Káñina, Rev. Artes y Letras, Univ. Costa Rica. XXXIII (1): 85-105, 2009 / ISSN: 0378-0473

CROSS-LINGUISTIC INFLUENCE IN THE SYNTACTIC DOMAIN IN SIMULTANEOUS LANGUAGE ACQUISITION: EVIDENCE FROM EXTRACTION CONSTRUCTIONS INVOLVING THE OBJECT OF A PREPOSITION IN THE SPEECH OF AN ENGLISH-SPANISH BILINGUAL CHILD

*Luz Marina Vásquez Carranza**

RESUMEN

Este estudio reporta evidencia de influencia cros-lingüística en el lenguaje de un niño bilingüe simultáneo inglés-español entre las edades de 2;3 y 5;6 en construcciones que contienen extracciones de objeto de preposición ('pied-piping' y 'preposition stranding'). El análisis de los datos de 11 niños y niñas monolingües del inglés no reveló ejemplos de construcciones con 'pied-piping' a pesar de que estas son gramaticales en el inglés adulto; en cambio, el 46% de las construcciones relevantes en el lenguaje del niño bilingüe evidenciaron 'pied-piping'. De igual forma, mientras que los datos de 14 niños y niñas monolingües del español nunca evidenciaron ejemplos de 'preposition stranding', lo cual nunca es gramatical en el español, el 26% de las construcciones producidas por el niño bilingüe sí lo hicieron. Estas diferencias cualitativas entre los datos monolingües y los bilingües claramente sugieren evidencia de influencia cros-lingüística.

Palabras claves: influencia cros-lingüística, bilingüismo simultáneo, bilingüismo ingles-español, pied-piping, preposition stranding, extracciones de objeto de preposición

ABSTRACT

This study reports evidence of cross-linguistic influence in the speech of an English-Spanish simultaneous bilingual child between ages 2;3 and 5;6. in extraction constructions involving the object of a preposition (i.e., pied-piping and preposition stranding). Relevant data by 11 English monolingual children revealed no instances of pied-piping constructions despite the fact that these are grammatical in adult English speech; in contrast, 46% of the relevant constructions in the bilingual child's speech contained pied-piping. Similarly, whereas the data by 14 Spanish monolingual children never evidenced preposition stranding, which is never a grammatical option in Spanish, the bilingual child data did so in 26% of his relevant constructions. These qualitative differences between the monolingual and the bilingual child data strongly suggest cross-linguistic influence.

Key Words: cross-linguistic influence, simultaneous bilingualism, English-Spanish bilingualism, pied-piping, preposition stranding, extraction of objects of prepositions

---

* Ph.D. Applied Linguistics; Boston Univeristy. Currently full-time professor University of Costa Rica, Sede Occidente. lvasquez@so.ucr.ca.cr.
Recepción: 04/03/09 - Aceptación: 20/03/09

1. Simultaneous Bilingual Acquisition

1.1. First Interpretations

Results in the study of simultaneous child language acquisition have received different interpretations. Whereas some researchers argue that the child starts out with a unified language system that separates gradually (e.g., Fantini, 1985; Redlinger & Park, 1980; Vihman, 1982; Volterra & Taeschner, 1978), starting with the seminal study by Genesee (1989), many researchers have argued that although the two languages in the simultaneous bilingual child might interact resulting in language mixing, they develop autonomously from the outset; that is, each along the same lines as in monolingual children (e.g., Barreña, 1997; DeHouwer, 1990; Deuchar & Quay, 2000; Grosean, 1982; Koehn, 1994; Lanza, 1992; Mahlau, 1994; Satomi, 2002).

Although DeHouwer (1990), Deuchar and Quay (2000), Genesee, Boivin, and Nicoladis (1996), Genesee, Nicoladis, and Paradis (1995), Koehn (1994), Lanza (1992), Mahlau (1994), Meisel (1994), Paradis and Genesee (1996), Quay (1995), Satomi (2002), and Vásquez (to appear in Revista de Filología y Lingüística, 2007) report no developmental differences between the language acquisition processes of bilingual and monolingual children, some report that bilingual children tend to belong to the lower range of development during the early stages (e.g., Genesee et al., 1996, show this pattern regarding English-French bilingual children between ages 2;0 and 3;0).

1.2. Recent Research

In the last decade, research in simultaneous bilingual acquisition has centered on examining non-target-like structures in one of the bilingual child's two languages that reflect the structural properties of the other language, a phenomenon referred to as *cross-linguistic influence* (Genesee, Paradis, & Crago, 2004).

Whereas some researchers report no evidence of cross-linguistic influence at the syntactic level (e.g., Juan-Garau & Pérez-Vidal, 2000; Paradis & Genesee, 1996; Paradis & Navarro, 2003; Satomi, 2002; Zwanziger et al., 2005), several others argue for the regular incorporation of structures from one language onto the other in the process of simultaneous bilingual acquisition. For instance, Yip and Mathews (2000) observed potentially significant evidence of influence from Cantonese onto English in null/overt objects and *wh*-constructions. Nicoladis (2002), on the other hand, reported more non-target like forms in compound nouns in French-English bilingual children than in English monolingual children of comparable ages.

Similarly, several studies have reported possible cross-linguistic influence regarding word order patterns in main and subordinate clauses in German/Dutch-English/Italian/French child bilingualism: Müller (1998), Gavarró (2003), Hulk (2000), Döpke (1998, 2000), Müller et al. (1999), and Müller and Hulk (2001; for details on all these studies, refer to Vásquez Carranza, 2001).

Paradis and Navarro (2003) analyzed possible cross-linguistic influence in English-Spanish simultaneous bilingualism. They report that the bilingual child used overt subjects in Spanish almost twice as often as monolingual children do, which initially suggested influence from English. Nonetheless, the parental speech was also analyzed, and the results revealed that the Spanish speech by both parents contained high rates of overt subjects. In other words, the non-target-like forms found in the child data as well as those found in the parental data might have resulted from influence from English, but it was also possible that the child was copying the parental speech which itself evidenced cross-linguistic influence.

A report on English-Spanish bilingual acquisition, namely Eisenchlas (1996), included data that suggests influence from English regarding extraction constructions with an object

of a preposition in the speech of an English-Spanish bilingual child between approximately 5 and 6 years of age. The focus of Eisenchlas's study, however, was not on the phenomenon of cross-linguistic influence; instead, she examined whether unmarked forms are less susceptible to cross-linguistic influence than marked ones (Eisenchlas assumed that the marked form in this syntactic domain was preposition stranding and not pied-piping, given that it is cross-linguistically uncommon). Whereas in English both pied-piping and preposition stranding are grammatical ways of extracting constructions involving the object of a preposition, in Spanish only pied-piping is grammatical.

Eisenchlas reported that, instead of producing pied-piping as required by the Spanish grammar, the bilingual child in her study stranded prepositions in her Spanish constructions. This resulted in non-target-like constructions such as **qué es esto para?* 'what's this for?'. Unfortunately, the study did not specify whether the child ever produced the correct Spanish pattern (i.e., pied-piping), nor did it provide quantitative information regarding the rate of target-like and non-target-like forms.

A main argument in these recent studies on simultaneous bilingualism is that the non-target-like constructions found in simultaneous bilingual child speech differ *quantitatively* from those found in monolingual children of comparable ages. That is, comparable non-target-like forms are also found in the speech of monolingual children, but in the speech of bilingual children, these forms are typically evidenced for a longer period of time and with a higher frequency. However, as appropriately pointed out in Tracy (1998), cross-linguistic influence cannot possibly account for the non-target-like constructions found in monolingual speech; hence, it is important to factor out the proportion of the non-target-like forms that appear in monolingual child speech from the proportion of those found in bilingual child speech in order to determine specifically evidence of cross-linguistic influence.

1.3. Possible account for cross-linguistic influence

Several proposals have been advanced thus far to account for the contexts in which cross-linguistic influence is most likely to emerge. In this article, the proposal put forth by Müller (1998) and Müller and Hulk (2001) is investigated, namely that structures where a bilingual child's two languages *overlap* are likely to result in non-target-like forms because the input poses *ambiguity*. Müller and Hulk use the term 'ambiguity' to refer to contexts in which the child is faced with two different grammatical analyses that are compatible with the same semantic target. On their account, overlap refers to instances in which the adult language A allows for more than one grammatical analysis from the child's perspective, and language B contains a lot of positive evidence for *one* of those possible analyses. The prediction is that the bilingual child will use a grammatical analysis that is compatible with language A and strongly favored by language B (Müller, 1998, states that "the bilingual learner may be tempted to transfer features from the language presenting unambiguous input into the one which is ambiguous"; p.152).

1.4. What is missing?

Overall, only one study has thoroughly analyzed cross-linguistic influence in English-Spanish simultaneous bilingualism (i.e., Paradis & Navarro, 2003). In an effort to fill the existing gap, the present study examines non-target-like forms in longitudinal naturalistic data of the simultaneous acquisition of English and Spanish by a single child; these structures suggest cross-linguistic influence in extraction constructions involving an object of a preposition. This syntactic domain overlaps across the two adult languages and it has not thoroughly been studied in this bilingual group before.

Additionally, unlike most previous studies, this study not only compares the bilingual child's patterns regarding this syntactic domain to those in his monolingual peers, but it also compares

the bilingual child data to the data in his input. This was only done in Paradis and Navarro (2003).

Furthermore, as previously stated, thus far studies on cross-linguistic influence mainly report a *quantitative* difference in the proportion of non-target-like constructions found in the speech of simultaneous bilingual and monolingual children, which has been interpreted as an indication of influence of one language on the other in the speech of the bilingual group. However, given that many non-target-like forms in child monolingual speech, which are comparable to those in bilingual speech, cannot possibly be explained in terms of influence from another language (as pointed out in Tracy, 1998), one could argue that the non-target-like forms in simultaneous bilingual speech constitute performance errors, especially if the child shows comprehension of the grammatical forms. Establishing the correct account for the nature of the non-target-like constructions in simultaneous bilingual speech is hence challenging and requires an account that can also include the non-target-like forms found in child monolingual speech. Cross-linguistic influence could more compellingly be argued for if a substantial number of non-target-

like constructions were identified in simultaneous bilingual speech that differ not only quantitatively (in rate and frequency) but *qualitatively* (in form) from those found in monolingual speech insofar as the non-target-like forms show properties of one language within the other. This study analyzes non-target like constructions in the speech by a simultaneous bilingual child which clearly differ qualitatively from child monolingual speech.

Finally, the bilingual data in this article are analyzed longitudinally, which provides a comprehensive picture of the developmental path during which the child starts to produce non-target-like forms and then acquires the adult form. Such an extended developmental analysis has not been done in previous studies.

2. Overlap in pied-piping and preposition stranding across English and Spanish

Extraction constructions involving the object of a preposition can be realized either through *pied-piping* or through *preposition stranding*. Furthermore, whereas pied-piping is common cross-linguistically, preposition stranding is restricted to a few Scandinavian languages and to English as well as to restricted contexts in Germanic languages (Hildebrand, 1987; Hornstein & Weinberg, 1981; Pérez-Leroux, 1993; Riemsdijk, 1978; Sugisaki & Snyder, 2002).

Both pied-piping and preposition stranding occur in interrogatives and in relative clauses. Pied-piping involves the fronting of a PP containing a *wh*-phrase, as in the Spanish example *de dónde agarró Juan ese libro?*' 'from where took John that book?' or in the English example 'to whom did John give the present?' Preposition stranding, in contrast, results when a *wh*-element moves out of a prepositional phrase to the front of the sentence, leaving the preposition behind (French, 1984; Heck, 2004; McDaniel & McKee, 1996), as in the English example 'which tapes are the musicians listening to?' In other words, whereas pied-piping involves the extraction of the entire PP, preposition stranding only involves the extraction of the NP from a PP.

Although both pied-piping and preposition stranding are grammatical in adult English, preposition stranding is more common in naturally occurring speech than pied-piping (McDaniel & McKee, 1996; McDaniel, McKee & Bernstein, 1998). Additionally, determining when to use pied-piping instead of preposition stranding is largely determined according to pragmatic rules: pied-piping is normally used in formal settings in adult English, whereas preposition stranding is used more commonly in casual speech.

In contrast, apart form a small set of apparent exceptions pointed out in Campos (1991), in Spanish extractions involving the object of a PP are realized through pied-piping (McDaniel & McKee, 1996; Pérez-Leroux, 1993; Sugisaki & Snyder, 2002). Campos (1991),, nonetheless, points to a group of Spanish prepositions that

at first sight, seem to allow stranding, namely *debajo* 'under', *detrás* 'behind', *lejos* 'far', *cerca* 'near', *enfrente* 'in front (of)', *encima* 'on top' and *delante* 'in front'. He states that whereas Spanish does not allow constructions like **Quién contaron todos con?* 'who did everybody count on?', it does allow constructions such as *De qué **edificio** está cerca la facultad?* 'to what building is the school near?' and ***La pastelería** de la cual vivo detrás es buenísima*. 'the pastry shop of which I live behind is excellent'.

Although in the latter examples the bolded NP is the complement of what looks like a stranded preposition, according to Campos such preposition-like words are not true prepositions but what Plann (1985, 1988) refers to as *substantive* prepositions. Taking into account that substantive prepositions are grammatical in adult Spanish, and given that they allow for extraction of their complements, there is a possibility that Spanish monolingual children might be unable to differentiate between regular prepositions and substantive prepositions. This might lead them to hypothesize that preposition stranding is a grammatical option in Spanish, resulting in non-target-like stranding of regular prepositions during the early stages of language development.

2.1. The acquisition of pied-piping and preposition stranding in English and in Spanish

A few studies have analyzed the acquisition of preposition stranding and pied-piping in monolingual English-speaking children. They report that these children comprehended both pied-piping and preposition stranding, accept constructions with preposition stranding as grammatical while rejecting constructions with pied-piping, and use preposition stranding from early on, but not pied-piping (e.g., French, 1984; McDaniel and McKee, 1996; Foley, 1997).

In contrast, as far as I know, no studies have looked at the acquisition of pied-piping in Spanish as an independent phenomenon. Fortunately, however, some studies on Spanish acquisition shed light regarding the way in which such construction-types develop.

For instance, Pérez-Leroux (1993; 1995) reports that although monolingual Spanish-speaking children produce constructions with pied-piping, they generally resort to the use of resumptive pronouns or produce truncated utterances, placing the truncated relative in topic position as ways to avoid pied-piping. Similarly, Zorriqueta (1988) shows that even though Spanish monolingual children use pied-piping, they also produce non-target-like forms of various types; this suggests that they avoid pied-piping constructions. Similar results are reported in Ferreiro, Othenin-Girard, Chapman, and Sinclair (1976); they studied the acquisition of relatives in 9;0 and 11;0 year-olds.

2.2. The input of an English-Spanish bilingual child

Overall, extraction constructions involving the object of a preposition overlap across English and Spanish in that, whereas in adult English both pied-piping and preposition stranding are grammatical, in Spanish only pied-piping is allowed.

The hypothesis under investigation predicts that this structure poses ambiguity for the child and that such ambiguity results in non-target-like forms in which the child uses a syntactic form from the unambiguous language and applies it to the ambiguous language (i.e., the Spanish form, pied-piping, is expected to result in non-target-like forms in the child's English speech).

3. The Study

3.1. The data

The main data for this study comes from longitudinal audio-recordings of the naturalistic development of English and Spanish in a simultaneous bilingual child during a period of three years and three months (between ages of 2;3 and 5;6).The child's father is a native English

speaker with limited knowledge of Spanish, whereas the mother is a Spanish native speaker and she speaks English as her second language often in the presence of the child, as the family resides in the United States.

The study thoroughly examines non-target-like syntactic structures involving pied-piping and preposition stranding in this child's speech that appear to result from influence of one language onto the other. The non-target-like forms in the bilingual child's speech are compared to those found in the speech of monolingual children of comparable ages from each of the two languages. Additionally, the child's non-target-like constructions are compared to the patterns in the parental speech.

A diary kept by the child's mother throughout the recording period was used as an additional resource; the diary included examples relevant to the structures under study, and these were used mainly to support the findings in the data and to provide additional examples of the child's non-target-like forms whenever the audio-recordings did not contain enough examples, as was the case with pied-piping constructions.

Furthermore, monolingual data from 25 children (11 English monolinguals and 14 Spanish monolinguals) accessed through the Child Language Data Exchange System (CHILDES; MacWhinny, 2000) were used for the comparative analysis. The analysis of both the monolingual and the bilingual data included the child speech as well as the parental speech in order to determine the extent to which non-target-like forms in both the child monolingual and the bilingual child's speech resulted from ambiguity in the input (refer to Appendix A for details regarding the monolingual data in each language).

3.2. Data analysis

3.2.1 The English monolingual data

The parental speech in 20% of the files from the English monolingual children was analyzed in order to establish whether pied-piping was part of the monolingual children's input, or whether these children were exclusively exposed to preposition stranding. In addition, the entire child monolingual corpus was thoroughly examined to determine the rate of preposition stranding as well as possible instances of pied-piping.

The adult data in 20% of the English monolingual files (a total of 17 files, 2733 utterances) only revealed 11 utterances containing preposition stranding, and no utterances contained pied-piping constructions (although this was mostly child-directed speech, in some of the data the parents addressed one another and not just the child).[2] To increase the number of relevant constructions available for the analysis, a further file from each child was analyzed (an additional 11 files; 2489 utterances). The same results were obtained, namely that only a few constructions produced by the adults contained preposition stranding (only 5 examples) whereas none of the utterances contained pied-piping. The absence of pied-piping constructions in the adult data were anticipated given the observations in McDaniel et al. that pied-piping is rare in adult English. It is likely, of course, that these adults might have used pied-piping while interacting with the children in contexts other than the ones included in the transcripts. Nonetheless, the lack of examples in the data analyzed suggests that the actual number of pied-piping constructions that the children were exposed to was extremely small. In other words, the children's input did not contain evidence that both pied-piping and preposition stranding are grammatical options to realize extraction constructions involving the object of a PP. Nonetheless, given the possibility that pied-piping might be present in the English input even if seldom, the possibility that some of the monolingual children might produce pied-piping in their constructions was entertained.

The analysis of the data from the eleven English monolingual children only revealed a small number of constructions with preposition stranding (a total of 66 constructions in 21,223 utterances), just as in the parental speech; the details are shown in Table 1 below. Furthermore, just as expected based on previous acquisition studies, no examples of pied-piping were found in the children's speech.

TABLE 1: Number of constructions involving *preposition stranding* and *pied-piping* in the child English monolingual data by age group.

Age range	Number of utterances analyzed	Number of utterances with preposition stranding	Number of utterances with pied-piping
2;0 – 3;0	6184	6	0
3;0 – 4;0	8411	25	0
4;0 – 5;0	5132	29	0
5;0 ≠	1496	6	0
Total	21223	66	0

As can be seen, preposition stranding was found from age 2;0, whereas no instances of pied-piping were found in any of the data files. This is not surprising, given that their parental input did not contain evidence for pied-piping, at least not in the data analyzed.

3.2.2. The Spanish monolingual data

As observed earlier, the only grammatical way to extract a PP in Spanish is through pied-piping. However, no studies to date have looked at the rate of pied-piping constructions in either child or adult Spanish. The first step in the analysis of both the adult and the child data was to identify all instances of pied-piping and to calculate the frequency with which they occurred in both groups.

Additionally, recall that substantive prepositions allow for extraction of their complements and that there is a possibility that monolingual children might interpret them as regular prepositions hypothesizing that preposition stranding is grammatical in Spanish. None of the studies on monolingual Spanish acquisition reviewed here reported instances of preposition stranding, which suggests that for Spanish monolingual children substantive prepositions do not constitute ambiguous evidence that Spanish allows both pied-piping and preposition stranding. In order for these substantive prepositions to pose any degree of ambiguity for these monolingual children, however, they would need to be present in the input. Therefore, the second step in the analysis was to determine whether substantive prepositions were part of the adult speech.

Even though neither the adult nor the child monolingual data were expected to contain instances of preposition stranding because they have never been reported in the speech of either Spanish monolingual children or adults, the last step in the analysis was to examine both the adult and the child data in order to verify that this was indeed the case.

Just as was done in the analysis of the English monolingual data, the parental speech was analyzed in 20% of the Spanish monolingual files. A total of 16 files (3817 utterances) were analyzed and 67 constructions involving pied-piping were found.[3] As expected, no instances of preposition stranding were found in the adult Spanish.

Additionally, a few examples containing substantive prepositions were identified in the adult data (18 in total), although none of them were found in constructions involving the extraction of their complement. The substantive prepositions were either followed by the preposition *de* (e.g., ***encima de*** *la mesa* 'on top of the table'; Marrero corpus) or used intransitively (e.g., *ponte la casita más* ***cerca*** 'put.2nd.sg the house.little **closer**'; Fernández-Agudo corpus). In other words, the adult data analyzed here did not pose ambiguity for the monolingual children that could have suggested that preposition stranding could be grammatical in Spanish.

The analysis of the speech by the 14 monolingual Spanish-speaking children described in the methodology section revealed that the children always used pied-piping when questioning the complement of a preposition,

never preposition stranding. Only a small number of constructions with pied-piping were found, as compared to the adult speech, namely a total of 73 examples in 12376 utterances (as shown in Table 2).

The small rate of pied-piping constructions found in the data was anticipated, given that previous studies on monolingual acquisition report that Spanish monolingual children normally avoid pied-piping (Ferreiro et al., 1976; Pérez-Leroux, 1993; Zorriqueta, 1988).

TABLE 2: Number of constructions involving *pied-piping* in the child Spanish monolingual data.

Age range	Total # of utterances analyzed	Total # of utterances with pied piping	Total # of utterances with preposition stranding
2;0 – 3;0	5670	34	0
3;0 – 4;0	3547	11	0
4;0 – 5;0	2324	14	0
5;0 – 5;6	835	14	0
Total	12376	73	0

A few of the children's constructions contained substantive prepositions (a total of 12). Just as in the adult data, the substantive prepositions appeared followed by the preposition *de* (e.g., *la bruja estaba escondida* ***detrás de*** *una puerta* 'the witch was hidden **behind of** a door'; Ornate corpus; age: 2;11) or were used intransitively. None of the constructions with substantive prepositions involved stranding. In other words, even if the children were ever exposed to substantive prepositions that involved extraction of their complements in contexts outside the recordings, their speech does not show that such evidence might have led them to entertain a hypothesis that prepositions can be stranded in Spanish.

The analysis additionally revealed that all of the children's pied-piping constructions were simple; i.e., they did not involve the extraction of an oblique or a locative. Specifically, none of the children ever produced an utterance such as *la piñata* ***de la cual*** *estabas hablando* 'the piñata **of the which** you were talking' ('the piñata that you were talking about'); instead, they appeared to avoid such constructions and produced simpler ones with the relative *que*, as in *la piñata* ***que*** *decías* (Rafael; 4;4.16). This also parallels the reports in Arregi (1998), Ferreiro et al. (1976), Pérez-Leroux (1993), and Zorriqueta, (1988).

3.2.3. The bilingual data

All of the utterances produced by the father while interacting with the child, as well as all the utterances produced by other English monolingual interlocutors in the transcripts were analyzed. Additionally, given the possibility that the mother might have used pied-piping in her English speech (her non-native tongue), all of her English utterances in the data where she interacted with either the child's father or with other English monolingual interlocutors were thoroughly analyzed.

The analysis of the speech by all the English interlocutors whom the child interacted with in the bilingual data revealed no instances of pied-piping. The data from interlocutors other than the father or the mother (831 utterances) only yielded one construction with preposition stranding, and none with pied-piping. Similarly, none of the English utterances produced by the mother in the English transcripts contained either pied-piping or preposition stranding (a total of 122 utterances). Finally, the father's data

yielded a total of 4982 utterances out of which 38 involved preposition stranding; none involved pied-piping.

With regard to the Spanish input, first, all the utterances by the child's mother and all the utterances by the Spanish monolinguals that the child interacted with in the transcripts were analyzed. The analysis aimed to determine the overall rate of pied-piping in the Spanish data, as well as the rate of substantive prepositions, which might pose ambiguity for the bilingual child. Additionally, all of the mother's utterances were thoroughly analyzed to identify any possible instances of preposition stranding. Unfortunately, the father never spoke Spanish around the child in any of the transcripts (he almost never spoke Spanish at all); hence, it was impossible to determine from the data whether he ever produced non-target-like forms in Spanish that involved preposition stranding. The child's mother (i.e., the researcher), nonetheless, reported that she never noticed any non-target-like preposition stranding constructions in the father's Spanish speech.

The analysis of the data from Spanish monolingual interlocutors (a total of 334 utterances by both children and adults) revealed only four constructions with pied-piping. Furthermore, although none of the constructions contained preposition stranding, two utterances contained substantive prepositions. Just as in the monolingual data, the substantive prepositions were not in constructions involving extraction of the complement: both were followed by *de*.

The Spanish data from the mother yielded a total of 7867 utterances, 215 of which involved pied-piping; none of the mother's utterances involved preposition stranding. Furthermore, a few of the mother's utterances contained substantive prepositions (34), although none of them were used in contexts involving extraction of a complement. Just as in the monolingual data, the substantive prepositions in the mother's speech only appeared intransitively (e.g., *casi le cae* ***encima*** 'almost it fall **on top'**) or preceding the preposition *de* (e.g., *te escondiste* ***detrás del*** *casco* 'you hid **behind of** the helmet'). It was therefore unlikely that the bilingual child would strand regular prepositions in Spanish based solely on the Spanish input. Of course, it is possible that he might have been exposed to substantive prepositions involving extraction of their complements in contexts other than those contained in the transcripts.

3.2.4. The bilingual child data

Overall, the analysis of the bilingual input did not reveal evidence of overlap regarding pied-piping and preposition stranding in either English or Spanish. Therefore, it was unlikely that the child's English would contain pied-piping alongside preposition stranding based on his input alone. Similarly, his Spanish was unlikely to contain preposition stranding.

All of the bilingual child's utterances were thoroughly analyzed to determine the rate of preposition stranding in English and the rate of pied-piping in Spanish. Furthermore, his speech was analyzed to identify possible pied-piping in English as well as possible preposition stranding in Spanish.

The analysis of the English data revealed that even though by and large the child used preposition stranding, during the last stage of data collection he started to produce constructions with pied-piping parallel to constructions with preposition stranding. In fact, as shown in Table 3, between ages 5;0 and 5;6, almost half of the child's extraction constructions involving the object of a preposition (45%) consisted of pied-piping, whereas the rest consisted of preposition stranding.

The following examples were instances of preposition stranding found in the transcripts:

(1) where did you come from?
[3;0.11]

(2) what is it eating for?
[4;1.15]

TABLE 3: Number of constructions with *preposition stranding* and *pied-piping* in the bilingual child English data according to age range.

Age range	Total number of utterances	Utterances with preposition stranding	Utterance with pied-piping
2;2-3;0	1468	0	0
3;0 – 4;0	2512	4	03
4;0 – 5;0	1343	5	0
5;0 – 5;6	1258	6	5
Total	6581	15	5

As shown in Table 3, the number of constructions containing pied-piping found in the transcripts is small and they were only identified during the last stage of data collection; nonetheless, multiple examples were recorded in the diary records kept by the child's mother. The examples listed in (3) through (6) below illustrate instances of pied-piping.

(3) on what street are we papi?
[4;6,14]
(4) in which part do you want me to sit?
[5;4.26]
(5) in what hand do you think it is?
[5;4,26]
(6) on what level are you John?
[5;6,28]

Although no examples of pied-piping were found in the English recordings before age 5;0, as seen in example (3), a few examples were found in the diary records (namely 5) between ages 4;6 and 5;0. Overall, pied-piping constructions started to appear towards the end of the data collection period, and the diary notes indicate that the child continued to occasionally produce constructions with pied-piping in English. Although the child's constructions with pied-piping are grammatical, the studies reviewed earlier on monolingual English-speaking children as well as the child English monolingual data reviewed here showed that children at basically the same age were still not using pied-piping in their speech.

Comparable to the findings in the monolingual data, the bilingual child produced non-target-like constructions where he omitted the preposition (a total of four). Those examples were not counted in the quantitative analysis as instances of either preposition stranding or pied-piping, however, given the observation earlier that it is impossible to tell whether children intend these forms as preposition stranding or pied-piping (e.g., papi, by the way, we still have more logos that we can build the park [with]; [4;10.13]).

In sum, the pattern of acquisition of pied-piping and preposition stranding in English by the bilingual child differed *qualitatively* from that in monolingual English-speaking children. The bilingual child's English speech also differed qualitatively from the child's parental input and from the speech of the other English monolingual interlocutors given that none of them produced pied-piping structures in the transcripts. The child's non-target-like constructions hence appeared to evidence influence from Spanish where pied-piping is always the grammatical option, never preposition stranding. The non-target-like forms in his speech, in other words, occurred despite lack of overlap across English and Spanish, running counter to the predictions of the hypothesis under study. It is, nevertheless, possible that the child might have been exposed to at least some pied-piping constructions in contexts outside those included in the analyzed recordings (i.e., there might have been overlap after all); this might have suggested that pied-piping was a grammatical option in adult English, leading the child to start using pied-piping earlier than his English monolingual peers (English monolingual children do not generally start using pied-piping until after age 6;0).

If the child's overall input indeed contained evidence for pied-piping, given that English monolingual adults normally use pied-piping only in formal contexts, one might postulate that this child had not yet acquired the pragmatic constraints that apply to adult English (as proposed in Müller and Hulk, 2001); as a result, he used pied-piping in pragmatic contexts in which English monolingual adults would use preposition stranding. This, however, leaves open the question regarding why this is not what we find in the child English monolingual data.

With regard to the Spanish data, the child produced a substantial number of constructions with pied-piping. Nonetheless, he also produced many non-target-like constructions where he stranded his Spanish prepositions. The percentage of non-target-like versus grammatical constructions is summarized in Table 4.

Some examples that illustrate the constructions with preposition stranding, which are non-target-like, are:

(10) **vamos afuera y vemos las cosas que no se juega* ***con***
'let's go outside to see the things that you don't play with' [3;09.23]

(11) **necesito alguien para jugar* ***con*** 'I need somebody to play with' [3;11.19]

(12) ** mami, pero qué puedo hacer eso* ***con?***
'mommy, but what can I do that with' [4;08.06]

(13) **sabes qué estaba apuntando* ***a****?* 'do you know what I was aiming at? [5;03.13]

TABLE 4: Number of constructions with *pied-piping and preposition stranding* in the bilingual child Spanish data according to age range.

Age range	Total number of utterances analyzed	Utterances with pied-piping	% of extraction constructions involving pied-piping	Utterances with preposition stranding	% of extraction constructions involving preposition stranding
2;0 – 3;0	2534	7	100	0	0
3;0 – 4;0	2309	9	60	6	40
4;0 – 5;0	1668	7	58	5	42
5;0 – 5;6	1228	12	92	1	8
Total	7739	35	74	12	26

Some examples of pied-piping identified in the bilingual child's speech were,

(7) *diga,* ***de quién*** *es ese palo* 'tell me of whom is that stick'
('say, whose stick that is') [2;10.21]

(8) *y la mama tú sabes* ***de cuál color*** *era?*
'and the mother you know of which color is that?'
('and the mother, 'do you know what color she was') [3;05.21]

(9) ***en cuál*** *mesita está?* 'in which table is?'
('what table is it in') [4;1.16]

Neither the parental speech nor the speech of any of the Spanish monolingual speakers that the child interacted with in the transcripts evidence preposition stranding in Spanish. Furthermore, none of the Spanish monolingual children ever used preposition stranding either. In other words, these examples in the bilingual child's speech clearly differ *qualitatively* from those in the speech of the Spanish monolingual peers studied and from what he received in his input. The child's production of preposition stranding in Spanish likely resulted from influence from English because preposition stranding is always grammatical in that language. Furthermore, the

non-target-like forms found in the child's speech cannot be accounted for in terms of the hypothesis under study if the child's input did not contain overlap. Nonetheless, it is also possible that the child might have been exposed to substantive prepositions involving extraction of their complements in contexts outside the recorded interactions, which might have caused ambiguity if interpreted as evidence for stranding of regular prepositions by the child. He may, as a result, have hypothesized that preposition stranding is grammatical in Spanish, given that that option was reinforced in his English input. Spanish monolingual children do not produce preposition stranding because the evidence of substantive prepositions involving extraction of complements is rare in their input, and nothing in their input reinforces the possibility that prepositions can be stranded.

Although the diary notes revealed that the child's use of preposition stranding in Spanish decreased considerably after age 5;0, the last non-target-like form was recorded in the diary records at age 6;6.

4. Summary and conclusions

Previous studies on monolingual acquisition reported that English monolingual children do not produce pied-piping most likely because of the scarcity with which pied-piping is used in adult speech; English monolingual children do not typically start using pied-piping until school age. Similarly, studies on monolingual Spanish acquisition revealed that although these children use non-target-like forms in which they appear to be avoiding pied-piping, they never use preposition stranding. These results were replicated in the monolingual data analyzed here.

The analysis of the bilingual data revealed that the bilingual child's English input never contained pied-piping. Similarly, the Spanish input contained no evidence for preposition stranding. In other words, the bilingual child's input in each language did not relevantly differ from that of the monolingual children, and no overlap across the two languages regarding extraction constructions involving the object of a PP was evidenced.

In contrast, the bilingual child data revealed non-target-like forms in both languages: although the child produced mostly preposition stranding in English from the outset, 46% of his extraction constructions involving the object of a preposition after age 5;0 consisted of pied-piping, and abundant evidence of his use of pied-piping constructions was found in the diary records. This strongly indicates an acceleration in the child's use of pied-piping as compared to his English monolingual peers due to influence from Spanish, even in the absence of ambiguity in his input. It was possible however, that the child was exposed to pied-piping in English at some point, and that his input did indeed contain overlap across English and Spanish, which resulted in non-target-like forms. It was postulated that perhaps the child's non-target-like forms might have resulted from his inability to follow the pragmatic rules that apply to pied-piping in adult English (i.e., that they are used in formal contexts).

The Spanish input analyzed never contained substantive prepositions that involved extraction of complements or instances of preposition stranding that might have suggested that this was a grammatical option in Spanish. Yet, whereas most of the child's Spanish constructions involved pied-piping, 26% of them contained preposition stranding. These non-target-like forms strongly suggest influence from English because the Spanish input never contained evidence to suggest that preposition stranding was a grammatical option, whereas preposition stranding was abundant in the child's English input. Nonetheless, the child might have been exposed to substantive prepositions involving extraction of their complements at some point, and that might have led him to entertain the hypothesis that regular prepositions in Spanish can be stranded just like in English. Spanish-speaking monolingual children do not entertain this hypothesis because their overall input does not reinforce the grammaticality of preposition stranding; the bilingual child's English input did.

On the other hand, this study investigated the hypothesis proposed in Müller (1998) and Müller and Hulk (2001) that cross-linguistic influence emerges in syntactic structures that overlap across the bilingual child's two languages, presenting the child with more than one syntactic realization for a given semantic target (i.e., ambiguous evidence). The hypothesis predicted that, upon receiving ambiguous input, the bilingual child would apply the syntactic realization that applied to both languages when realizing a given semantic target.

With regards to the data analyzed, the monolingual adult data did not provide evidence of ambiguity, nor did the monolingual children overgeneralize. The adult English monolingual data analyzed only contained evidence for preposition stranding, not for pied-piping. The English monolingual child data also only evidenced preposition stranding. The adult Spanish monolingual data contained ample evidence for pied-piping, whereas substantive prepositions were only found with their complement in place. The Spanish monolingual child data also only revealed pied-piping, not stranded prepositions. In other words, the English and the Spanish data did not contain evidence of overlap across the two languages.

Similarly, the analysis of the bilingual parental input revealed no evidence of pied-piping in the English input or evidence of stranded prepositions, substantive or otherwise, in the Spanish input. In other words, pied-piping and preposition stranding did not overlap across the bilingual child's two languages and hence, according to the hypothesis, no evidence of cross-linguistic influence should have been found in the bilingual child data.

Despite there being no evidence of overlap, the bilingual child's English data differed *qualitatively* from both the child monolingual data and from his English parental input in that it contained pied-piping constructions in English, alongside preposition stranding. The data suggested clear evidence of influence from Spanish as the child had applied the rule for extracting objects of a preposition in Spanish and used it in English. This suggested that cross-linguistic influence had emerged despite evidence of overlap in the child's input, unlike predicted by the hypothesis.

However, another possible explanation for the non-target-like forms found in the child bilingual data was that, given that pied-piping is a grammatical option in adult English, the child was exposed to examples of it at some point, even if rarely enough as to not be evidenced in the parental data analyzed. This might have created overlap across English and Spanish, and the ambiguity due to that overlap resulted in the child's production of pied-piping constructions in English early on, before it is normally evidenced in English child monolingual speech. The child's use of pied-piping additionally suggested that perhaps he had not acquired the pragmatic rules associated with the use of pied-piping in adult English; i.e., in formal contexts, thus accounting for his use of pied-piping in contexts in which English-speaking monolingual children and English-speaking monolingual adults would have used preposition stranding instead. With regard to the English-speaking monolingual children, if they were ever exposed to pied-piping, the exposure did not appear to have been sufficient to pose ambiguity.

In sum, if the bilingual child was indeed exposed to overlap in his overall English input, evidence for cross-linguistic influence in the observed direction would have been predicted under the hypothesis investigated.

The child's Spanish speech also differed *qualitatively* from that of his monolingual peers and from his Spanish input in that he produced preposition stranding in 26% of his extraction constructions involving the object of a PP, alongside pied-piping constructions. Given that the Spanish input in the transcripts never contained substantive prepositions that involved extraction of complements nor instances of preposition stranding that might have suggested that this was a grammatical option in Spanish, the data suggest that his non-target-like forms resulted due to influence from English: the child took the English evidence for extracting objects of prepositions via preposition stranding and used it in his Spanish constructions. In other words, influence from English occurred despite lack of apparent

overlap in the child's input with regard to preposition stranding. Nonetheless, on one hand, it was possible that the child had been exposed to overlap in the English input, and that might have been sufficient to account for his stranded prepositions in Spanish. This, however, would not have been predicted under the hypothesis, as the child would have been applying the syntactic form that did not apply to the two languages. Another possibility was that the child was exposed to substantive prepositions involving extraction of their complements at some point in Spanish, given that these are a grammatical option in adult Spanish. The evidence for preposition stranding in the English input then might have reinforced this syntactic option, leading the child to hypothesize that regular prepositions could be stranded in Spanish. If this were the case, then the prediction under Müller and Hulk's hypothesis that cross-linguistic influence emerges due to overlap would have been borne out. With regard to the Spanish-speaking monolingual children, if they were ever exposed to stranded substantive prepositions in their overall input, such constructions did not appear to lead them to hypothesize that stranding of regular prepositions was a grammatical option. This was probably because their overall input did not reinforce the grammaticality of stranding regular prepositions, as was the case for the bilingual child.

Assuming that there was overlap in the bilingual child's overall input in either one or both languages, the type of non-target-like forms found, however, does not follow from the predictions under the hypothesis examined. In concrete terms, the child used both the English form in Spanish (which was always ungrammatical in Spanish) and the Spanish form in English (which was pragmatically inappropriate in English). The hypothesis had predicted uni-directional influence because it only covered a type of overlap in which one language has two ways of syntactically realizing a given semantic target while the other language has *one* of those two ways of realizing the same semantic target. With regard to the results reported for this syntactic domain however, if we take into account the child's overall input, the two languages had two ways of syntactically realizing extraction constructions involving the object of a PP. As a result, it is surprising that the child used both forms in both languages, resulting in bi-directional influence, which was not predicted under the hypothesis, and which has not been reported in previous studies.

4.1. Further implications and limitations

The results reported in this study support the argument that a simultaneous bilingual child's two languages interact in the course of acquisition and that such interaction often results in non-target-like forms that differ from monolingual speech. The non-target-like forms reported here differed not only quantitatively from non-target-like forms found in child monolingual speech, but by and large, they differed qualitatively as comparable non-target-like forms were never evidenced in the monolingual child data. Additionally, the bilingual child's productions differed qualitatively from his parental input. The findings strongly suggest evidence of cross-linguistic influence, which should be taken as evidence of the fact that the bilingual child is exposed to multiple ways of syntactically realizing a given semantic target. This ambiguity results in non-target-like forms as the child entertains hypotheses that reflect the wide range of evidence in his input.

This study analyzed data from a single bilingual child, and hence the patterns reported here need to be studied in other comparable bilingual data in order to be fully generalizable. Furthermore, the data were collected in naturalistic environments, which categorically reveal the child's performance in the two languages regarding the three syntactic domains analyzed. However, the data might not necessarily fully reflect the entire range of the child's actual knowledge about the syntactic structures in the two languages. It is possible that the child's non-target-like patterns resulted due to performance errors or to difficulty in accessing the correct syntactic form; they might be processing problems which led to speech errors. Additionally, in naturalistic data, preferences can completely obscure parts of the grammar: if two different syntactic realizations are allowed in one of the child's languages for

a given semantic target, and one of them is preferred over the other even though both are grammatical, the child might simply prefer one syntactic realization and we cannot possibly know, through analyzing his natural speech, if he is avoiding the second form due to preference or because he lacks the syntactic knowledge to realize that second form. Through elicitation and experimental procedures, one could more accurately determine a child's actual competence with regard to a given syntactic domain. Nonetheless, experimental studies might cause stress, resulting in speech errors, which would not be the case in naturally occurring speech. A combination of both methodologies applied to the same subject(s) would best provide us with a clear pattern of the child's actual knowledge regarding a given syntactic domain.

In future research, I hope to investigate the development of comparable syntactic domains in other English-Spanish bilingual children in order to establish whether the results obtained here are replicated in other children's naturalistic data. Additionally, it would be revealing to investigate elicited production of the syntactic domain studied here. One way in which such elicitation could be done is through grammaticality judgment tasks in which the bilingual child is asked to judge non-target-like forms like those reported in the analysis to determine whether, even though the child produces non-target-like forms, he is aware that they are ungrammatical in the adult language.

Endnotes

2 Only full clauses were included in the analysis of both the adult data and the child data, so that examples such as 'what for' and 'for what' were not counted as instances of pied-piping/preposition stranding. These constructions were excluded because, as far as I know, there is no analysis of fragment utterances of this kind that can guarantee that any sort of movement was involved. The same procedure was applied in the analysis of the Spanish data, namely, fragment utterances such as *para qué* 'for what' and *a dónde* 'to where' were excluded from the quantitative analysis.

3 Many of the adult constructions contained the *wh-* word *dónde* 'where', which normally takes a preposition (either *a* or *en*); both forms are grammatical and common in adult Spanish. When used with a preposition, constructions with *dónde* are normally taken to be examples of pied-piping, as in *a dónde están las semillas?* 'in where are the seeds?'. Although in many Spanish dialects this *wh-*word has lost its directional meaning and it means just 'where' (i.e., the *a* is not really a preposition), for the purpose of this analysis all instances where the adults produced *dónde* + a preposition were counted as pied-piping in the quantitative analysis (e.g., *a dónde lo picó algo?* 'in where did something bite you?'). Constructions with just *dónde* were excluded (e.g., *y dónde estaba el bebé?* 'and where was the baby?'). The same procedure was used with the child data.

5. References

Allen, S., Genesee, F., Fish, S., and Crago, M. (1999). Grammatical constraints on early code mixing: Evidence from children learning Inuktitut and English. *Paper presented at the 24th Annual Boston University Conference on Language Development*.

Arregi, K. (1998). Spanish *el que* relatives and the Doubly Filled COMP Filter. *MIT Papers*.

Barreña, A. (1997). Desarrollo diferenciado de sistemas gramaticales en un niño vasco-español bilingüe [Differentiated development of a grammatical system in a Basque-Spanish bilingual child]. In A.T. Pérez-Leroux and W.R. Glass (Eds.), *Contemporary perspectives on the acquisition of Spanish, Volume 1: Developing Grammars,* pp.55-74. Massachusetts: Cascadilla Press.

Campos, H. (1991). Preposition stranding in Spanish? *Linguistic Inquiry22*(4), Fall, 741-750.

Deuchar, M., and Quay, S. (2000). *Bilingual acquisition: Theoretical implications of a case study*. NY: Oxford University Press.

Döpke, S. (2000). Generation of and retraction from cross-linguistically motivated structures in bilingual first language acquisition. *Bilingualism: Language and Cognition 3*(3), 209-226.

Döpke, S. (1998). Competing language structures: The acquisition of verb placement by bilingual German-English children. *Journal of Child Language, 25*, 555-584.

Eisenchlas, S. (1996). Transferencia lingüística en la adquisición bilingüe simultánea del español e inglés. *Estudios de Lingüística Aplicada, 23/24,* 305-317.

Fantini, A. (1985). *Language acquisition of a bilingual child*. (2nd ed.) England: Multilingual Matters Ltd.

Ferreiro E., Othenin-Girard, C., Chapman H., and Sinclair, H. (1976). How do children handle relative clauses? *Archives de Psychologie, 44,* 229-266.

Foley, C. (1997). Knowledge of operator syntax in first language acquisition: A study of pied-piping. In X. Li, L. López, and T. Strik (Eds.), *Papers form the 1997 Mid-America Linguistics Conference*. Columbia, Missouri: Linguistics Area Program, University of Missouri-Columbia.

French, M. (1984). Markedness and the acquisition of pied-piping and preposition stranding. *McGill Working Papers, 2,* 131-144.

Gavarró, A. (2003). Economy and word order patterns in bilingual English-Dutch acquisition. *Bilingualism, Language, and Cognition, 6*(1), 69-79.

Gavarró, A (1998). Word order alternations and feature assignment in bilingual Catalan acquisition. *Probus, 10,* 1-12.

Genesee, F. (1989). Early bilingual development: One language or two? *Journal of Child Language, 16,* 161-179.

Genesee, F., Boivin, I., and Nicolas, E. (1996). Talking with strangers: A study of bilingual children's communicative competence. *Applied Psycholinguistics, 19,* 427-442.

Genesee, F., Nicoladis, E., and Paradis, J. (1995). Language differentiation in early bilingual development. *Journal of Child Language, 22,* 611-631.

Genesee, F., Boivin, I., and Nicolas, E. (1996). Talking with strangers: A study of bilingual children's communicative competence. *Applied Psycholinguistics, 19,* 427-442.

Genesee, F., Paradis, J., and Crago (Eds.) (2004). *Dual Language Development and Disorders: A Handbook on Bilingualism and Second Language Learning.* Baltimore, Maryland: Brookes Publishing.

Heck, F. (2004). *A Theory of Pied Piping.* Ph.D. Dissertation, Universität Tübingen.

Hildebrand, J. (1987). The acquisition of preposition stranding. *Canadian Journal of Linguistics, 32,* 65-85.

Hornstein, A. and Weinberg, A. (1981). Case theory and preposition stranding. *Linguistic Inquiry 12,* 55-91.

Hulk, A. (2000). Non-selective access and activation in child bilingualism. In S. Döpke (Ed), *Cross-linguistic Structures in Simultaneous Bilingualism*. Amsterdam: John Benjamins Publishing Company.

Juan-Garau, M. and Pérez-Vidal, C. (2000). Mixing and Pragmatic parental strategies

in early bilingual acquisition. *Journal of Child Language, 28,* 59-87.

Koehn, M. (1994). The acquisition of gender and number morphology within NP. In J. M. Meisel (Ed), *Bilingual first language acquisition: French and German grammatical development* (pp. 53-88). Amsterdam: John Benjamins Publishing Company.

Köppe, R. (1997). *Sprachentrennung im frühen bilingualen Erstspracherwerb: Französisch/Deutsch*. Tübingen: Narr.

Kupisch, T. (2003). Cross-linguistic influence in the acquisition of determiners in German-Italian bilinguals. *Proceedings of the 27th annual Boston University conference on language development,* pp.461-472. Somerville, MA: Cascadilla.

Labelle, M. (1990). Predication, WH-Movement, and the development of Relative Clauses. *Language Acquisition, 1*(1), 95-119.

Lanza, E. (1992). Can bilingual two-year-olds code-switch? *Journal of Child Language, 19,* 633-658.

Leopold, W. (1949). *Speech development of a bilingual child. A linguist's record IV: Diary from age 2*. New York: AMS Press.

MacWhinney, B. (2000). *The CHILDES Project (3rd Edition). Volume 1: Tools for analyzing talk: Transcriptions, format, and contrast*. Mahwah, NJ: Lawrence Erlbaum.

Mahlau, A. (1994) Orden de las palabras y estructura oracional en los niños bilingües. In J.M. Meisel, *La adquisición del vasco y del castellano en los niños bilingues* (pp. 69-112). Amsterdam: John Benjamins Publishing Company.

McDaniel, D. and McKee, C. (1996). Children's oblique relatives. *Boston University Conference on Child Language Development 20,* 472-482.

McDaniel, D., McKee, C., and Bernstein, J. (1998). How children' relatives solve a problem for Minimalism. *Language, 74(2),* 308-334.

Meisel, J. M. (1994) *Bilingual first language acquisition: French and German grammatical development*. Amsterdam: John Benjamins Publishing Company.

Müller, N. (1998). Transfer in bilingual first language acquisition. *Bilingualism: Language and Cognition,* 1(3), 151-172.

Müller, N. (1993). *Komplexe Sätz. Der Erwerb von COMP und von Wortstellungsmustern bei bilingualen Kindern (Französisch/ Deutsch)*. Tübingen: Narr.

Müller, N., Hulk, A., and Jakubowicz, C. (1999). Object omissions in bilingual children: Evidence for crosslinguistic influence. *Boston University Conference on Child Language Development 23,* 482-494.

Müller, N. and Hulk, A. (2001). Crosslinguistic influence in bilingual language acquisition: Italian and French as recipient languages. *Bilingualism: Language and Cognition 4*(1), 1-21.

Müller, N. and Penner, Z. (1996). Early subordination: The acquisition of free morphology in French, German, and Swiss German. *Linguistics, 34,* 133-165.

Nicoladis, E. (2002). What's the difference between 'toilet paper' and paper toilet'? French-English bilingual children's cross-linguistic transfer in compound nouns. *Journal of Child Language, 29* (4), 843-863.

Paradis, J. and Genesee, F. (1996). Syntactic acquisition in bilingual children: Autonomous or independent? *Studies in Second Language Acquisition 18*, 1-25.

Paradis, J. and Navarro, S. (2003). Subject realization and crosslinguistic interference in the bilingual acquisition of Spanish and English: What is the role of input? *Journal of Child Language 30*(2), 371-393.

Paradis, J, Nicoladis, E., and Genesee, F. (2000). Early emergence of structural constraints on code-mixing: Evidence from French-English bilingual children. *Bilingualism, Language, and Cognition, 3*(3), 245-260.

Pérez-Leroux, A.T. (1995). Resumptives in the acquisition of relative clauses. *Language Acquisition, 4*(1&2), 105-138.

Pérez-Leroux, A. T. (1993). *Empty categories and the acquisition of wh-movement*. Ph.D. Dissertation, University of Massachusetts, Amherst.

Poplack, S. (1980). Sometimes I start a sentence in English y termino en español: Toward a typology of code-switching. *Linguistics, 18,* 581-618.

Quay, S. (1995). The bilingual lexicon: Implications for studies of language choice. *Journal of Child Language, 22,* 369-387.

Redlinger, W.E. and Park, T. (1980). Language mixing in young bilinguals. *Journal of Child Language, 7,* 337-352.

Ronjat, J. (1913). *Le développement du langage observé chez un enfant bilingue*. Paris: Champion.

Satomi, M. (2002). Language differentiation of the two languages in early bilingual development: A case study of Japanese/English bilingual children. *International Review of Applied Linguistics (IRAL), 40*, 211-233.

Serratrice, L and Sorace, A. (2003). Overt and null subjects in monolingual and bilingual Italian acquisition. *Boston University Conference on Child Language Development 27,* 739-750.

Sugisaki, K. and Snyder, W. (2002). Preposition stranding and the Compounding Parameter: A developmental perspective. *Boston University Conference on Child Language Development 26,* 677-688.

Taeschner, T. (1983). *The sun is feminine: A study of language acquisition in bilingual children*. Berlin: Springer.

Tracy, R. (1998). Child language in contact: bilingual language acquisition in early childhood. Habilitationsschrift Universität Tübingen.

Vásquez Carranza, L.M. (2001). Cross-linguistic influence in the syntactic domain in simultaneous child bilingualism: Data from the speech of an English-Spanish bilingual child. Unpublished Ph.D. Dissertation, Boston University.

Vásquez Carranza, L.M. (2007). Autonomy in simultaneous bilingualism: Evidence from an English-Spanish bilingual child. To appear in *Revista de Filología y Lingüística*. Universidad de Costa Rica, San José.

Vihman, M. (1982). The acquisition of morphology by a bilingual child: A whole-word approach. *Applied Psycholinguistics, 3,* 141-160.

Volterra, V., and Taeschner, T. (1978). The acquisition and development of language by bilingual children. *Journal of Child Language, 5,* 311-326.

Yip, V, Mathews, S. (2000). Syntactic transfer in a Cantonese-English bilingual child. *Bilingualism: Language and Cognition 3*(3), 193-208.

Zentella, A. C., (1999). *Growing up Bilingual*. Malden, Massachusetts: Blackwell Publishers.

Zorriqueta, M. E. (1988). *The acquisition of relative clauses in Spanish*. Ph.D. Dissertation, State University of New York, Buffalo.

Zwanziger, E. E., Allen, S. E., and Genesee, F. (2005). Investigating crosslinguistic influence in child bilinguals: Subject omission in speakers of Inuktitut and English. To be published in *Bilingualism: Language and Cognition*.

Appendix A

Tables 5 & 6 below show in detail the information regarding the monolingual subjects included in the study. Table 5 provides detailed information about the English monolingual data, whereas Table 6 provides the information regarding the Spanish monolingual data.

Table 5: The English monolingual data.

Corpus	*Child*	*Ages*	*Number of files*
Brown	Adam	2;5.12 - 2;9.4 - 2;11.13 - 3;3.4 - 3;5.1 -3;8.14 - 3;11.1- 4;1.15 - 4;4.1 - 4;6.24 – 4;9.2 - 5;2.12	12
	Sarah	2;5.7 - 2;9.6 - 2;11.2 - 3;1.10 - 3;3.7 - 3;5.7 - 3;8.12 - 3;11.9 - 4;1.28 - 4;3.7 - 4;6.5 - 4;9.4 - 4;11.13 - 5;1.6	14
Clark	Shem	2;5.2 - 2;9.10 - 2;11.10 - 3;1.5 - 3;2.2	5
MacWhinney	Ross	2;6.17 - 2;9.21 - 2;11.0 - 3;1.5 - 3;3.29 - 3;5.26 - 3;8.3 - 3;10.27 - 4;1.17 - 4;5.8 - 4;8.0 - 5;1.20 - 5;4.20	13
Sachs	Naomi	2;9.9 - 2;11.12 - 3;2.10 - 3;4.0 - 3;5.7 - 3;8.19 - 4;7.28 - 4;9.3	8
Snow	Nathaniel	2;5.18 - 2;6.3 - 2;8.0 - 3;0.19 - 3;2.24 - 3;4.20 - 3;7.14 - 3;9.4	8
Kuczaj	Abe	3;0.16 - 3;2.1 - 3;4.8 - 3;6.13 - 3;8.11 - 3;11.0 - 4;1.20 - 4;3.21 - 4;5.20 - 4;7.11 - 4;9.12 - 4;11.13	12
Gathercole	Gillian	4;3.0 - 4;6.0 - 4;9.0	3
	Mathew	4;10.0 - 4;11.0 - 5;1.0	3
	Megan	3;6.0 - 3;10.0 - 4;0.0	3
	Luke	5;2.0 - 5;3.0	2

Table 6: The Spanish monolingual data.

Corpus	*Child*	*Ages*	*Number of files*
Fernández-Agudo	Ainhoa	3;1.13 - 3;6.13 - 3;11.19	3
	Alejandro	3;1.26- 3;6.26- 4;0.13	3
	Alex	3;026 - 3;5.27 - 3;11.14	3
Linaza	Juan	2;3;0 - 2;5.0 - 2;8.0 - 2;10.0 - 3;5.0 - 3;9.0 - 4;4.24 – 4;7.7 - 4;11.0	9
Marrero	Alfonso	2;3.7 – 2;6.9 - 2;10.22	3
	Idaira	2;7.29 - 2;11.29 - 3;3.02 - 3;7.10 - 4;0.0 - 4;7.7	6
	Rafael	4;4.16 - 4;6.26 - 4;11.13	3
Montes	Koki	2;3.21 - 2;5.24 - 2;7.10 - 2;9.14 - 2;11.14	5
Ornat	María	2;3.0 - 2;6.0 - 2;8.0 - 2;11.0 - 3;6.0 - 3;7.0 - 3;10.0	7
Beca	Mónica	5;1.19	1
	Tamara	5;0.25	1
	Carlos	3;8.06	1
	David	3;6.03	1
	Sergio	3;9.10	1