

## **Subject realization and crosslinguistic interference in the bilingual acquisition of Spanish and English: what is the role of the input?\***

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### ABSTRACT

This study investigated whether crosslinguistic interference occurs in the domain of subject realization in Spanish in a bilingual acquisition context. We were also interested in exploring whether the source of the interference is due to child-internal crosslanguage contact between English and Spanish, as is commonly assumed, or due to the nature of the language input in a bilingual family, a factor which has not typically been considered in studies of crosslinguistic influence. The use of subjects in a null subject language like Spanish is a phenomenon linked to the pragmatics/syntax interface of the grammar, and thus, is a domain where crosslinguistic interference is predicted to be likely to occur in bilingual acquisition (Müller & Hulk, 2001). Using spontaneous language data available from CHILDES ([www.childes.psy.cmu.edu](http://www.childes.psy.cmu.edu)), we examined the use of overt subjects in Spanish by two Spanish monolingual children (ages: 1;8–2;7 and 1;8–1;11) one Spanish–English bilingual child (age 1;9–2;6) and their parental interlocutors. We looked at the proportions of overt versus null subjects as well as the discourse-pragmatic contexts of overt subject use by the children in order to uncover bilingual/monolingual differences in the distributional properties and the functional determinants of subject realization. We also looked at identical variables in the speech of the children's parental interlocutors to investigate the potential influence of the input on the children's output. Our results suggest that the bilingual child showed patterns in her subject realizations in Spanish that could be interpreted as due to crosslinguistic effects from English; however, there is also evidence that these effects may have a source in the input, rather than resulting from internal crosslanguage contact. While our data do not permit us to distinguish

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conclusively between these two possible sources, they indicate that future research on crosslinguistic influence in bilingual acquisition should take input into account.

*Crosslinguistic interference in bilingual first language acquisition*

Over a decade ago researchers in the field of bilingual first language acquisition were debating whether bilingual children had one language system or two in the initial period of development (e.g. Genesee, 1989). More recently, the discussion has largely shifted from the 'one system or two?' dichotomy to subtler questions about the interactions between bilingual children's two developing languages. For instance, numerous researchers have reported the appearance of temporary but systematic structural influence from one language to another in the course of bilingual development in the syntactic (Döpke, 1998, 2000; Hulk & van der Linden, 1998; Müller, 1998; Yip & Mathews, 2000; Müller & Hulk, 2001), phonological (Paradis, 2001) and morphological (Nicoladis, 2002) domains. Implicit in this research is the assumption that the bilingual children studied had two linguistic systems, but that the two systems were not entirely autonomous in development. However, researchers have not always found crosslinguistic influence to occur in all domains investigated. For example, neither Paradis & Genesee (1996, 1997) nor Hulk & Müller (2000) found crosslanguage interference with respect to the use of root infinitives in Germanic/Romance language pairs. The absence of crosslinguistic interference in some areas is important because a new challenge facing researchers is to determine the limits and the sources of crosslinguistic interference in bilingual acquisition. After all, if the two developing languages of a bilingual child were to interact anywhere in all domains of the linguistic system, then there would be little difference between the current perspective of two separate but non-autonomous systems, and the perspective of one unitary initial system proposed in the context of the 'one system or two?' debate. In other words, in order to claim that a bilingual child can have separate but non-autonomous systems, we need to show that crosslinguistic interference is not random, but instead is a controlled and systematic phenomenon.

Towards meeting this challenge, Hulk & Müller (2000) and Müller & Hulk (2001) have put forth a proposal defining the probable conditions for crosslinguistic influence to occur in bilingual acquisition. These researchers suggest that crosslinguistic interference is likely to occur at the pragmatics/syntax interface of the linguistic system; the point in language production where the discourse-pragmatic context influences choices of syntactic structure. For example, in languages where subject or object arguments can be omitted, the criteria determining their realization is largely based on discourse-pragmatic considerations such as shared knowledge between speaker

and hearer. In addition to the notion that the pragmatics/syntax interface is the most likely locus for crosslinguistic effects, Hulk & Müller (2000) and Müller & Hulk (2001) further specify that the language pair being acquired should meet other conditions for the interference to take place. There needs to be an overlap at the surface level between the two languages for a certain structure, while the underlying syntactic analyses for this overlap structure are actually different in each language. Therefore, under these conditions, the child is presented with competing evidence for what the underlying representation should be for the overlap structure because the surface forms from both languages could provide evidence for the grammatical system the child is converging on in one language. Müller & Hulk (2001) argue that an example of this kind of overlap exists between V2 Germanic and Romance languages with respect to omission of object arguments. In V2 Germanic, an object argument can be omitted entirely from the sentence if it is the topic of discussion known to both speaker and hearer, whereas, the object cannot be omitted entirely in Romance. But, in situations where pronominalization is possible (i.e. information is known to speaker and hearer), a preverbal clitic is used, and thus the canonical object position is empty, which results in a possible overlap with the topic drop construction in Germanic. An example of object topic drop in German from Müller & Hulk (2001: 3) is given in (1). In a parallel exchange in French or Italian, a pronominal clitic would be required instead of the zero object in the answer to the question.

- (1) Q: *Kommst Du mit zur Titanic?*  
 'Will you come along to the Titanic?'  
 Ans: *Ø hab ich schon gesehen.*  
 'I've already seen it.'

Müller & Hulk (2001) examined object omissions in monolingual and bilingual children and found that a developmental error common to both monolinguals and bilinguals acquiring Romance, object omissions, was more prevalent in the context of a Romance language being acquired simultaneously with a Germanic language. Thus, they suggested that the bilingual children's acquisition of the Romance language was interconnected with the Germanic language in that the topic drop input from Germanic might underlie the higher rates of object omission errors in French and Italian.

Although Müller & Hulk propose that crosslinguistic interference is likely to take place at the pragmatics/syntax interface, they only tested one part of this proposal in their study because they examined the frequency of object omission errors without systematically examining the context of those errors. As Allen (2001) points out, in order to build a convincing account of crosslinguistic influence at the pragmatics/syntax interface, it is essential to look at the discourse-pragmatic determinants of argument realization, as well as

the structural outcomes. Our study looks at subject argument realization in Spanish monolingual children and a Spanish–English bilingual child. We examined the frequency of overt and null subjects, as well as the discourse-pragmatic context of overt subject use, with the objective of addressing not only the issue of whether crosslinguistic influence occurs, but also whether the interference includes the pragmatics end of the pragmatics/syntax interface. Previous research on the realization of subjects in the bilingual acquisition of English and Romance has not addressed these issues (e.g. Juan Garau & Perez Vidal, 2001; Serratrice, 2002).

Our study also explores an additional and fundamental question concerning crosslinguistic interference in bilingual acquisition that has not received much attention in the prior research on this topic, including Müller & Hulk's. This question regards the potential effect of parental input on the crosslinguistic structures apparent in the child's output. Other researchers who have examined crosslanguage phenomena in bilingual development have implicitly assumed that this is a psycholinguistic process internal to the mind of the child. Even explanations of crosslinguistic effects that focus on overlap or ambiguity in the dual language input assume that the contact between the languages that produces target-deviant structures is the result of how the child processes the input (Döpke, 1998; Müller & Hulk, 2001). But, when one considers that bilingual children have two or at least one bilingual parent, the kind of input they are exposed to is worth considering in detail. For instance, bilingual children could receive non-native input replete with transfer errors. Parents may not strictly adhere to a one-parent one-language rule of presentation to the child at all times, and moreover, if the parents communicate with each other in one language, one of them will be using their non-native language. Furthermore, even the native language input bilingual children receive from bilingual parents may be somewhat different from the input monolingual children would receive in that language. For example, if a bilingual parent has resided for a long time in an L2 majority community, they may have developed a contact variety of their native language (*cf.* Silva-Corvalán, 1994). In other words, it is possible that a bilingual child is presented with input that already has some inherent crosslinguistic interference, and thus some crosslinguistic effects in the bilingual child's production could be reflective of the input rather than being the outcome of internal processes. Accordingly, in our study we examined the parental interlocutors' frequency and discourse-pragmatic context of subject realization in Spanish in order to compare their input with the children's output. In brief, our study is concerned with two issues: (1) investigating whether Müller & Hulk's (2001) proposal applies to subject as well as to object realizations/omissions, and whether discourse-pragmatic principles can be part of crosslinguistic interference, and (2) investigating whether crosslinguistic interference could be attributed to externally-controlled mechanisms.

*Subject realization in Spanish*

Because the focus of our study is the use of subjects in the Spanish of a Spanish–English bilingual child, it is important to discuss how these two languages differ with respect to subject realization at the pragmatics/syntax interface, and how this presents the kind of problem space Müller & Hulk (2001) identified as being vulnerable to crosslinguistic influence. Like most Romance languages, Spanish is a null subject language with rich person/number morphology on the verb and thus, the appearance of overt pronominal and lexical subjects is grammatically optional and determined largely by the discourse-pragmatic context. The choice of a speaker to realize a subject in a null subject language like Spanish depends on considerations such as new versus old information in the discourse, or functions like contrast or emphasis (e.g. Silva-Corvalán, 1994; Davidson, 1996). The realization of subjects in natural conversation in Spanish for adults has been estimated to be approximately 30% of declarative utterances with a verb (Grinstead, 2000). In contrast, overt subjects are grammatically obligatory in non-imperative sentences in English, with just a few marginal exceptions. Discourse-pragmatic context like new versus old information plays a role in argument reduction in English, but argument reduction is achieved via pronominalization, not omission.

The use of subjects in Spanish clearly involves the pragmatics/syntax interface of the grammar. Several researchers have adopted formal analyses of overt subjects in Spanish and Italian as residing in a layer of sentence structure where the grammatical component of the sentence interacts with other cognitive systems. (Rizzi, 1997; Grinstead, 1998; Ordoñez & Treviño, 1999). This analysis of overt subjects in null subject Romance contrasts with the typical formal analysis assumed for English where subjects reside within the core inflectional layer of the sentence, rather than at the pragmatics/syntax interface (e.g. Marantz, 1995; Radford, 1997). In spite of the different underlying syntactic configurations and the relevance of pragmatic determinants for realization, overt subjects appear in both Spanish and English, and in the same canonical surface position, since both are SVO languages.<sup>1</sup> Therefore, it can be argued that from the perspective of a Spanish–English bilingual child, there is potential crosslanguage ambiguity in the input of the type defined by Müller & Hulk (2001) as creating the potential for crosslinguistic interference in bilingual development.

*Subject realization in the acquisition of null-subject languages*

According to Grinstead (1998, 2000), Spanish- and Catalan-speaking monolingual children converge on the target grammar with respect to subject

[1] Spanish has much freer word order than English, and postverbal subjects and fronted objects are not only common, but also can be related formally to the null subject phenomenon since they are both reflexes of the pragmatics/syntax interface (Contreras, 1991; Grinstead, 1998).

realization early on. He found that there is an initial stage before two years of age where Spanish and Catalan monolingual children produce no overt subjects even though they can produce utterances with verbs longer than two morphemes, and so, the context for overt subject use is present. When overt subjects emerge, they do so in tandem with some other phenomena linked to the pragmatics/syntax interface such as post-verbal subjects and fronted objects, and are used at a rate of 16% of utterances with a verb (averaged across five children) in the context of a naturalistic play session. Also examining longitudinal naturalistic data, Ezeizabarrena (2000) found a 20% rate of overt subject use in both languages of bilingual Spanish- and Basque-learning children from age 2;0 to 4;0. Interestingly, this approximate 20% realization level for two-year-olds also holds for both subject and object argument realization in Inuktitut (Allen, 2000; Allen & Schröder, in press). Furthermore, Allen (2000) found that the omission of both subject and object arguments in these young Inuktitut speakers was determined by appropriate discourse-pragmatic conditions (see also Guerriero, Cooper, Oshima-Takane & Kuriyama, 2001, for similar conclusions about three-year-old Japanese speakers).

These acquisition patterns for null subject languages appear quite different from what has been found for children learning languages like English. Even though English requires overt subjects, many children acquiring English go through an early period where they omit subjects in non-imperative sentences. Analysing data from Adam, Eve and Sarah (Brown, 1973), Bloom (1990) found rates of subject suppliance to be 45% on average from approximately two to two-and-a-half years of age. Valian (1990) compared subject realization in Italian- and English-learning two-year-olds and found that the English-learning children supplied subjects 69% of the time, while Italian-learning children had a 30% rate of overt subject use. Her study clearly indicates the contrast in rates of subject realization between children acquiring null subject and non-null subject languages. This contrast in frequency of use, together with Guerriero *et al.* (2001) and Allen (2000)'s findings on the discourse-pragmatic context of argument omissions, suggest that children can converge on the correct properties of the pragmatics/syntax interface of a null-subject target language at a very young age.

#### *Predictions for Spanish–English bilingual first language acquisition*

By examining the structural properties of adult Spanish and English and the acquisition findings for Spanish and English, we can make predictions about subject use in the bilingual acquisition of Spanish, in line with Müller & Hulk (2001)'s proposal. First, a Spanish–English bilingual child may produce more overt subjects than is typical of monolinguals in Spanish, and may not exhibit the same two stage developmental pattern. This prediction is based

on the supposition that English provides qualitative evidence for a competing syntactic analysis for subjects (surface word order), and quantitative influence in terms of the sheer frequency of overt subjects used. More specifically, we hypothesized that the frequency of occurrence of overt subjects in the language where it is obligatory to use them (in this case English) may be influencing the language where it is optional to use them. This influence may cause the child to experience some period of confusion or delay in convergence on the target system that would result in target-deviant outcomes such as relatively frequent use of overt subjects, infelicitous application of the discourse-pragmatic principles guiding overt subject use, or both.

#### METHOD

##### *Participants*

The data for the three child participants and their parental interlocutors consisted of transcribed naturalistic language production samples available through the CHILDES system ([www.childes.psy.cmu.edu](http://www.childes.psy.cmu.edu); MacWhinney, 2000). Data are from the following Spanish and Bilingual corpora: Vila (Serrat Sellabona [no date given]) for the child E, López Ornat (López Ornat, 1994) for the child L, and Deuchar (Deuchar & Quay, 2000) for the child M. The bilingual child, M, had a native Cuban Spanish-speaking father and a native British English-speaking mother. The mother spoke a Panamanian variety of Spanish, with some Cuban influence, as a second language (personal communication). Both parents spoke Spanish to each other and to M at home, and M received English input mainly from caretakers in the crèche and from her maternal grandmother (Deuchar & Quay, 2000). As a comparison group for M, we included two Spanish-speaking monolingual children at a comparable developmental stage to M. Both children, E and L, were acquiring Spanish in Spain. We recognize the difficulty in making generalizations across children who are acquiring different dialects of Spanish (López Ornat, 1988). This is particularly important when we consider that M's father speaks Cuban Spanish. Speakers of Caribbean Spanish dialects use pronoun subjects more frequently than speakers of other dialects, although these varieties of Spanish are still null subject languages (Toribio, 1994; Ticio, 2001). We take the possible influence of dialect into account in our interpretation of both the children's and the parents' data.

The children's ages and MLU's in words are listed in Table 1. The children E and M have longitudinal data spanning 10 and 9 months respectively, but L's data span just 4 months, and thus may not reveal developmental trends. Data for E and M begin with the first transcript from their database files where the context for the use of subjects is present, i.e. MLU > 1.00 and use of verbs. Overt subjects appear in all of L's files.

TABLE 1. *Children's ages and MLUWs in Spanish*

M (bilingual)		E (monolingual)		L (monolingual)	
Age	MLUW	Age	MLUW	Age	MLUW
1;09	1·26	1;08	1·20	1;08	1·99
1;11	1·35	1;09	1·26	1;09	2·07
2;0	1·45	1;10	1·10	1;10	1·84
2;02	2·12	1;10	1·34	1;11	2·07
2;05	2·51	1;11	1·29		
2;06	2·08	2;0	1·36		
		2;01	1·39		
		2;01	1·52		
		2;03	1·97		
		2;04	2·21		
		2;05	1·89		
		2;06	2·12		
		2;07	2·30		
		2;07	2·12		

### *Coding*

All the transcripts were coded by the second author, who is a native-speaker of Chilean Spanish and a graduate student in linguistics. Coding included the presence of overt subjects, the types of overt subjects (pronoun versus lexical), and the discourse-pragmatic function of overt subject use. Utterances from both the parental interlocutors and the children were coded. We used an experimenter-created coding system, following the conventions of CHAT, and compatible with the CLAN analysis programme (MacWhinney, 2000). Only structurally declarative utterances with a verb were coded, and some of these were queries with interrogative intonation. We excluded imperative and structurally interrogative utterances, potentially unproductive routines like *que es eso?* 'what is that', sentences with *hay* 'there is ...', whole repetitions of a preceding adult utterance, self repetitions, and recitations of poems or songs.<sup>2</sup>

In addition to coding for the presence or absence of an overt subject, we coded for the discourse-pragmatic function of the overt subjects. The discourse-pragmatic functions we coded for were based on those used by other researchers examining argument realization in the acquisition of Japanese, Korean and Inuktitut (Clancy, 1997; Allen, 2000; Guerriero *et al.*, 2001). While these languages permit both subject and object argument omissions, the discourse-pragmatic functions determining argument realization can be

[2] While non-subject interrogatives could in principle have null or overt subjects, the coding system was made more straightforward by omitting all interrogatives. Most of the children's interrogatives were either 'donde esta X?' or the formulaic 'que es eso?', neither of which contribute to our analyses. Thus, by omitting structural interrogatives, we were not eliminating a major data source.



applied to just subject arguments in the case of Spanish. We had three categories of realized subjects: (1) new information; (2) given information, but realization serves a discourse-pragmatic purpose, and (3) given information and no discourse-pragmatic purpose could be identified for realization. The first category, new information (NI), was employed when an overt subject introduced a new referent in the discourse, or was referring to an old referent that had not been mentioned recently (within 5–10 exchanges). Within the second category, we coded for the following kinds of functions for the realization of a subject when the subject could not be considered new information: contrast (CON), query, (QUE), emphasis (EMP), and ABS (absent). Contrast (CON) refers to an overt subject whose function served to disambiguate between two possible referents (typically two 3<sup>rd</sup> person referents) or whose function was to focus on that subject. Query (QUE) was used when the referent was being questioned (in an intonational interrogative) or used in response to a question. Emphasis (EMP) was used to code overt subjects that could be read as if they had more prosodic prominence, in other words, the speaker seemed to intend to highlight that subject. Very often EMP subjects were pronouns and in the parent's speech to the children. Absent (ABS) was used when the referent was not present in the visual field/space where discourse was taking place. Both Allen (2000) and Clancy (1997) found that arguments were more likely to be realized when they were absent from the physical space the discourse was taking place in. In the case of the parents' speech, we added an additional category called child directed speech (CDS). The following kinds of utterances fell into this category: utterances where the parents' referred to themselves in the third person, such as *Mami te amarra el zapato* 'mommy is going to tie your shoe', and utterances with the realization of a known subject referent in a context where it appeared as if the parent was repeating the argument in order to label the object for the child to teach the child a new word. The third category of given information with no clear discourse-pragmatic function was used when none of the other two categories applied to an overt subject. We called this category low informativeness (LINF). To summarize, each use of a realized subject in both the parents' and the children's speech was coded for which of these functions applied: NI, CON, QUE, EMP, ABS, (CDS) and LINF. Sample excerpts from the transcripts illustrating these coding categories are given in the Appendix.

We would like to point out that because our categories for overt subject use are not exhaustive, we are not claiming that the LINF subjects are necessarily completely redundant. Semantic variables such as animacy, or whether third versus first and second person are being referenced can influence whether a subject is realized or not (Davidson, 1996; Allen, 2000). The purpose of our LINF category is for relative comparisons between the bilingual child and the monolinguals, and between the parents of the bilingual child and the parents of the monolingual children. We sought to find out whether the

TABLE 2. *Children's percentage of overt and null subjects across all transcripts*

Child	% overt	% null
M	35.32 (83) <sup>a</sup>	64.68 (152)
E	16.95 (59)	83.05 (289)
L	20.13 (31)	79.87 (123)

<sup>a</sup> Frequencies are in parentheses.

TABLE 3. *Children's percentage of overt subjects that are pronouns and lexical subjects*

Child	% pronoun <sup>a</sup>	% lexical
M	31.33 (26) <sup>b</sup>	68.67 (57)
E	25.42 (15)	74.58 (44)
L	16.13 (5)	83.87 (26)

<sup>a</sup> For both M and E the vast majority of pronoun subjects used were the first person singular *yo*, 88 and 80%. L used very few pronouns overall, but 4/5 were the second person singular, *tu*.

<sup>b</sup> Frequencies are in parentheses.

bilingual family would display greater frequencies of overt subjects in the LINF category than the monolingual families. Finally, even though we distinguished between different discourse-pragmatic functions for subject realization, our purpose was to isolate a 'none of the above' category, i.e. LINF. In other words, we were not interested in comparing differences between the NI, CON, EMP, ABS and QUE categories, but instead our analyses focused on determining differences between the bilingual and monolingual families in how their overt subjects distributed across the discourse-pragmatic functions in categories (1) and (2) versus the low informativeness category (3).

## RESULTS

### *Children*

We calculated the percent use of overt and null subjects, out of all utterances where a context for a subject was possible, for each of the three children and the results are given in Table 2. Both the Spanish monolingual children, E and L, realized subjects at or below 20%, which concurs with what other researchers have found for learners of null-subject languages the same age (Grinstead, 1998, 2000; Allen, 2000; Allen & Schröder, in press; Ezeizabarrena, 2000). On the other hand, the bilingual child M had a somewhat higher rate of subject realization (35%), although she still produced the majority of her utterances with null subjects like the monolingual children. In Table 3, we show the percentage of the overt subjects that are pronouns versus lexical subjects. Table 3 shows that 31% of M's overt subjects were

BILINGUAL ACQUISITION OF SPANISH/ENGLISH

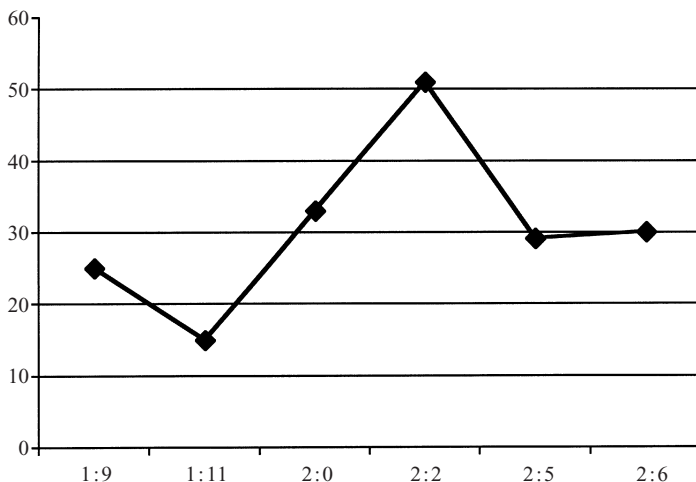


Fig. 1. M's percentage use of overt subjects over time.

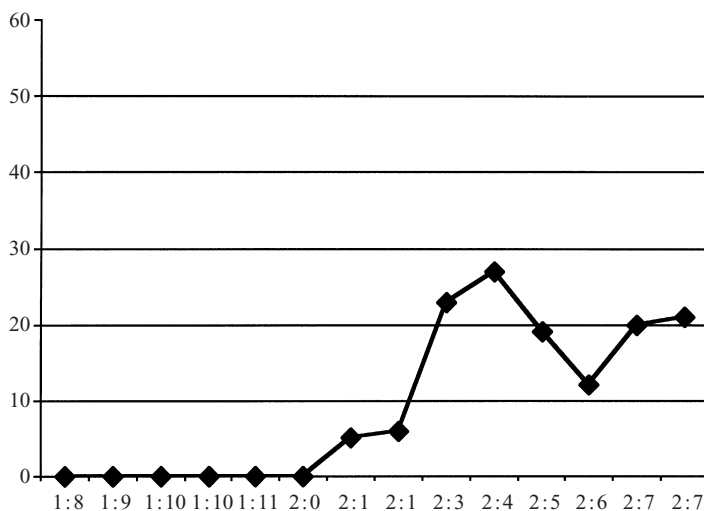


Fig. 2. E's percentage use of overt subjects over time.

pronouns, while 25 and 16% of L's and E's overt subjects were pronouns respectively. Even though M has the highest percent use of pronouns, E's rate of use is fairly close.

In addition to overall rate, we also wanted to examine patterns of subject use over time. For this analysis, we could only compare M and E since L's data are not longitudinal. Figures 1 and 2 show the percentage of overt

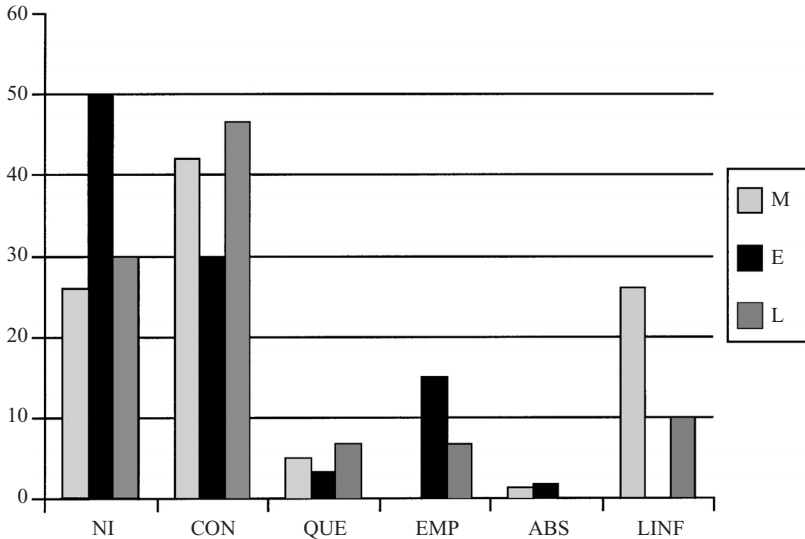


Fig. 3. Children's percentage use of overt subjects according to discourse-pragmatic function.

TABLE 4. Parents' percentage of overt and null subjects across all transcripts

Parent (child)	% overt	% null
MOT (M)	61.76 (168) <sup>a</sup>	38.24 (104)
FAT (M)	60.00 (174)	40.00 (116)
MOT (E)	42.41 (273)	57.59 (201)
MOT (L)	35.32 (184)	64.68 (337)
FAT (L)	42.90 (76)	57.10 (76)

<sup>a</sup> Frequencies are in parentheses.

subjects used out of the possible contexts, at each observation interval, from 1;9 to 2;6 for M, and from 1;8 to 2;7 for E, respectively. The pattern of use in E's data lines up with what Grinstead (1998) found: an early period with no subject realizations, followed by a period where realizations average 20%. In contrast, M's use of overt subjects differs in that there is no early period with no subject realizations, a middle period where use peaks at 50%, and a third period where subject realizations appear to stabilize at a about 30%. Note that there are transcripts for M in the database that precede 1;9, but in these transcripts, no contexts for the production of subjects occurred, which is why they were excluded from our study. A Mann-Whitney *U* comparison of the distribution of percent use of overt subjects for E and M confirm the observation that their acquisition patterns are different ( $z = -2.969$ ,  $p < 0.01$ ).

TABLE 5. Parents' percentage of overt subjects that are pronouns and lexical subjects

Parent (child)	% pronoun	% lexical
MOT (M)	52.98 (89) <sup>a</sup>	47.02 (79)
FAT (M)	37.36 (65)	62.64 (109)
MOT (E)	32.84 (66)	67.16 (135)
MOT (L)	40.22 (74)	59.78 (110)
FAT (L)	35.09 (20)	64.91 (37)

<sup>a</sup> Frequencies are in parentheses.

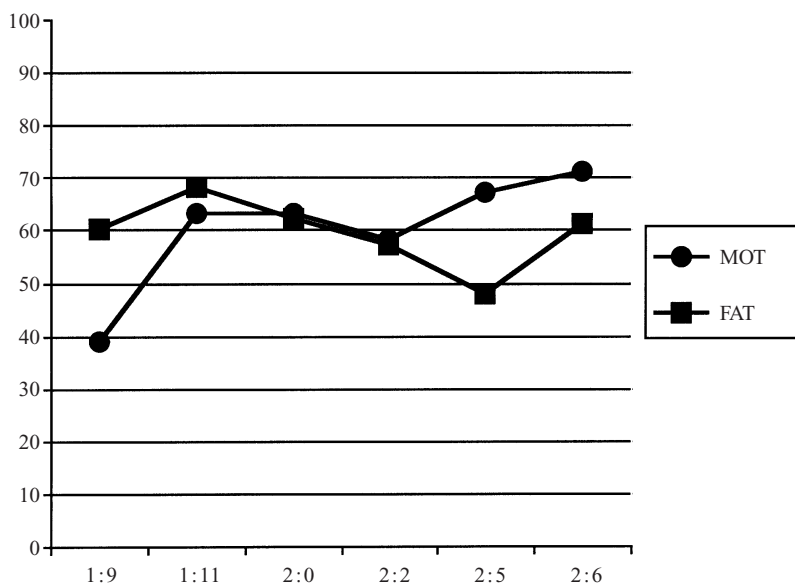


Fig. 4. M's mother's and father's percentage use of overt subjects over time.

Our final analyses of the children's subject realizations concerned the discourse-pragmatic contexts. We calculated the percent use of overt subjects in each of the following categories, out of the total of overt subjects: NI (new information), CON (contrast), QUE (query), EMP (emphasis), ABS (absent [from physical context]) and LINF (low informativeness value = none of the other categories applied). The first five categories represent use of an overt subject that serves an identifiable discourse-pragmatic function. The sixth category refers to overt subjects to which none of the discourse-pragmatic functions we coded for applied. The results presented in Figure 3 show that all three children used subjects according to each of the five discourse-pragmatic functions we identified. This suggests that the monolingual children and the

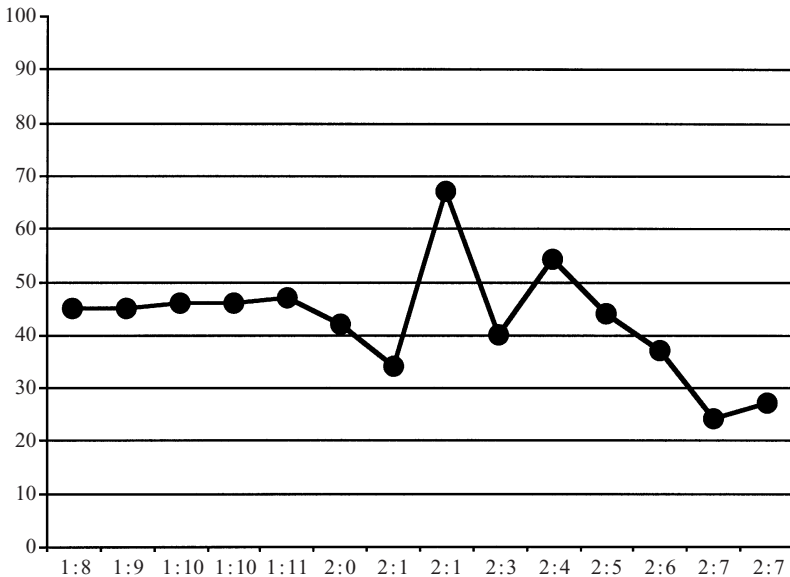


Fig. 5. E's mother's percentage use of overt subjects over time.

bilingual child have grasped some elements about the Spanish system. However, M's percentage of overt subjects in the LINF category is over twice as high as that for L (26% vs. 10%) and E had virtually no overt subjects coded as LINF. Furthermore, at the two final observation intervals, age 2;5 and 2;6, 36% (9/16) and 43% (7/16) of M's overt subjects were in the LINF category, indicating that the mean percentage is not skewed by high proportions at the earliest intervals. In other words, it does not appear to be the case that M had not grasped the discourse-pragmatic functions of overt subject use in Spanish at 1;9 or 2;0, but showed patterns like the monolinguals by the time she was 2;6. In contrast to her frequency of overt subject use, which seemed to move close to that of the monolinguals by 2;6 (as shown in Figure 1), the discourse-pragmatic contexts of her overt subject use is strikingly different from monolinguals even at 2;6.

### *Parents*

Similar to the analyses for the children, we calculated the parents' percentage use of overt and null subjects out of the total of possible contexts for subject use across transcripts. The results in Table 4 show differences between M's parents and the Spanish-speaking parents. Both M's mother and father used overt subjects 60% of the time, while E's mother and L's mother and father used overt subjects 35–42% of the time. With respect to use of pronouns,

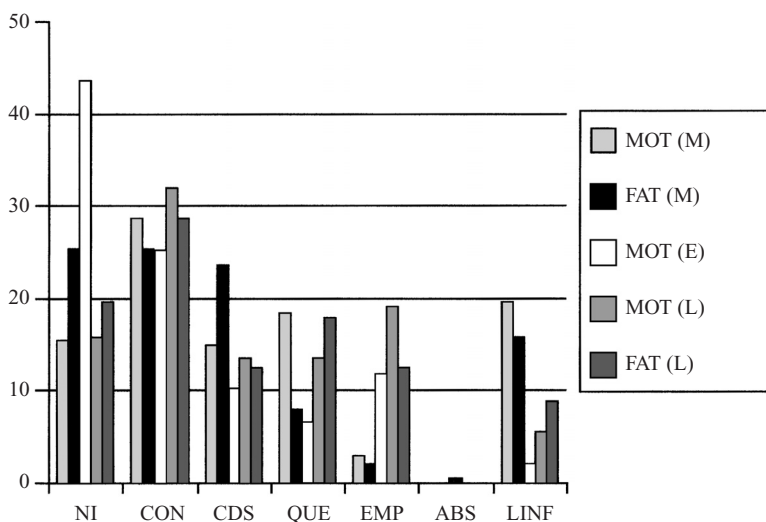


Fig. 6. Parents' percentage use of overt subjects according to pragmatic function.

percent use of lexical and pronominal overt subjects is given in Table 5. In this case, M's father patterns with the other native speakers where approximately 40% of overt subjects were pronouns. Thus, contrary to what might have been expected because of M's father's Cuban dialect, he did not show a high frequency of pronoun use (*cf.* Toribio, 1994). In contrast to the native speakers, the majority (53%) of M's mother's overt subjects were pronouns.

We next examined the percent use of overt subjects by M and E's parents over time, and these data are shown in Figure 4 for M's parents, and Figure 5 for E's mother. M's parents consistently used overt subjects as  $\geq 50\%$  of all subjects (except M's mother at 1;9), whereas, E's mother produced overt subjects  $\leq 50\%$  of all subjects (except 2;1 and 2;4). In order to assess whether the patterns of subject realization were significantly different over time between the monolingual and bilingual families, the percent scores at each interval for M's mother, M's father and E's mother were compared using Mann-Whitney *U* tests. The distribution of overt subjects was significantly different between E's mother and M's mother ( $z = -2.324$ ,  $p < 0.05$ ), and between E's mother and M's father ( $z = -2.894$ ,  $p < 0.01$ ). But, M's mother and father did not differ from each other ( $z = -0.801$ ,  $p > 0.05$ ).

In sum, these data indicate that M's input in terms of quantity and type of overt subjects is distinct from that of the other children.

We calculated the percent use of overt subjects by the parents in each of the following categories out of the total of overt subjects: NI (new information), CON (contrast), CDS (child-directed speech functions), QUE (query),

EMP (emphasis), ABS (absent [from physical context]) and LINF (low informativeness value = none of the other categories applied). The results in Figure 6 show that all of the six informative discourse-pragmatic functions are used by all of the parental interlocutors, which is not surprising because the children also used all of them (with the exception of CDS). However, like M's data in Figure 3, M's parents have the highest percentage of subjects in the LINF category (FAT = 16%; MOT = 20%).

#### DISCUSSION

We first discuss the findings for the monolingual children to establish a set of expectations for the bilingual child. The two monolingual children, L and E, appeared to have grasped the appropriate frequency of subject realization in Spanish at two years of age. The children omitted subjects the majority of the time, and their rates of overt subject use fit into the range defined by other studies of Spanish-learning and Catalan-learning children the same age (Grinstead, 1998, 2000; Eziziebarrena, 2000). The similarities in the research findings for monolinguals across Spanish dialects, and the closely-related Catalan, gives us confidence in comparing M with L and E, even though she is exposed to a different dialect. In addition to frequency, L and E also appeared to have grasped the function of subject realization in Spanish at two years of age. They both revealed systematic adherence to the discourse-pragmatic determinants for subject realization with less than 10% of L's overt subjects, and none of E's overt subjects, unaccounted for by these determinants (i.e. LINF). That two-year-old children can converge on the complex discourse-pragmatic component of subject realization concurs with what Allen (2000) found for Inuktitut-learning children.

When we compare M's rates and patterns of overt subject use with those of the monolinguals, she shows a somewhat different profile. Her overall mean use of overt subjects was 15% higher than L's and 18% higher than E's, and higher than other Spanish and Catalan-learning children reported in the literature. Longitudinally, her use of overt subjects followed a different pattern from that of E, who followed the pattern documented by Grinstead (1998). M arguably looks the most different from the monolingual children with respect to the discourse-pragmatic contexts of overt subject realization. She had more than twice the proportion of overall overt subjects in the 'unaccounted for' category (LINF) as L, while E had no overt subjects in this category. In addition, she had her highest proportions of overt subjects in this category at the END of the observation period. When we compare M's frequency with the context of overt subject use over time, it appears that by 2;6 she had come closer to converging on the frequency of subject realization in Spanish, while her grasp the discourse-pragmatic functions of subject realization was lagging behind.



It is important to bear in mind that even though M's use of overt subjects in context has distinct properties from that of the monolinguals, it does not appear to be completely un-Spanish-like. She omitted subjects the majority of the time, and most of her overt subjects overall were distributed across the appropriate discourse-pragmatic functions. Another important point is that the small sample we are comparing M with (two children plus eight others from the literature) is not sufficient to determine whether she is outside the typical monolingual distribution for these measures, or whether she is at the upper bound of that distribution (*cf.* Deuchar, 2001). Therefore, our interpretations and conclusions concerning crosslinguistic interference are necessarily cautious.

It could be argued that M's frequency and context of overt subject use support the interpretation that crosslinguistic interference from English is the underlying cause for her unique profile. More specifically, the English input would present more overt subjects overall, and a system where subject realization is obligatory, rather than being determined by discourse-pragmatic principles, both of which could influence her effective processing of the Spanish input, and in turn, influence her developing Spanish grammar. Why the English input would interfere could be explained by Müller & Hulk's (2001) proposal concerning the pragmatics/syntax interface and ambiguity on the surface. Because M appears to get close to the 20% rate of subject realization displayed by the monolinguals by 2;6, we could further conclude that like the bilingual children studied by Döpke (1998) and Müller & Hulk (2001), the period of crosslinguistic structures had begun to resolve at that age. However, M did not show resolution of her incomplete grasp of the discourse-pragmatic principles for the context of overt subject use by 2;6. In sum, the data from M, in reference with that of monolinguals, seem to show evidence in favour of Müller & Hulk's (2001) proposal about where crosslinguistic effects are likely to occur in bilingual acquisition, and moreover, M's data demonstrate that crosslinguistic effects can occur in both the syntax and the pragmatics of the pragmatics/syntax interface.

It is possible that the pattern M shows for use of overt subjects is also evident in the English and Catalan-learning child studied by Juan-Garau & Pérez-Vidal (2000). These authors did not examine subject use in Catalan, because their focus was English and language differentiation, but they provide data in Tables from the ages of 1;10 to 2;10, which includes the period of development we have examined for M. Like M, this child had a higher overall rate of overt subject use during this period, 30%, than the monolinguals described in our study and in that of Grinstead (1998). In contrast, Serratrice's (2002) Italian-English bilingual used overt subjects at a rate closer to the 20% baseline, 24.7%, over a period 1;10 to 3;1. This individual variation among bilingual children is a reminder that even though crosslinguistic effects are likely to appear in a certain linguistic domain, and some

children will display these effects, one cannot expect all bilingual children to do so (*cf.* Paradis & Genesee, 1996).

Thus far we have put forth an interpretation based on the children's data alone, and suggested that M's patterns show evidence in support of English influence on her acquisition of subject realization in Spanish. The question we now ask is whether the distinct patterns in M's Spanish might come from her input in Spanish, rather than being the result of an internal process such as transfer. Our analyses showed that M was exposed to a model of Spanish that included a higher proportion of overt subjects than in the monolingual families, and far more pronoun subjects from her mother than from the native speaker parents. Over the time period examined, M was exposed to a variety of Spanish with a 60/40 overt/null subject proportion, whereas, the monolingual children L and E were exposed to a 40/60 split in their input. M was also exposed to a model of Spanish where a greater number of overt subjects appeared in our LINF category than in the model presented to the monolingual children. As we pointed out in our discussion of the children's data, with the limited number of participants in our study, it is difficult to know just how much this distinction we found between the monolingual and bilingual families might fall within the typical range of variation. However, the connection between input and output for M and for the other children suggests that the distinct model of Spanish M was exposed to might have exerted some influence. The question remains whether she ever converged on the same kind of system as the monolingual children because we do not have data past the age of 2;6.

In conclusion, our comparison of M's subject realization patterns with that of two monolingual Spanish-learning children is consistent with the interpretation that crosslinguistic influence is apparent in this bilingual child's language production. This crosslinguistic influence occurred in the syntax/pragmatics interface, as predicted by Müller & Hulk (2001). However, what these data cannot tell us conclusively is whether what appears to be crosslinguistic influence is the result of some internal, psycholinguistic mechanism, or whether it was already present in the contact-variety Spanish input she was receiving, or both sources operating in tandem. Future research aimed at teasing apart these two very different sources of crosslinguistic effects needs to be controlled for dialect, so that both the bilinguals and monolinguals are exposed to the same variety of Spanish, with roughly the same frequency of subject realizations in the input. Such a study would indicate more clearly whether crosslinguistic influence for this aspect of grammar due to internal mechanisms occurs reliably. A follow-up comparative study of monolingual and bilingual children acquiring a variety of Spanish with different subject realization patterns would inform us about the role of the input. Even though our study cannot offer conclusions about the internal versus external sources of crosslinguistic influence, it does send a message to

researchers investigating crosslinguistic interference in bilingual acquisition: the potential impact of the child's input should be considered, and the source(s) of crosslinguistic interference may be more multifaceted than we have thought hitherto.

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## APPENDIX

## I. EXAMPLE OF NEW INFORMATION (E 2;7)

@Situation: E is talking to Nacho (the interviewer/moderator) about places the child has visited.

\*NAC: a Barcelona fuíste ?

%eng: you went to Barcelona ?

\*CHI: sí.

%eng: yes.

\*NAC: a + ...

\*MOT: y con quién fuimos ?

%eng: who did we go with ?

\*CHI: no sé.

%eng: I don't know.

**\*CHI: papa se va a Barcelona.**

%eng: Dad leaves for Barcelona.

\*NAC: quién se va a Barcelona.

%eng: who leaves for Barcelona ?

\*CHI: que me voy a Francisco.

%eng: I leave for Francisco.

\*NAC: que te vas a comprar un disco?

%eng: you are going to get a record?

2A. EXAMPLE OF CONTRAST (L 1; 10)

@Situation: L is on the terrace. She sits down and takes things out of a bucket.

\*CHI: oto [=otro] pato [=plato]!

%eng: another plate!

\*FAT: otro.

%eng: another.

\*CHI: síi.

%eng: yes.

\*FAT: vaya!

%eng: all right!

\*CHI: oto [=otro] pato [=plato].

%eng: another plate.

**\*FAT: no, eso no es un plato.**

%eng: no, that is not a plate.

\*CHI: oto [=otro] pato [=plato].

%eng: another plate.

\*FAT: eso es una cacerola.

%eng: that is a pot.

\*CHI: eh!

2B. EXAMPLE OF CONTRAST (E 2; 6)

@Situation: E and Nacho are in the same room and E wants to touch different things.

\*CHI: y esto.

%eng: and this one.

\*NAC: tampoco.

%eng: neither.

\*NAC: no sirve para nada.

%eng: this one is worthless.

\*CHI: y esto.

%eng: and this one.

**\*NAC: eso sí que no se toca.**

%eng: that one, you don't touch that.

\*CHI: y esto.

%eng: and this one.

\*NAC: igual.

%eng: either.

2C. EXAMPLE OF CONTRAST (E 2;7)

@Situation: E's mother is asking E to show Nacho how he can ride his bicycle.

\*MOT: por qué no?

%eng: why not?

\*CHI: éste.

%eng: this one.

\*MOT: ahora.

%eng: now.

\*CHI: ahora.

%eng: now.

**\*MOT: no porque tú te pones nervioso.**

%eng: no, because you get nervous.

\*CHI: ven agárrate.

%eng: come hold it.

3. EXAMPLE OF QUERY (L 1;9)

@Situation: L is on the terrace with her mother.

\*CHI: xxx # a pupa.

%eng: it hurts.

\*MOT: qué dices de pupa?

%eng: what do you say about hurting?

\*CHI: esta. [% enseña su mano]

%eng: this. (shows her hand)

**\*MOT: esta hace pupa?**

%eng: this one hurts?

\*CHI: sí.

%eng: yes.

\*MOT: sí, el rosal.

%eng: yes, the roses.

\*MOT: esta mañana se pinchó.

%eng: she pricked herself this morning.

4. EXAMPLE OF EMPHASIS (M 2;6)

@Situation: M and her father are playing with a doll and a pram.

\*CHI: donde está el bebé?

%act: looking inside the pram and then looking up at FAT

%eng: where's the baby?

**\*FAT: tú lo pusiste ahí!**

%eng: you put it there

\*FAT: adónde se metió?

%eng: where did it go?

%sit: FAT and M look inside the pram

\*FAT: ah un bebé.

%eng: ah a baby

5. EXAMPLE OF ABSENT REFERENT (E 2;7)

@Situation: E is playing and asks his mother for sugar.

\*CHI: ponme azúcar Inés.

%eng: Put me me sugar.

\*HER: más.

%eng: more.

\*CHI: mira azúcar.

%eng: Look, sugar.

\*HER: aquí no hay.

%eng: there is none here.

\*CHI: esto azúcar.

%eng: this sugar.

**\*MOT: en la cocina está el azúcar.**

%eng: the sugar is in the kitchen.

\*NAC: te gusta mucho el azúcar a ti.

%eng: do you like sugar a lot?

6A. EXAMPLE OF LINF (M 2;5)

@Situation: M and her mother are playing tea party.

\*MOT: no hay más qué?

%eng: there isn't any more of what

\*CHI: no compró más café y té.

%eng: I didn't buy more coffee and tea

\*MOT: no compraste más?

%eng: didn't you buy any more

\*CHI: si.

%eng: yes

**\*MOT: ah no importa yo creo que tomé suficiente.**

%eng: ah it doesn't matter I think that I had enough.

\*CHI: suficiente.

6B. LINF CATEGORY (M 1;11)

@Situation: M and her father are playing with some boxes.

\*CHI: M poopoo.

%eng: M pooh.

**\*MOT: yo creo ha hecho pupu.**

%eng: I think she's done a poopoo

\*FAT: pupu # si # otra vez # otra vez pupu?

%eng: poopoo, yes, again, poopoo again

\*CHI: si.