NULL AND OVERT SUBJECTS IN THE DEVELOPING GRAMMARS (L1 ENGLISH/L1 SPANISH) OF TWO BILINGUAL TWINS

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1. INTRODUCTION

Ever since Chomsky (1981) put parameters at the centre of learnability theory, parameters in general and the null subject parameter in particular have been one of the most studied topics in both linguistic theory and language acquisition research. The null subject parameter —a formalization of Perlmutter's (1971) surface structure filter— is defined as a cluster of properties which determine two typological groups of languages: [+/- pro-drop], depending on whether they allow:

- null subjects
    (1) [ø] he encontrado el libro
        "I found the book"
- free inversion in simple sentences
    (2) [ø] ha comido Juan
        "Juan ate"
- "long wh-movement" of the subject
    (3) el hombre$_i$ que me pregunto a quién [ø]$_i$ había visto
        "the man x such that I wonder who x saw"
- empty resumptive pronouns in embedded clauses
    (4) esta es la chica$_i$ que me pregunto quién cree que [ø]$_i$ lo hizo
        "This is the girl that I wonder who thinks that she did it"
- apparent violations of the *[that-t] filter
    (5) ¿quién$_i$ crees que [ø]$_i$ se irá?
        "who do you think (that) will leave"

According to Chomsky (1981), these constructions are possible in pro-drop languages because Agreement —a feature of Inflection— governs the empty category [ø]. The feature Agreement cannot govern an empty category in non pro-drop languages. The intuitive idea is that subjects can be dropped when there is overt agreement. Acquisition understood as parameter-setting implies that, by determining the characteristics of the features associated with a functional category in a particular language, children are able to set the properties of the corresponding parameter.

Null subjects in early child language as in (6) and (7) have occupied a special place in psycholinguistic research (Frazier and De Villiers 1990; Guasti 2002; Hyams 1986) due to their null category status.

(6)   broke this   [Peter 2.0.1(Pierce 1992, p. 116)]
(7)   veut lait   [Daniel 1.11.1 (Pierce 1992, p. 109)]
         wants milk
         'He/she wants milk'

Null subjects appear in early L1 acquisition data regardless of whether the adult language is a [-null subject] language —English or French in (6) and (7)—, or a [+null subject] language —Spanish in (8).

(8)   horita viene   [LV II:78 —2.0—(González 1970, p. 10)]
         now is coming
         'He/she is coming now'

The presence of null subjects in early [+/-null subject] grammars has been accounted for mainly in two ways. In some accounts, child grammars were assumed to be different from adult grammars (competence account) (Hyams, 1986, 1996; Pierce 1992; Rizzi 1993/94; Weissenborn 1992). In other accounts, child grammars were proposed to be similar to adult grammars but children's production capability explained the superficial differences

(performance account) (Bloom 1970; Bloom 1990, Valian 1990, 1991; Valian and Eisenberg 1996).

In the case of [+null subject] languages such as Spanish, it was soon noticed that the presence of null subjects was not the main issue in relation to setting the null subject parameter, but the mastering of stylistic conventions that regulate the distribution of overt subjects in the [+null subject] adult grammar (Liceras 1988; Liceras 1989). In recent literature on bilingualism and L2 acquisition, special attention has been paid to the distribution of overt subjects in [+null subject] languages precisely because it is considered not to be the domain of narrow syntax but rather to be regulated at the semantic/pragmatic interface (Montrul and Rodríguez-Louro, in press; Paradis and Navarro 2003; Serratrice, Sorace and Paoli 2004). Overproduction of overt subject pronouns by English/Spanish, German/Italian and French/Italian bilinguals has been attributed to the propensity of crosslinguistic interference which characterizes the semantic/pragmatic interface. That is to say, in the case of an English/Spanish bilingual child, Spanish data is predicted to contain more overt subjects than monolingual Spanish data due to interference from the obligatory nature of subject pronouns in English, the [-null subject] language (Paradis and Navarro 2003; Hulk and Müller 2000).

In this paper we provide an analysis of the development of null and overt subjects in the languages of two English/Spanish bilingual twins (Fernández Fuertes, Liceras and Spradlin 2002-2005; Spradlin, Liceras and Fernández Fuertes 2003). In order to carry out our analysis we recast, in terms of learnability, recent minimalist accounts of the null subject parameter (Speas 1994; Alexiadou and Anagnostopoulou 1998). We argue that the formulation of the null subject parameter —in terms of whether checking of the EPP feature occurs in a Spec-Head versus a Head-Head relationship— provides new insights into the characteristics of child data from [+/-null-subject] languages. This EPP feature captures the requirement previously defined as the Extended Projection Principle (EPP) in the following way. Instead of complying with the principle using overt subjects or *pro*, all languages have to check this feature either by creating a specifier position to host the overt subject, as in English, or merging a pronominal suffix with the verb, as in Spanish. This articulation of the null subject parameter offers a different perspective on the relationship between English subject pronouns and Spanish verbal agreement affixes and allows us to formulate a markedness hypothesis which can be tested against empirical data. The relationship between markedness and parameter-setting has been defined in terms of establishing which of the two options of any given parameter represents the default or unmarked one. What we propose is that Alexiadou and Anagnostopoulou's (1998) formulation of the null subject parameter can be reinterpreted in the light of Roberts' (2001) markedness proposal. This proposal states that the marked option of the parameter will be realized by the language where the activation of an operation within the computational component implies the creation of structure. Thus we hypothesize that checking the EPP feature in English represents the marked option of the parameter while Spanish represents the default or unmarked option. We will refer to this view of markedness as the "core-internal" view.

Another learnability proposal that has been put forward (Chomsky 2001; Rivero 1997) states that pure syntactic operations (the ones that belong to the so-called computational component) are less marked than the operations which take place at the periphery (the phonological and the semantic/pragmatic interface levels). In this view (the "core-external" view), checking the EPP feature in a Spec-Head or a Head-Head relationship are both operations of the computational component and are therefore equally marked. However, since the distribution of overt subjects in [+null subject] languages is considered to be regulated at the semantic/pragmatic interface, this proposal would support the view that transfer from the syntactically obligatory use of English subjects may affect the use of overt subjects in the Spanish grammar of English/Spanish bilinguals (Hulk and Müller 2000; Paradis and Navarro 2003). By determining whether the use of subjects in our Spanish data shows evidence of interference from English, we will offer new insights into the separation/non-separation of the two systems in the bilingual mind (Genesee, 1989; Genesee, Nicoladis and Paradis 1995; Köppe and Meisel 1995; Volterra and Taeschner 1978).

Finally, we address the competence/performance account controversy by investigating the comparative development of null, pronominal and lexical subjects in both English and Spanish.

We focus on the trade-off between null and pronominal subjects as well as the overall increase of overt subjects. We specifically investigate whether these phenomena occur only in our English data or both in our English and our Spanish data. If the former case, our data will provide evidence for a competence account (Hyams and Wexler 1993), in the latter, for a performance account (Valian 1991; Valian and Eisenberg 1996).

2. NULL AND OVERT SUBJECTS IN ENGLISH AND SPANISH: MINIMALIST ACCOUNTS
2.1. The syntactic status of agreement affixes and pronominal subjects
Following the so-called 'standard' Minimalist analysis (Chomsky 1995), Alexiadou and Anagnostopoulou (1998) argue that the licensing of null Noun Phrases (NPs) not only depends on the nature of verbal agreement but also on how the Extended Projection Principle is checked.

There are two proposals that serve as the basis for Alexiadou and Anagnostopoulou's (1998) analysis. One is Speas' (1994) account of the cross-linguistic distribution of null Noun Phrases in terms of economy principles (a given head is projected only if it has semantic and phonological content). The other is Alexiadou and Anagnostopoulou's (1998) adoption of Rohrbacher's (1992) generalization: "strong morphemes have individual lexical entries and weak morphemes do not" (Speas 1994: 185). This implies that in languages with rich verbal agreement morphology such as Spanish each agreement morpheme has its own lexical entry in the numeration (the list of items retrieved from the lexicon to undergo any given syntactic operation). Therefore, [+null subject] languages have strong verbal agreement affixes with separate lexical entries in the numeration. These verbal agreement affixes are in fact pronominal elements, which implies that they have a categorial feature [+D] listed in the numeration along with the verbal root. These affixes have semantic content and are therefore [+interpretable]. In Spanish, checking of the EPP occurs by merging of the verb (X°-movement) as shown in (9).

INSERT TREE (9) HERE

In contrast, weak verbal agreement affixes in [-null subject] languages cannot be characterized as pronominal elements. This implies that in weak agreement languages like English, semantic features are associated with pronouns but not with affixes, which are therefore [-interpretable]. In these languages the EPP must be checked by merging an overt pronominal element in the specifier of the TP (XP-merge), as in (10). Thus a null subject is not allowed.

INSERT TREE (10) HERE

As for the overt subjects which occur in Spanish as well as other [+null subject] languages, they have semantic or pragmatic effect, such as signalling contrast or focusing on the subject as shown in (11).
(11)   <u>Tú</u> no te tiñes el pelo pero <u>yo</u> sí
        You do not dye your hair but I yes
        'You do not dye your hair but I do'
To account for the specific nature of Spanish strong subject pronouns, Kato (1999), following Ordóñez (1997), argues that Spanish-like subject pronouns appear in an adjunct position, as in (12).

INSERT TREE (12) HERE

In Kato's proposal, strong pronouns include nominative pronouns (*yo, tú, él…*) in Spanish, accusative pronouns (*me, him, her...*) in English and dative pronouns (*moi, toi, lui...*) in French, while weak pronouns include free nominative pronouns (*I, you, he…*) in English, nominative clitic pronouns (*je, tu, il…*) in French and, following Fernández-Soriano (1989), verbal agreement affixes *(-o, -as, -a…*) in Spanish. Thus, overt pronominal subjects are weak pronouns in English but strong pronouns in Spanish.

2.2. The core/peripheral status of syntactic operations and the components of the grammar

Markedness proposals have been linked systematically to parameter-setting and learning difficulty. In Chomsky's (1981) idealized model of language acquisition, Universal Grammar (UG), an element of shared biological endowment, is supposed to be a characterization of the child's pre-linguistic initial state which is related to experience. The child approaches the task of learning a language equipped with UG and an associated theory of markedness. Chomsky suggests that "UG determines a set of core grammars and that what is actually represented in the mind of an individual even under the idealization to a homogenous speech community would be a core grammar with a periphery of marked elements and constructions" (Chomsky 1981: 8). What is needed to delimit the domain of core grammar as distinct from the marked periphery is evidence from language acquisition, language processing, language deficit, etc. Furthermore, it is also necessary to determine whether the core itself (now the computational component of the grammar) contains both default and marked operations (Liceras 1986).

Roberts (2001) recasts Chomsky and Lasnik's (1977) and Chomsky's (1981) distinction between core (unmarked) and periphery (marked) aspects of the grammar within the so-called *Functional Parametrization Hypothesis* according to which parametric variation among languages rests in the functional lexicon (Borer 1984; Chomsky 1991) so that setting a parameter implies activating a property P of a given category. In the case of Alexiadou and Anagnostopoulou's (1998) depiction of the null subject parameter, the actual property to be activated would be the categorial D feature of the semantically [+interpretable] agreement markers of Spanish versus the lack of the D feature in the case of the semantically [-interpretable] English agreement markers, which in turn determine where the EPP is checked. Roberts (2001) also espouses the idea that all parameters have a default option which the child fixes without positive evidence, and a marked option which requires positive evidence to be fixed. Roberts (2001) further proposes that the child, who has both of these options available as part of his innate endowment, will first contemplate the default option. The second option will only be contemplated upon exposure to positive evidence. This is so because "markedness […] is a consequence of the computationally conservative nature of the parameter-setting device, the learner. This device has a built-in-preference for relatively simple representations" (Roberts 2001: 103-104). Thus, as Martínez (2005) points out, if all movement operations are adjunctions (Kayne 1994), they will create computationally complex structures (see (10)). Therefore, movement operations will be intrinsically marked.

There are two different ways of interpreting Alexiadou and Anagnostopoulou's (1998) account of the null subject parameter with respect to markedness. One is to assume that checking the EPP in English with the projection of a specifier, is a marked operation. The merging operation via which EPP is checked in Spanish is not an adjunction operation and represents the default option of the parameter. This implies that the rate of omission of agreement markers in Spanish will be smaller than that of subject pronouns in English. The other interpretation is to assume that the EPP checking operations in English and Spanish have a similar status because they are both core operations which belong to the computational component of the grammar. This second view of markedness is the one advocated by Rivero (1997), who maintains that core operations occur in the computational component of the grammar and are thus syntactic operations. If both EPP checking operations are core operations because they belong to the computational component of the grammar, there will be no differences as to the difficulty encountered by children when setting the plus or minus option of the null subject parameter.

The distribution of Spanish subject pronouns, which occupy an adjunct topic or focus position (Fernández-Soriano 1989; Ordóñez 1997; Kato 1999), is constrained at the semantic/pragmatic interface level and is therefore a peripheral operation. Thus, it is also considered a marked operation. In terms of learnability, the marked status of the semantic/pragmatic component provides justification for the proposed crosslinguistic interference that characterizes the discourse-pragmatic area of the bilingual grammar (Hulk and Müller 2000; Paradis and Navarro 2003), which leads us to expect that there may be

overproduction of pronominal subjects in the twins' Spanish data. In this respect, we assume that the directionality of interference is from English into Spanish —and not the other way around— because it is precisely in Spanish where the distribution of null and overt subjects is regulated at the comparatively more vulnerable semantic/pragmatic interface. In the case of English, it is the syntax that determines the obligatory presence of subjects, a component that is not supposed to be vulnerable.

3. NULL AND OVERT SUBJECTS IN EARLY CHILD LANGUAGE
3.1. A competence account
Ever since Hyams (1986) addressed the issue of the null subject parameter in child language, the study of null subjects in early child language has received a great deal of attention (Bel 2001; Hyams 1986, 1996; Rizzi 1993/1994; Valian 1990, 1991, 1996; Wang et al. 1992; Weissenborn 1992; to mention just a few). As we have indicated above, one of the main issues investigated has been whether non-adult null subjects represent a grammatical option which characterizes the early child language or whether they are the result of performance limitations.

Hyams and Wexler (1993) argue for a competence account of child null subjects on the basis of at least three pieces of evidence: (1) the strong asymmetries found in subject versus object omission in early child language; (2) the trade-off between null subjects and pronouns which characterizes the development into more advanced stages and which also differentiates child from adult speech; and (3) the use of many more lexical than pronominal subjects by young Adam (Brown 1973).

3.2. A performance account
Valian (1991) and Valian and Eisenberg (1996) argue that children attempt to economize in production by performing as few computations as possible (Valian 1991). One of the computations that they systematically avoid is the insertion of lexical items and syntactic features. Thus, these authors hypothesize that a performance-limitation explanation would predict that ALL children will increase their use of subjects over time, because all children's performance limitations will decrease over time. A competence-deficit explanation, on the other hand, would predict that only English-speaking children's subjects would increase.

While it is a fact that English-speaking children increase their use of subjects over time, Valian's (1991) data indicates that Italian children's subjects as a whole did not increase over the one-year-period that formed the basis of the observations, which would support a competence-deficit account. In Valian and Eisenberg's (1996) examination of the development of subjects in another Romance language, Portuguese, the Portuguese-speaking children's development demonstrates an increase in the use of subjects similar to that found in English-speaking children. Therefore these authors conclude that if subject use does increase among all children, regardless of language type, Hyams and Wexler's (1993) reasoning is untenable.

In terms of the trade-off between null subjects and subject pronouns, data from Valian (1991) show that pronominal subjects in particular increase across development in English-speaking children. Hyams and Wexler (1993) have interpreted the increase as the consequence of a shift from a null subject grammar to a non-null subject grammar. They reason that the initial availability of the empty category *pro* substitutes for overt pronouns: as *pro* is phased out, use of overt pronouns increases. However, if children of null subject languages also increase their use of pronominal subjects, that reasoning in untenable (Valian and Eisenberg 1996:107).

4. THE STUDY: THE DEVELOPMENT OF THE NULL SUBJECT PARAMETER IN THE GRAMMARS OF TWO BILINGUAL (ENGLISH/SPANISH) CHILDREN
4.1. Methodology
We have analyzed the spontaneous production of two bilingual children, Simon and Leo (Fernández, Liceras and Spradlin 2000-2005; Spradlin, Liceras and Fernández 2003). They live with their parents in Spain. The father is a native speaker of Peninsular Spanish and the mother is a native speaker of American English. The father always speaks to the children in Spanish and the mother always addresses them in English. The parents generally speak Spanish with

each other, except on summers when they travel to the United States for approximately two months or when a monolingual English speaker is present. Therefore, we are dealing with bilingual English/Spanish first language acquisition in a monolingual-Spanish social context, a type of bilingualism which is referred to in the literature as individual bilingualism (Bhatia and Ritchie 2004).

During the first year, the mother was the primary caretaker of the twins. The father was present all day on weekends and less on weekdays. At age 1;10 the twins began attending daycare for 3 hours a day on weekdays, where the language of the staff and other children was Spanish. Apart from the mother, additional contact with English was provided by occasional visits by the maternal grandparents and by the two-month visits to the United States every summer.

The data we have collected to this point cover the age range of 1;1 to 6;3. A total of 168 sessions have been recorded on videotape and DVD, of which 113 are in an English context (i.e., with an English interlocutor) and 55 in a Spanish context. The Spanish recordings were made at intervals of 2-3 weeks until age 3;00 (with some interruptions) and then they were made once a month. The English recordings were sometimes made more frequently, but the sessions are usually much shorter and recorded on consecutive days. The data that we have analyzed for this study is described in table 1.

INSERT TABLE 1 HERE

The three stages were chosen *a priori* and they are justified in terms of both the age and the MLU (Mean Length Utterance) differences. The MLU was calculated on the number of words per utterance (MLUw). Even though our data collection started earlier, we chose to begin our analysis at 2;04-2;06 (Stage # 1) because the twins' language development lagged behind their singleton counterparts in accordance with what seems to be the case in this population (Dale et al. 1998; among others). We chose to include more English sessions because they were shorter in terms of time, which also resulted in the production of less utterances. The total number of utterances analyzed per child, per stage and in total as well as the MLUws are indicated in tables 2 and 3.

INSERT TABLE 2 AND TABLE 3 HERE

In our data analysis we isolated all the instances of inflected and non-inflected verbal forms in main and subordinate clauses. The verbal forms were classified according to whether or not they occupied the structural position (inflected/non-inflected) which is required in the adult language. We also classified all the overt and the null subjects according to whether they were adult-like or not. Imperatives were not counted together with the rest of the verbal forms because of the way in which null and overt subjects are realized with these forms. Relatives, wh- and control sentences were not included. Verb and subject repetitions were counted only once in the case of both emphatic and accidental repetitions. In the case of self-repairs we only counted the last occurrence. Due to the special nature of post-verbal subjects (Pierce 1992) in early grammars, only preverbal subjects were included in our analysis.[1]

4.2. Research questions and hypotheses

Our first research question is whether markedness in the sense of Roberts (2001) (our 'core-internal' view) plays a role in parameter-setting. On this basis we formulate our first hypothesis:
• Hypothesis #1. According to the core internal view, the English data will show more instances of omission of null subjects and until a later age than the Spanish data will show instances of omission of verbal agreement affixes. This will be so because merging the overt pronominal element in the specifier of TP (XP-merge) where the EPP is checked, as in English in (10) above, is a more marked operation than checking the verbal agreement affixes on a head-to-head relationship (the X^o-movement operation that accounts for the presence of null subjects in Spanish, as in (9)).

Our second research question addresses the issue of whether the comparison of null and overt subjects in a child [-null subject] versus a child [+null subject] grammar provides evidence for a competence or for a performance explanation of the data. We have formulated two hypotheses to address this question.

• Hypothesis #2. If there is a similar ratio between the use of null subjects at the early stages and the use of subject pronouns at the older stages only in the English data, a competence explanation is favoured. If this happens in the case of both the English and the Spanish data, a performance explanation is more tenable. In fact, the Spanish grammar should show a lower increase in the use of subject pronouns not only because they are not an obligatory option but also because they are regulated by semantic/pragmatic factors which, according to the "core-external" markedness proposal, should be acquired later because their distribution belongs to the periphery of the grammar. However, if there is crosslinguistic interference from English, as predicted in Paradis and Navarro (2003) and Hulk and Müller (2000), these Spanish bilingual data will contain a higher percentage of subject pronouns than the monolingual data analyzed in Paradis and Navarro (2003).

• Hypothesis #3. If there is an overall increase in the use of overt subjects only in the English grammar, a competence explanation is favoured. If this happens in the case of both the English and the Spanish grammars, a competence explanation is untenable.

4.3. Data analysis

Table 4 shows the percentage of null subjects versus personal pronouns in English and Table 5 shows the omission of verbal agreement markers in Spanish. These include all instances of infinitival forms (RIs) and participles used in context where the adult language requires an inflected [+personal] form, as in (13) and (14)[2].

(13) a. Yo poner   (Leo, 24ASP_02, 2;05)
          'I to put'
      b. Tener [tiene] ojo como Elmo   (Leo, 28SP_02, 3;00)
          'To have (he has) eye like Elmo'
(14) a. Eso roto   (Leo, 22SP, 2;05)
          'This broken'
      b. Aquí visto   (Simon, 24ASP_01, 2;05)
          'Here seen'
      c. La bruja [ha] dado la manzana envenenada a Blancanieves   (Simon, 34ASP_01, 3;05)
          'The witch (has) given the poisoned apple to Snow White'

It also includes all instances of third person singular indicative which referred to non third person subjects (bare forms) and all cases of first or second person whose referent was not first or second person as such (mismatches), as in (15).

(15) a. Estos de aquí es animales   (Leo, 28SP_02, 3;00)
          'These here is animals'
      b. Yo cae   (Leo, 50SP_01, 4;04)
          'I falls'
      c. Yo ha [he] ido adentro   (Simon, 51SP_01, 4;04)
          'I has [have] gone inside'

The figures in Table 4 show a clear trade-off between English null subjects and pronouns after stage #1, as opposed to Spanish where the null/pronominal subject ratio remains more or less constant throughout the three stages. A contrast of percentages using the p-value shows that the difference between stage 1 and 2 is significant in the case of English (p=0) but it is not significant with respect to stage 2 versus stage 3 (p=0,4988). In the case of Spanish, the difference is not significant between stages 1 and 2 (p=0,1337) but significant between stages 2 and 3 (p=0,0006) and stages 1 and 3 (p=0,001). In other words, there is an effect of vocabulary learning in Spanish but never a stage where personal pronouns override null subjects.

INSERT TABLE 4 HERE

The figures in Table 5 show no evidence of an abrupt change regarding Spanish verbal agreement markers even though there is a significant difference between stages 1 and 2 and between 2 and 3. In fact, what we see is a very small percentage of non-adult forms even at the very early stages, which we interpret as performance errors resulting from the mechanisms responsible for retrieving the agreement markers from the lexicon. Even within these very small percentages, there is a substantial decrease at the second stage, which indicates that the above-mentioned mechanisms are in the process of being automatized. We would like to suggest that the increase of non-adult forms at the third stage, calls again for a performance explanation: the increase in the variety of verbal forms used by the twins puts a greater burden on the mechanisms responsible for retrieving the agreement markers from the lexicon.

INSERT TABLE 5 HERE

The comparison between tables 4 and 5 yields more interesting results. These data show that the synchronic and developmental patterns of omission and production of English weak pronouns and Spanish agreement morphemes are very different, since there are significantly more instances of omission of null subjects (and until a later age) in the English data than instances of omission of verbal agreement affixes in the Spanish data. We interpret these results as evidence that English is the marked option with regard to the EPP checking account of the null subject parameter.

The tendency shown by children to use first person pronouns at a higher rate than other personal pronouns is clearly depicted in Table 6, both for English and for Spanish.

INSERT TABLE 6 HERE

What is relevant here is not only that the twins use many more pronouns in English than in Spanish for the 3rd and the 1st person, but also that they use a higher percentage of 1st person pronouns in the case of Spanish. This suggests that if crosslinguistic influence from English were to be proposed as an explanation for the twins' use of subject pronouns in Spanish (Paradis and Navarro 2003), it would be difficult to explain the very low number of 3rd person pronouns in the Spanish data, as well as the substantially lower percentage of 3rd person versus 1st person pronouns in all three stages but mostly in the first two stages.

Table 7 shows the percentage of null versus overt subjects with inflected verbs. Overt subjects include all types of lexical subjects.

INSERT TABLE 7 HERE

We see a clear overall increase in the use of overt subjects in English after stage #1, whereas in Spanish it remains more or less constant. The increase is significant for both languages between stage 1 and 2 and stage 1 and 3. However, the degree of significance is different in that in English the p-value is p=0 < 0,05, while in Spanish it is p=00087 < 0,05 and p=0,00045 < 0,05, respectively. The fact that Spanish does not show abrupt changes between the first and second stages seems to indicate that the null subject parameter is set much earlier in Spanish than in English. There is no trade-off between null and overt subjects in Spanish, as we saw previously in Table 4 for null and personal pronoun subjects. These results support a competence account of the data and further corroborate, contra Paradis and Navarro's (2003) findings, that transfer from English does not seem to influence the production of subject pronouns in Spanish in the case of these two bilingual children. In fact, their production of overt subjects is always below 30%, as table 7 shows: the percentage of Spanish overt versus null pronouns is 16,02% for Stage 1, 26,37% for Stage 2 and 27,07% for Stage 3. These percentages of Spanish overt subjects are even lower than those reported in Bel (2003) for Spanish monolingual children.

5. DISCUSSION AND CONCLUSIONS

Our data show that, within the "core-internal" view of markedness, English appears to be the marked option and Spanish the unmarked option of the null subject parameter, which confirms our first hypothesis. In addition, our results seem to provide evidence for the special role of bound versus free morphology that characterizes first language acquisition as suggested in previous work (Vainikka and Young-Scholten 1998; Zobl and Liceras 1994). However, we would like to place a caveat to this assertion since we have not analyzed all bound morphology but only the bound morphology that has a lexical status in the numeration (Spanish agreement markers). This type of morphology seems to play a special role in first language acquisition.

With respect to our second hypothesis, we have found rather clear-cut evidence for a competence account of the data. Our results support Hyams and Wexler (1993) and provide evidence against Valian and Eisenberg (1996) in the sense that, as Figure 1 and Figure 2 show, we obtained a trade-off between null subjects and pronouns in English but not in Spanish.

INSERT FIGURES 1 AND 2 HERE

In fact, as shown in Table 4 for Spanish, the percentage of subject pronouns versus null subjects in all three stages (7.98%, 10.71% and 16.21%) is a strong indication that there is no crosslinguistic influence from English in the twins' Spanish grammar.

As for our third hypothesis, our data show an overall increase in the production of overt subjects in English but not in Spanish (compare Figures 3 and 4). This difference, which happens to be highly significant, provides evidence for a competence account of the data, since the Spanish data does not pattern with the L1 Portuguese data discussed in Valian and Eisenberg (1996) but with the Italian data discussed in Valian (1991) and Hyams and Wexler (1993).

INSERT FIGURES 3 AND 4 HERE

To conclude, we would like to add that since our subjects were exposed to data compatible with the two options of the null subject parameter, we were able to investigate their development in the same 'population' as opposed to previous studies where the English and the Italian or the Portuguese children represented two different populations. What our data shows is that, even though this is an obvious case in which the children may entertain both options of the parameter on an equal footing until sufficient evidence leads them to favour one over the other (Valian 1994) for each set of data, setting the marked value represented by English is more problematic than setting the Spanish value. In this respect, our results support Robert's (2001) 'core-internal' view of markedness since it distinguishes two operations which take place within the computational component, rather than Rivero's (1997) 'core-external' view of markedness according to which none of the operations which belong to the core are marked.

We should also point out that we obtained clear evidence that there are two separated systems in the bilingual mind. That is to say, although our subjects have two available grammars, there appears to be no transfer from either language with respect to the implementation of the two different options of the null subject parameter.

REFERENCES

Alexiadou, A. and Anagnostopoulou, E. (1998) Parametrizing AGR: word order, V-movement and EPP-checking. *Natural Language and Linguistic Theory* 16, 491-539.

Atkinson, M. (1992) *Children's Syntax: An Introduction to Principles and Parameters Theory*. Oxford: Blackwell.

Bhatia, T.J. and Ritchie, W.C. (2004) *The Handbook of Bilingualism*. Oxford: Blackwell.

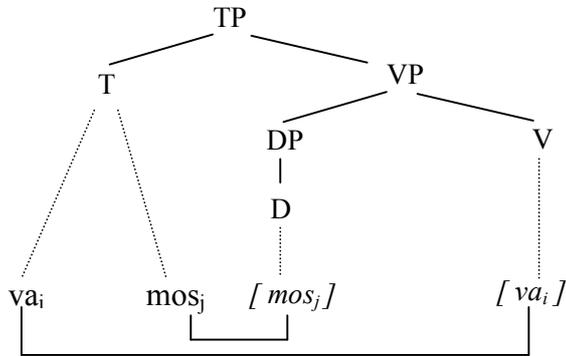Bel, A. (2001) *Teoria lingüística I adquisicio del llenguatge. Anàlisi comparada dels trets*

morfològics en català i en castellà. Barcelona: Institut d'Estudis Catalans.

Bel, A. (2003) The syntax of subjects in the acquisition of Spanish and Catalan. *Probus*, 15 (1), 1–26.

Bloom, L. (1970) *Language Development: Form and Function in Emerging Grammars*. Cambridge, Mass.: MIT Press.

Bloom, P. (1990) Subjectless sentences in child language. *Linguistic Inquiry* 21, 491-504.

Borer, H. (1984) *Parametric Syntax*. Dordrecht: Foris.

Brown, R. (1973) *A First Language: The Early Stages*. Cambridge, Mass.: Harvard University Press.

Chomsky, N. (1981) *Lectures on Government and Binding*. Dordrecht: Foris.

Chomsky, N. (1991) Some notes on economy of derivation and representation. In R. Freidin, (ed.) *Principles and Parameters in Comparative Grammar* (pp. 417-54). Cambridge, Mass.: MIT Press.

Chomsky, N. (1995) *The Minimalist Program*. Cambridge, Mass.: MIT Press.

Chomsky, N. (2001) Derivation by phase. In J. Kenstowicz (ed.) *Ken Hale: A Life in Language* (pp. 1-52). Cambridge, Mass.: MIT Press.

Chomsky, N. and Lasnik H. (1997) Filters and control. *Linguistic Inquiry* 8 (3), 425-504.

Dale, P.S., Simonoff, E, Bishop, D.V.M., Eley, T.C., Oliver, B., Price, T.S., Purcell, S., Stevenson J. and Plomin, R. (1998) Genetic influence on language delay in two-year-old children. *Nature Neuroscience* 1(4), 324-328.

Fernández Fuertes, R., Liceras, J.M. and Spradlin, K.T. (2000-2005). Bilingualism (English and Spanish) as a first language: A study of identical twins. Research project funded by the Spanish Ministry of Science and Technology, Dirección General de Investigación Científica, and FEDER.

Fernández-Soriano, O. (1989) Strong pronouns in null-subject languages and the avoid pronoun principle. In P. Branigan, J. Gaulding, M. Kubo, and K, Murasugi (eds) *MIT Working Papers in Linguistics* 11, 228-239.

Frazier, L. and De Villiers, J. (1990) *Language Processing and Language Acquisition*. Dordrecht: Kluwer.

Genesee, F. (1989) Early bilingual development: one language or two? *Journal of Child Language* 6, 161-179.

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

González, G. (1970) The acquisition of Spanish grammar by native Spanish speakers. Ph.D. Dissertation, University of Texas at Austin.

Guasti, M.T. (2002) *Language Acquisition: The Growth of Grammar*. Cambridge, Mass.: MIT Press.

Hulk, A. and Müller, N. (2000) Bilingual first language acquisition at the interface between syntax and pragmatics. *Bilingualism: Language and Cognition* 3 (3), 227-244.

Hyams, N. (1986) *Language Acquisition and the Theory of Parameters*. Dordrecht: Reidel.

Hyams, N. (1996) The underspecification of functional categories in early grammar. In H. Clahsen (ed.) *Generative Perspectives on Language Acquisition* (pp. 91-127). Amsterdam: John Benjamins.

Hyams, N. and Wexler, K. (1993) On the grammatical basis of null subjects in child languages.

Linguistic Inquiry 24 (1), 421-459.

Kato, M.A. (1999) Strong and weak pronominals and the null subject parameter. *Probus* 11 (1), 1-38.

Kayne, R. (1994) *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.

Köppe, R. and Meisel, J. (1995) Code-switching in bilingual first language acquisition. In L. Milroy and P. Muysken (eds.) *One Speaker, Two Languages*. Cambridge: Cambridge University Press.

Liceras, J.M. (1986) *Linguistic Theory and Second Language Acquisition: The Spanish Non-native Grammar of English Speakers*. Tübingen: Gunter Narr.

Liceras, J.M. (1988) Syntax and stylistics: more on the pro-drop parameter. In J. Pankhurst, M. Sharwood-Smith and P. van Buren (eds.) *Learnability and Second Languages* (pp. 71-93). Dordrecht: Foris.

Liceras, J.M. (1989) On some properties of the pro-drop parameter: looking for missing subjects in non-native Spanish. In S. Gass and J. Schachter (eds.) *Language Acquisition: A Linguistic Approach* (pp. 109-133). Cambridge: Cambridge University Press.

Martínez, C. (2005) El desplazamiento del verbo y la teoría de lo marcado: adquisición del lenguaje y cambio diacrónico. M.A. thesis, University of Ottawa.

Montrul, S. and Rodríguez-Louro, C. (in press) Beyond the syntax of the null subject parameter: a look at the discourse-pragmatic distribution of null and overt subjects by L2 learners of Spanish. In L. Escobar and V. Torrens (eds.) *The Acquisition of Syntax in Romance Languages*. Amsterdam: John Benjamins.

Ordóñez, F. (1997) Word order and clause structure in Spanish and other Romance languages. New York: CUNY dissertation.

Paradis, J. and Navarro, S. (2003) Subject realization and crosslinguistic interference in the bilingual acquisition of Spanish and English. *Journal of Child Language* 30, 1-23.

Perlmutter, D. (1971) *Deep and Surface Structure Constraints in Syntax*. New York: Holt, Rinehart and Winston.

Pierce, A. (1992) *Language Acquisition and Syntactic Theory: A Comparative Study of French and English Grammars*. Dordrecht: Kluwer.

Pollock, J-Y. (1989) Verb movement, universal grammar, and the structure of IP. *Linguistic Inquiry* 20-3, 365-425.

Rivero, M.L. (1997) Last resort and V-movement in the languages of the Balkans. In M.L. Rivero and A. Ralli (eds.) *Comparative Syntax of Balkan Languages* (pp. 170-206). New York: Oxford University Press.

Rizzi, L. (1993/94) Some notes on linguistic theory and language development: the case of root infinitives. *Language Acquisition* 3, 371-394.

Roberts, I. (2001) Language change and learnability. In S. Bertolo (ed.) *Language Acquisition and Learnability* (pp. 81-125). Cambridge, Mass.: Cambridge University Press.

Rohrbacher, B. (1992) English AUX-NEG, Mainland Scandinavian NEG-AUX and the theory of V-to-I raising. *Proceedings of the 22nd Western Conference on Linguistics* (WECOL 92).

Serratrice, L., Sorace, A. and Paoli, S. (2004) Transfer at the syntax-pragmatics interface: subjects and objects in Italian-English bilingual and monolingual acquisition. *Bilingualism: Language and Cognition 7*, 183-206.

Speas, M. (1994) Null arguments in a theory of economy of projection. *University of Massachusetts Occasional Papers in Linguistics* 17, 179-208.
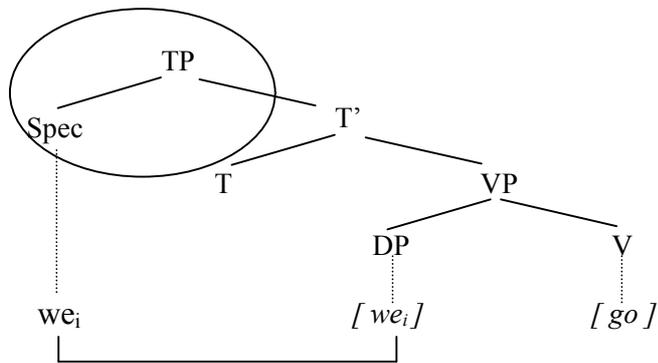
Spradlin, K.T., Liceras, J.M. and Fernández Fuertes, R. 2003 Functional-lexical code-mixing patterns as evidence for language dominance in young bilingual children: a minimalist approach. In J.M. Liceras, H. Zobl and H. Goodluck (eds.) *L2 Links: Proceedings of the 2002 Generative Approaches to Second Language Acquisition (GASLA-6) Conference* (pp. 298-307). Somerville, Mass.: Cascadilla Press.

Vainikka, A. and Young-Scholten, M. (1998) Morphosyntactic triggers in adult SLA. In M-L. Beck (ed.) *Morphology and its Interfaces in Second-language Knowledge* (pp. 89-114). Amsterdam: John Benjamins.

Valian, V. (1990) Null subjects: a problem for parameter setting models of language acquisition. *Cognition* 35, 105-22.

Valian, V. (1991) Syntactic subjects in the early speech of American and Italian children. *Cognition* 40, 21-81.

Valian, V. (1994) Children's postulation of null subjects: parameter setting and language acquisition. In B. Lust, G. Hermon and J. Kornfilt (eds.), *Syntactic Theory and First Language Acquisition: Cross-linguistic Perspectives. Vol. 2: Binding, Dependencies, and Learnability* (pp. 273-286). Hillsdale, NJ: Erlbaum.

Valian, V. and Eisenberg, Z. (1996) The development of syntactic subjects in Portuguese-speaking children. *Journal of Child Language* 23, 103-128.

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

Wang, Q., Lillo-Martin, D., Best, C.T. and Levitt, A. (1992) Null subject versus null object: some evidence from the acquisition of Chinese and English. *Language Acquisition* 2, 221-254.

Weissenborn, J. (1992). Null subjects in early grammars: implications for parameter-setting theories. In J. Weissenborn, H. Goodluck and T. Roeper (eds.) *Theoretical Issues in Language Acquisition*. Hillsdale, N.J.: Lawrence Erlbaum.

Zobl, H. and Liceras, J.M. (1994) Functional categories and acquisition orders. *Language Learning* 44, 159-180.

TABLES AND GRAPHICS

(9)   Vamos
       [go-$_{2nd\ pp}$]
       'We go'

                          TP
                 ┌─────────┴─────────┐
                 T   VP
                                ┌────┴────┐
                                DP   V
                                │
                                D

         va$_i$ mos$_j$ *[mos$_j$]*   *[va$_i$]*

(10)   We go

                         TP
                ┌────────┴────────┐
              Spec   T'
                           ┌──────┴──────┐
                           T   VP
                                    ┌─────┴─────┐
                                    DP   V

              we$_i$ *[we$_i$]*   *[go]*

(12)   Nosotros vamos
        [we go$_{2nd\ pp}$]
        'We go'

                          A'
                  ┌────────┴────────┐
                 DP   TP
                                    │
                                    T'
                             ┌──────┴──────┐
                             T   VP

         nosotros   va   mos

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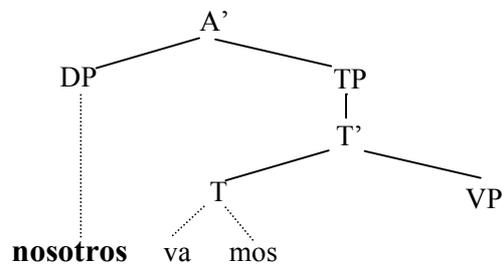
TABLE 1

	SESSIONS AND AGE	TRANSCRIPTIONS	
		ENGLISH	SPANISH
STAGE #1 [May-June 2001]	Age: 2;04 – 2;06	21	21
		22	22
		23	23
		24A	24A
STAGE #2 [January-October 2002]	Age: 3;01 – 3;09	28	28
		34A	34A
		38E	38E
		39	-----
STAGE #3 [April-November 2003]	Age: 4;04 – 4;11	50B	50
		51	51
		52	-----
		53	-----
		54	54
		55	-----
		56A	56B

TABLE 2
Total number of utterances and MLUw (Spanish recordings)

	SIMON	LEO	TOTAL
STAGE #1	510 [1.43]	529 [1.48]	1,039
STAGE #2	654 [3.77]	756 [3.35]	1,410
STAGE #3	1135 [4.28]	894 [3.88]	2,029
TOTAL	2,299	2,179	4,478

-The figures in brackets refer to the MLUw

TABLE 3
Total number of utterances and MLUw (English recordings)

	SIMON	LEO	TOTAL
STAGE #1	316 [1.31]	549 [1.16]	865
STAGE #2	467 [3.45]	444 [3.11]	911
STAGE #3	972 [4.17]	849 [4.48]	1,821
TOTAL	1,755	1,842	3,597

-The figures in brackets refer to the MLUw

TABLE 4
Percentage of null subjects versus personal pronouns (Simon and Leo)

	Stage #1			Stage #2			Stage #3		
	Null	Pronoun	%	Null	Pronoun	%	Null	Pronoun	%
English	34	13	(72.34)	12	237	(4.82)	39	771	(4.81)
Spanish	173	15	(92.02)	701	84	(89.29)	698	135	(83.79)

TABLE 5
Omission of Spanish verbal agreement markers (Simon and Leo)

	Stage #1	Stage #2	Stage #3
RIs	2	3	1
[-Personal] (participle)	5	4	1
Bare form	1	5	25
Mistmatches	1	4	10
Omission/Total verb forms	9/210 (4.28%)	16/1062 (1.51%)	37/1036 (3.57%)

TABLE 6
Percentage of 1st. vs. 3rd person personal pronouns (singular)

	Stage #1			Stage #2			Stage #3		
	1st.	3rd.	%	1st.	3rd.	%	1st.	3rd.	%
English	7	4	(63.64%)	157	50	(75.85%)	430	178	(70.72%)
Spanish	10	2	(83.33%)	71	3	(95.95%)	79	21	(79%)

TABLE 7
Percentage of null versus overt subjects with inflected verbs (Simon and Leo)

	Stage #1			Stage #2			Stage #3		
	Null	Overt	%	Null	Overt	%	Null	Overt	%
English	34	16	(68)	12	266	(4.31)	39	837	(4.45)
Spanish	173	33	(83.98)	701	251	(73.63)	698	259	(72.93)

FIGURES 1 and 2
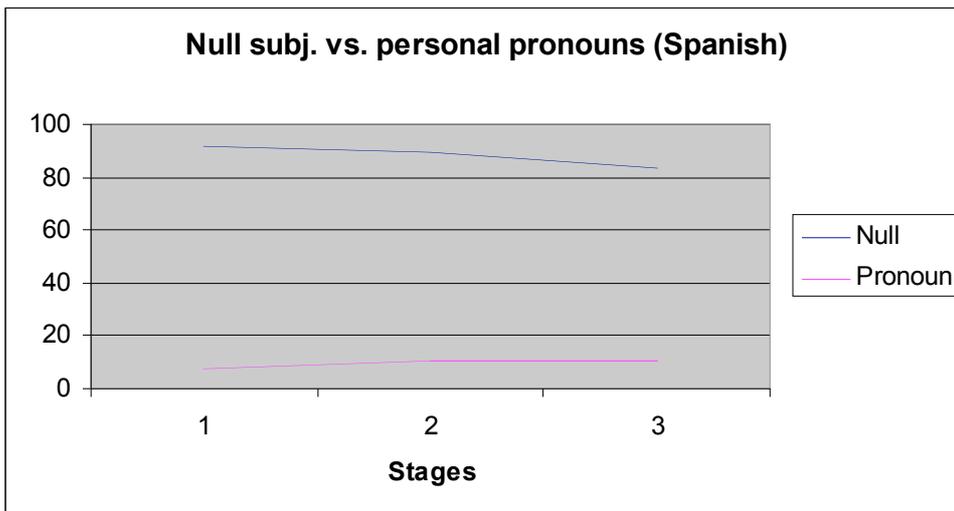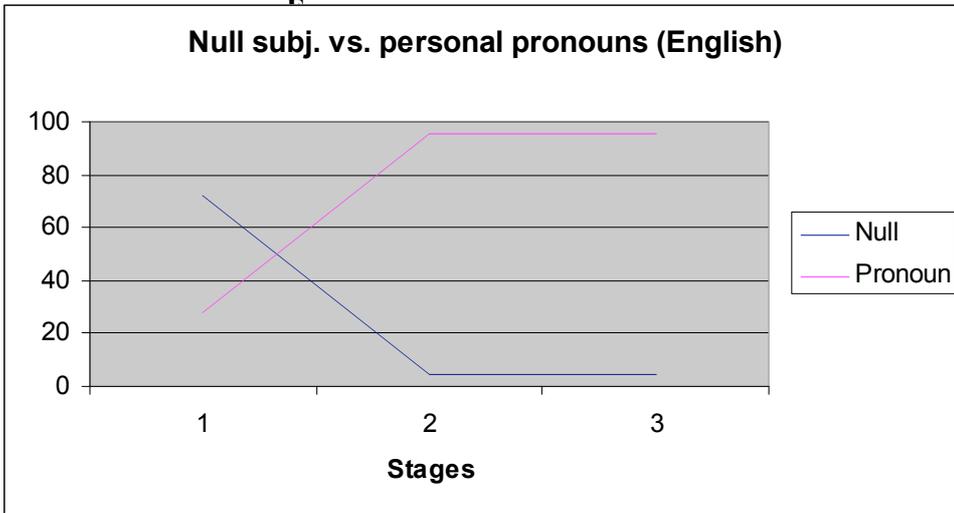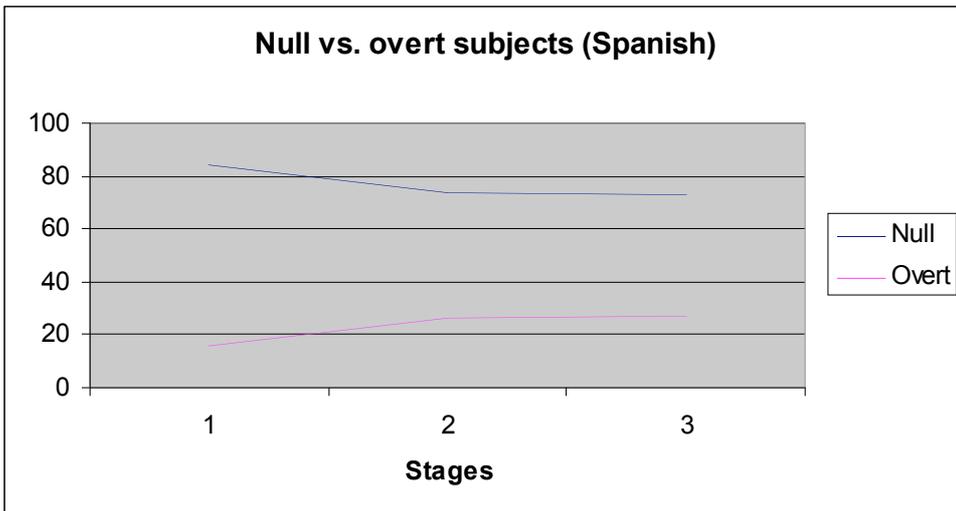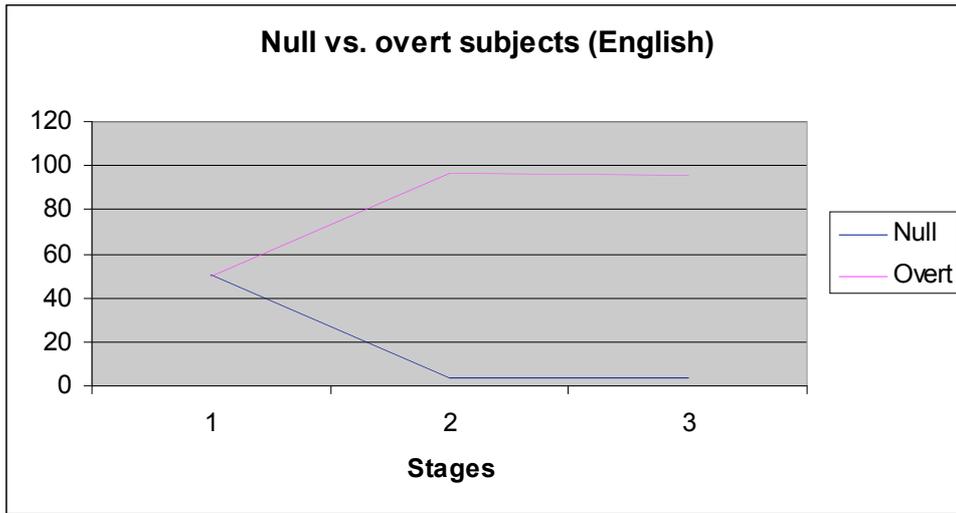
Null subj. vs. personal pronouns (English)

Null subj. vs. personal pronouns (Spanish)

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FIGURES 3 AND 4

Null vs. overt subjects (English)

Null vs. overt subjects (Spanish)

[1] We have not included instances of postverbal subjects because: (a) they have a very different grammatical status in English and Spanish; (b) we did not find any postverbal subjects in the English affirmative sentences produced by the twins; and (c) in the case of Spanish, even if we had included them, neither the total of pronominal (Table 4) nor the total of overt subjects produced by the twins (Table 4 and Table 7 respectively) would have influenced the nature and significance of our results in any relevant way.

[2] We have included infinitival and participle forms but not gerunds because there were no non-adult instances of the latter.

APPENDIX

English Data

NULL SUBJECTS

(I) falled [=fell]	(23_01, Simon, 2;06)
(he) chased	(23_01, Leo, 2;06)
(I) want apple juice	(28_01, Simon, 3;00)
(I) want salt on it	(34A, Leo, 3;05)
But (it) does not matter because he is very small	(51_01, Simon, 4;04)
(I) want to see it in there	(51_01, Simon, 4;04

SUBJECT PRONOUNS

I did   (24A_01, Simon, 2;06)
I miss the tap [: tub]   (22_01, Leo, 2;05)
I finished my pasta   (28_01, Simon, 3;00)
You are stuck mommy   (38E_01, Leo, 3;09)
But I heard him say go fish very slowly   (55_01, Simon, 4;10)
Now I need something to ewase [: erase] it   (51_01, Leo, 4;04)

NP SUBJECTS
Va(se) broke   (22_01, Simon, 2;05)
Elmo is blue   (22_01, Simon, 2;05)
Da [: the] mermay [: mermaids] drop da [: the] baj [: bad] guys in the water   (34A_02, Simon, 3;05)
Now the pig (i)s going to break himself   (38E_01, Leo, 3;09)
The sorceress came out and pushed him in there   (51_01, Simon, 4;04)
His teeth will fall out   (50b_01, Leo, 4;04)

Spanish Data

NULL SUBJECTS
(es)toy a(n)fadado   (23_01, Simon, 2;06)
no puedo subir   (24A_01, Leo, 2;05)
ahora hacemos esto   (28_01, Simon, 3;00)
Hacieron un canción del lobo   (28_02, Leo, 3;00)
Ponemos una canica   (50_01, Simon, 4;04)
Pues tienes que aprender inglés   (56TR_01, Simon, 4;10)

SUBJECT PRONOUNS
yo sé otro   (22_01, Simon, 2;05)
yo quiero este   (22_01, Leo, 2;05)
Yo tengo más cosas aquí   (39_01, Simon, 3;10)
Yo ya me lo (he) comido   (34A_01, Leo, 3;05)
Nosotros nos sabemos todavía   (56TR_01, Simon, 4;10)
Y tú llegas hasta allí   (50_01, Leo, 4;04)

NP SUBJECTS
ese vaso está   (24A_02, Simon, 2;05)
la bolsa está dentro   (22_01, Leo, 2;05)
Este página se ha roto   (28_01, Simon, 3;00)
Los tiburones blancos tienen una aleta muy grande   (39_01, Leo, 3;10)
Un bicho que tenía estas piesnas [:piernas]   (54_01, Simon, 4;09)
Arañas cogen vestidos   (54_02, Leo, 4;09)