be dropped.

With respect to object omission in principle crosslinguistic differences would not be expected as null objects are not allowed in the adult grammar of either language. We did however find that Italian-speaking children tended to omit objects more often than English-speaking children, possibly a consequence of the non-canonical preverbal position of object clitics. Similarly to what we have argued for English subjects, we propose that in both Italian and English the same competition exists between the syntactic requirement of an overt object, and the pragmatic principle of informativeness that allows null arguments when their informative status is low. In the case of objects their informative status largely conspires with the syntactic requirement that they be expressed overtly. Objects, more than subjects, tend to be associated with informative referents that require overt realization, as confirmed by our data. In addition we also reported that whenever objects were ungrammatically omitted they

were nevertheless associated with uninformative features, i.e. they were pragmatically acceptable.

The pattern of argument realization in Carlo's data confirmed our initial expectations. We predicted that crosslinguistic influence might occur in the case of subjects in Italian, since their syntactic realization interfaces with pragmatic conditions. In the case of objects neither language allows a null option, therefore we did not expect any crosslinguistic influence similar to that observed by Müller and Hulk for German-Italian and Dutch-French bilinguals. However, we did predict that, in principle, Carlo might use postverbal strong pronominal objects in contexts where preverbal clitics are required.

Although we provided robust evidence that Carlo was overall very sensitive to the pragmatics of the distribution of null subjects in Italian, we did find a number of instances in which he made pragmatically inappropriate use of overt pronominal subjects in null subject contexts. Subject pronouns are available in both Italian and English, but while in the former they are associated with focus and topic shift, in the latter they are underspecified for these interface features, they occur where a null subject would occur in Italian. We propose that sustained contact with the underspecified setting of English might lead to the underspecification of the interface features associated with overt pronominal subjects in Italian. When this is the case overt pronominal subjects will not necessarily be used to signal focus and topic shift, similarly to what has recently been observed for language attrition (Tsimplici et al., 2003; Tsimplici et al., in press). Interestingly one of the monolingual Italian children also used a number, albeit small, of pragmatically inappropriate overt pronominal subjects. Because of the very small number of errors it is difficult to draw any robust conclusions on the relevance of the phenomenon in monolingual Italian acquisition. However, if in a larger sample of monolingual children, more of these discourse pragmatic errors were found, there would be further evidence to suggest that the nature of, at least some, of bilingual children's errors is not fundamentally different from monolinguals'. More importantly, to make a stronger case for the effect of crosslinguistic influence over developmental factors, it would be necessary to compare English-Italian bilinguals with other age-matched bilinguals acquiring two null-subject languages, for example Spanish and Italian. If the nature of the English-Italian bilinguals' pragmatic errors is truly to be ascribed to the crosslinguistic influence of English, and not simply to the fact that they are exposed to bilingual input, we predict that the Spanish-Italian bilinguals should make significantly fewer errors than the English-Italian bilinguals.

With respect to object realisation we found that Carlo omitted objects relatively rarely in both languages, in line with monolingual peers. Moreover, we found one example

of a strong pronominal postverbal object in a context in which the child should have used a preverbal clitic, i.e. he used a [+focus] pronoun in a [–focus] context. None of the monolingual Italian children ever produced a strong pronoun in postverbal object position, however this single occurrence does not constitute a sufficiently large empirical base to decide conclusively whether a form of crosslinguistic influence might have been at work in the interpretation and licensing of strong vs. weak pronominal objects. We speculated that, although theoretically possible, crosslinguistic influence in this area was not going to be very likely on account of the extremely small number of examples of postverbal object pronouns in Italian. This being the case the child would not have access to two competing constructions with different pragmatic interpretations. In the case of objects it is more a case of clear-cut opposition between preverbal clitics in Italian and strong postverbal pronouns in English.

In sum, the only convincing case of crosslinguistic influence in this bilingual English–Italian child was found in the distribution of overt pronominal subjects in Italian. Interestingly these pragmatically infelicitous overt subjects did not occur before the establishment of the C-system, but by Stage III (MLUw 3.0–4.0), when numerous examples of subordinate clauses were already attested. On the basis of these findings we propose to extend Müller and Hulk's hypothesis to include cases of crosslinguistic influence after the C-system is in place. In the following we apply the argument that Müller and Hulk use for object omissions in the Romance language of German–Italian and Dutch–French bilingual children to subject omission in English–Italian bilinguals.<sup>9</sup> When the C-system is not yet in place, their expectation in a case of English–Italian bilingual acquisition should be that the marginal null-subject option in English, from diary style topic-drop, imperatives, and coordinates, might be reinforced by the ample positive evidence in Italian, a choice that is compatible with a universal discourse strategy. The bilingual child would therefore omit more subjects in English than his MLUw-matched monolingual peers whenever a discourse strategy could rescue the licensing of the null subject. Presumably these null subjects in English would only appear in the specifier of the root, i.e. simultaneous exposure to Italian would not trigger a resetting of the null-subject parameter. The

bilingual child would be different from the monolingual children from a quantitative point of view, inasmuch as she might produce a larger number of null subjects in root position, and/or might continue to omit subjects for a more protracted period of time than his monolingual peers. From a qualitative point of view, the bilingual child would not be expected to produce null subjects in contexts in which discourse licensing cannot rescue interpretation, i.e. interrogative and subordinate clauses. In other words, null subjects in English would be predicted to occur in a subset of the contexts in which they occur in Italian: in the specifier of the root whenever they can be licensed in an appropriate discourse context.

Our proposed extension of Müller and Hulk's hypothesis focuses on the stage after the establishment of the C-system. By this stage children are past the phase in which they omit obligatory arguments by relying on discourse licensing. At this point they do comply with the language-specific syntactic requirements of their language, and in English this translates into a decrease of the proportion of syntactically ungrammatical null subjects. This is also the time when personal subject pronouns start to emerge in Italian acquisition. In our sample of monolingual and bilingual Italian data they were largely unattested before Stage III (MLUw 3.0–4.0). At this stage we expect that crosslinguistic influence will go unidirectionally from the language with fewer pragmatic constraints in the distribution of overt pronominal subjects (English), to the language where the appearance of pronominal subjects is regulated by pragmatically complex constraints such as topic shift and focus. The coordination of syntactic and pragmatic knowledge is a demanding task for young children in general, and even more so in the case of bilingual children since they have to evaluate competing solutions to the syntax–pragmatics problem from two different languages.

In this particular case of English–Italian bilingual acquisition we did not find evidence for an earlier phase of crosslinguistic influence in which the pervasiveness of the null-subject option in Italian affected the proportion of the null subjects in English. When compared to the four MLUw-matched English-speaking monolingual children Carlo used more, not fewer, subjects in obligatory contexts. His unusually high subject provision may in part have been due to his very conservative learning style, and his reliance on a small repertoire of verb types in a relatively fixed number of low-scope constructions (Serratrice, 2002). Three other studies (Juan-Garau and Pérez-Vidal, 2000; Cantone and Schmitz, 2001, Zwanziger, Allen and Genesee, submitted) investigating subject provision in bilingual children learning a null-subject language (Italian, Spanish, Inuktitut) simultaneously with a non-null-subject language (German, English) did not report a significantly higher proportion of

<sup>9</sup> Hulk and Müller (p.c.) confirmed that they currently do not have clear predictions for the direction of crosslinguistic influence. Adopting Roeper's (1999) idea of Universal Bilingualism they have proposed that the grammar which resembles/is identical to Minimal Default Grammar (MDG), i.e. the less marked grammar, will indirectly influence the more marked grammar for the particular grammatical domain. They acknowledge that defining a MDG for subject realisation is not a straightforward task as both the null-subject and the non-null subject option have been treated as defaults.

null-subjects in the non-null-subject language either. So far the evidence for this pattern of crosslinguistic evidence in the distribution of subjects prior to the instantiation of the C-system is lacking. We did however find evidence that suggested the possibility of crosslinguistic influence well after the C-system was in place.

Additional empirical evidence is now necessary to evaluate the crosslinguistic validity of Müller and Hulk's original hypothesis and of the extension that we have proposed for a later stage of development. Further research will also have to address the possible confound of developmental factors when comparing monolingual and bilingual children.

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Received October 28, 2003

Revision received April 27, 2004

Accepted May 19, 2004

**Appendix A. Omission rates of subject arguments in Italian.**

Stage	Children							Mean proportion null subjects monolinguals
	Carlo	Diana	Guglielmo	Martina	Raffaello	Rosa	Viola	
I	42/100 .42	–	–	96/119 .81*	81/98 .83*	75/98 .76*	42/50 .84*	.80
II	358/696 .51	100/133 .75*	148/212 .70*	308/518 .59**	193/252 .77*	142/242 .59	181/263 .69*	.66
III	579/977 .59	–	237/336 .70*	–	267/359 .74*	220/342 .64	–	.70
IV	225/400 .56	315/487 .65**	63/96 .66	–	–	–	–	.65

**Appendix B. Omission rates of object arguments in Italian.**

Stage	Children							Mean proportion null objects monolinguals
	Carlo	Diana	Guglielmo	Martina	Raffaello	Rosa	Viola	
I	1/10 .10	–	–	17/85 .20	4/27 .15	2/21 .09	0	.17
II	7/312 .02	21/64 .33	9/68 .13	34/212 .16	9/134 .07	6/90 .07	5/56 .09	.10
III	5/486 .01	–	23/169 .14	–	4/151 .03	4/113 .03	–	.07
IV	0	48/282 .17	0	–	–	–	–	.17

**Appendix C. Omission rates of subject arguments in English.**

Stage	Children					Mean proportion null subjects monolinguals
	Carlo	Adam	Naomi	Nina	Sarah	
I	4/32 .12	–	17/78 .22	128/248 .52*	36/80 .45	.45
II	51/700 .07	163/411 .40*	32/109 .29*	101/555 .18*	30/174 .17	.26
III	9/304 .03	22/520 .04	13/162 .08*	78/755 .10*	19/282 .07**	.08
IV	8/461 .02	41/1004 .04*	18/321 .06*	–	–	.04

**Appendix D. Omission rates of object arguments in English.**

Stage	Children					Mean proportion null objects monolinguals
	Carlo	Adam	Naomi	Nina	Sarah	
I	–	–	0/22 0	0/42 0	4/41 .10	.04
II	2/186 .01	8/194 .04	3/47 .06	10/226 .04	7/96 .07	.05
III	3/89 .03	6/288 .02	3/85 .03	4/270 .01	0/107 0	.02
IV	2/176 .01	1/380 .003	1/66 .01	–	–	.04