

MONOLINGUAL AND BILINGUAL PRODUCTION OF ENGLISH SENTENTIAL SUBJECTS: THE FROG STORY

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1. INTRODUCTION

The aim of this study is to analyze how different languages interact when they are in contact. Bilingual children who learn two languages simultaneously (2L1) or sequentially (L2) separate their two grammar systems (e.g., Gausti, 2002; Clark, 2009). Children do not learn grammar by imitation, they learn by observing and creating their own system, which later facilitates their structuring of a language. The two languages interact with one another under specific conditions, resulting in the phenomena known as crosslinguistic influence (e.g., Hulk & Müller, 2000; Haznedar, 2007; Ringbom & Jarvis, 2009; Cuza, 2013; Fernández Fuertes & Licerias, 2019). For the acquisition and learning processes to take place input plays a crucial role both in the case of first languages (L1s) and second languages (L2s), and in both monolingual and bilingual situations (e.g., Lowie & Verspoor, 2004; Gülzow & Gagarina, 2007). In order to see how children acquire and learn a language, this study focuses on the production of sentential subjects in heritage English and L2 English. The issues discussed are the characterization and notion of crosslinguistic influence in this specific context and with these specific participants.

To analyze sentential subjects, data from three different participant groups (i.e., L1 Spanish/L1 heritage English speakers, L1 Danish/L1 heritage Bosnian/L2 English speakers and L1 English speakers) have been gathered and classified in terms of grammaticality (i.e., native-like or non-native-like).

In recent years empirical studies and studies on language use have shown that recognizing and combining students' linguistic repertoires can improve their learning (García, 2009; Cummins, 2019; Cenoz & Gorter, 2020; MacSwan, 2021, 2022; MacSwan & Rolstad, 2024; Mendoza, 2023; Fernández Fuertes et al., 2024; Gómez Carrero & Ogneva, 2024, among others). As Cummins (2019) argues, by doing so this recognition promotes comprehension, engagement and interest in learning other languages. It also promotes natural language use and benefits the development of metalinguistic awareness. This study is also meant to serve as an endorsement for the benefits that students' linguistic background can have, so that it can be used in the creation of pedagogical material and curricula.

2. THEORETICAL BACKGROUND ON SENTENTIAL SUBJECTS

To capture the variation of subject expression across languages, following the generative grammar approach, the null subject parameter (Perlmutter, 1971; Jaeggli, 1981; Chomsky, 1981; Jaeggli & Safir, 1989; among others) establishes a double language typology which depends on whether a language allows null subjects or not. Languages that allow two subject types (i.e., null and overt (such as pronouns and DPs), like Spanish (as in 1) and Bosnian (as in 2), are classified as [+null subject] languages. Languages that only allow one subject type (i.e., overt), like Danish (as in 3) and English (as in 4), are classified as [-null subject] languages. In the examples below *pro* stands for the null subjects.

- 1) Spanish:
 - a. *pro* tienen tres manzanas
 [(they) have 3rd p. sing. present three apples]
 - b. **Ellos** tienen tres manzanas
 [they have 3rd p. sing. present three apples]
 - c. **Los niños** tienen tres manzanas
 [the children have 3rd p. sing. present three apples]
- 2) Bosnian:
 - a. *pro* imaju tri jabuke
 [(they) have 3rd p. sing. present three apples]

- | | | |
|-----------------|------------------|------------------------------------|
| b. Oni | imaju tri jabuke | |
| [they | have | 3rd p. sing. present three apples] |
| c. Djeca | imaju tri jabuke | |
| [the children | have | 3rd p. sing. present three apples] |
- 3) Danish:
- | | | |
|-------------------|---------------|------------------------------------|
| a. *pro | har tre æbler | |
| [(they) | have | 3rd p. sing. present three apples] |
| b. De | har tre æbler | |
| [they | have | 3rd p. sing. present three apples] |
| c. Børnene | har tre æbler | |
| [the children | have | 3rd p. sing. present three apples] |
- 4) English:
- | | | |
|------------------------|-------------------|--|
| a. *pro | have three apples | |
| b. They | have three apples | |
| c. The children | have three apples | |

The nature of subjects can also be linked to the nature of verbal agreement, which is also language specific. Alexiadou & Anagnostopoulou (1998) and Kato (1999) among others argue that languages with rich morphological agreement, such as Spanish and Bosnian, permit null subjects, whereas languages with poor morphological agreement need their subjects to be overt in order to mark person and number. The Agreement Parameter (Pollock, 1989) distinguishes between two typological language groups: the [+pronominal agreement] languages in which agreement is rich (e.g. Spanish and Bosnian) and the [-pronominal agreement] languages in which agreement is poor and, thus, cannot work as a pronominal subject and, so, overt subjects are needed (e.g., English and Danish).

However, two approaches to the subject expression emerge. On the one hand, Alexiadou & Anagnostopoulou (1998), among others, consider that in [+null subject] languages verbal agreement affixes and null subjects have the same status and that overt pronouns are pragmatically marked. On the other hand, Holmberg (2005) and Sheehan (2006), among others, propose that the only difference between null and overt subjects in [+null subject] languages lies in whether or not sentential

subjects are phonologically articulated or not. In this study this second proposal is adopted.

3. PREVIOUS STUDIES

Recognizing the distinction between language learning and language acquisition is crucial to understand how different languages function. The L1 is a language acquired in a natural context from birth or very early on, while the L2 is learned later in life. The foreign language is learned later in life and in an institutional context. That is, in a bilingual context, while L1 bilingualism indicates that the two languages are acquired simultaneously from birth and in a natural context, L2 bilingualism refers to the acquisition of an L1 followed by the acquisition/learning of an L2. In this study, L2 is used as an umbrella term for both second language acquisition and second language learning.

3.1. CROSSLINGUISTIC INFLUENCE

When a speaker stores and processes two or more languages in their mind, a language internal phenomenon known as crosslinguistic influence occurs. Languages that come into contact with one another interact, which can lead to crosslinguistic effects in the different linguistic domains (phonology, morphology, syntax, etc.). Jarvis & Pavlenko (2007, p. 13) define crosslinguistic influence as “a highly complex phenomenon that is often affected by language users’ perceptions, conceptualizations, mental associations and individual choices.”

Based on the effect produced, two different types of crosslinguistic influence can be identified: positive (or facilitative) crosslinguistic influence and negative (or non-facilitative, interfering) crosslinguistic influence.

Since this study deals with two different aspects of acquisition, two scenarios will be described (i.e., L1 bilingualism (i.e., heritage) and L2 bilingualism).

L1 bilingualism refers to the simultaneous acquisition of two languages. When a first language is acquired, a system is established which the speakers resort to. But if two languages are acquired

simultaneously, two language systems are developed and both languages are considered as L1s. De Houwer (2009) proposes the Separate Development Hypothesis, which explains the concept of developing two grammar systems at the same level. That is, L1 bilinguals have no problems separating their two languages from the beginning of the acquisition period. However, L1 bilinguals do not obtain equal dominance in both languages which leads to one of the two L1s being the dominant one. Even though the two languages are acquired simultaneously, one will always be more dominant than the other. In cases of dominance, for example Meisel (2001, 2004) argues, crosslinguistic influence occurs from the dominant language into non-dominant language. That is, the linguistic properties of one L1 might be used and applied in the production of the other L1. Language dominance is also related to input. In fact, the dominant language is usually the one from which more input was received. The more input is received the better output is expected, because the L1 bilingual would have more information to build up the specific language system and, therefore, would make that particular L1 the source of crosslinguistic influence.

Contrary to L1 bilinguals, L2 bilinguals learn a second language after they have acquired their L1. The L2 is learned through the knowledge previously acquired with the L1. This means that the L1 is, in the mind of an L2 bilingual, the already established system that is used to search for linguistic information. In other words, the L1 serves as the point of departure in the L2 acquisition, which results in crosslinguistic influence that can either be positive (facilitative) or negative (or non-facilitative, interfering). If a structure is transferred from the L1 and the outcome of the production is ungrammatical or non-native-like, then the crosslinguistic influence is negative, but if the output is grammatical or native-like then the crosslinguistic influence is positive. Accordingly, positive crosslinguistic influence is produced if properties are shared by the two languages. For example, in the case of subjects, when a [+null subject] and a [-null subject] languages are in contact, the shared property is the overt subject. Hence, it is argued that L2 learners, at least initially, rely largely on their L1 in language contact settings.

The input in the L2 is also relevant, because the dominance or proficiency of a language is related to input. Therefore, crosslinguistic influence is also related to the quality and quantity of the input received, because it is also produced from the dominant language to the non-dominant language. Ideally, these participants' production becomes more native-like, their proficiency increases with a bigger exposure to the language, and negative crosslinguistic influence decreases (e.g., Gathercole, 2002, 2016; Ringbom, 2007, 2016; Blom & Baayan, 2012; Montrul & Ionin, 2012; Unsworth, 2016; Llinàs-Grau & Bel, 2019).

In the case of heritage speakers, they are similar to L1 bilinguals because they acquire two languages simultaneously, but at the same time one of the L1s (i.e., the heritage language) is acquired in a non-L1 social context, because it is restricted to the family context. Because of this restriction in the input where the heritage language is acquired, it has been argued that heritage speakers may not be fluent in their heritage language (e.g., Valdés, 2014). Hence, there are different types of heritage speakers depending on the developmental degree of their skills in the heritage language. This lack of balance can be strong because the heritage language is not part of the social context and, depending on the cases, it can also be related to prestigious/non-prestigious language types. This means that differences appear among the heritage participants and, so, they tend to be very heterogeneous groups.

3.2. NULL SUBJECTS

Previous studies on null subjects have shown that either positive or negative crosslinguistic influence can take place when two or more languages are in contact.

When two typologically similar (in this case [-null subject] and [-null subject]) or typologically different languages (i.e., [+null subject] and [-null subject] languages) are in contact, crosslinguistic influence takes place.

In the case of two typologically similar languages in contact, not much research has been conducted. For the [-null subject] and [-null subject] languages, however, it seems apt to assume that since these languages share the same option of the parameter, and since they only permit their

subject to be overt, a positive crosslinguistic effect takes place in terms of facilitation. This means that the acquisition of subjects will take place sooner and fewer errors will be committed by the speakers whose languages are typologically similar (White, 1985; Liceras, 1989; Liceras & Alba de la Fuente, 2015 and Mujcinovic, 2015, 2020). For the [+null subject] languages in contact, mostly adult data have been analyzed (e.g., Bini, 1993; Margaza & Bel, 2006; Sorace & Filiaci, 2006; Bel et al., 2016; Lozano, 2018). These studies show an overproduction of overt subjects which is interpreted as related to the interface vulnerability (e.g., the syntax-pragmatics interface). It seems not to be related to the typological similarity.

In the case of two typologically different languages in contact, two options of subject expression are possible: overt and null. Thus, two different scenarios can take place: i) negative crosslinguistic influence which can be present in two cases either as overproduction of overt subjects in the [+null subject] language or as an overproduction of null subjects in the [-null subject] language (e.g., Lozano, 2002; Montrul & Rodríguez-Louro, 2006; Rothman, 2008, 2009; Montrul et al., 2009; Quesada, 2014,) and ii) positive crosslinguistic influence in that the shared option (i.e., the overt subject) is reinforced and therefore the production of null subjects is scarce (Liceras & Fernández Fuertes, 2019; Mujcinovic & Fernández Fuertes, (forthcoming)).

The lexical specialization approach explains this second output. It accounts both for the effect and directionality of crosslinguistic influence (Liceras & Fernández Fuertes, 2019). If a language permits two subject types (i.e., overt and null) it is considered a superset language when in contact with a language that only permits one subject type (i.e., null). Following this approach, crosslinguistic influence takes place from the superset to the subset language resulting in a facilitation effect, because the shared option (i.e., the overt subject) is reinforced.

In short, subject interpretation is influenced by the linguistic properties of the languages and is linked to the linguistic context. The function of the linguistic context in language contact situations may result in negative crosslinguistic effect. That is, the relatedness of the languages in contact plays a crucial role.

Other theories for the omission of subjects in children deal with language economy. Valian and Eisenberg (1996) argue that children tend to economize the production and thus leave out all the information that they consider unnecessary. The economy and the processing load are related in the fact that, as Bloom (1990) argues, null subjects, for example, arise from a performance limitation. Since the processing load is stronger at the beginning of a sentence, subjects are more likely to be omitted. Bloom (1990) also argues that sentences where subjects are omitted tend to be longer. Thus, if the subject is stored and can be recovered through either agreement or context, it is likely to be omitted. If that is so, negative crosslinguistic influence may occur.

Also, according to the Facilitation Hypothesis (Gundel & Tarone, 1992), in the case of typologically similar languages in contact, the L1 facilitates the acquisition of the L2. However, if the L1 and the L2 are typologically different, the L1 cannot facilitate the learning of the L2 resulting in a reduced L2 learnability.

4. RESEARCH QUESTIONS AND HYPOTHESES

Bearing in mind the theoretical accounts mentioned above, the following research questions emerged:

- How can a [+null subject] language influence a [-null subject] language in the production of sentential subjects?
- How can a [-null subject] language influence another [-null subject] language in the production of sentential subjects?

Based on these research questions, the following hypotheses have been formulated:

Hypothesis 1:

Focusing on crosslinguistic influence and typological similarity, the hypothesis to be tested is: crosslinguistic influence takes place from the L1 into the L2 or from the dominant into the non-dominant language. If this is so, negative crosslinguistic influence will take place from Spanish (i.e., the dominant language) into English (i.e., the non-

dominant language) in the case of the heritage English speakers. In the case of the L2 English speakers, two outputs can occur: i) positive crosslinguistic influence will take place from Danish (i.e., the dominant language) into English (i.e., the L2) or negative crosslinguistic influence can take place from L1 Bosnian (i.e., the [+null subject] language) into the L2 English (i.e., the [-null subject] language).

Hypothesis 2:

Focusing on crosslinguistic influence and lexical specialization approach, the hypothesis to be tested is: positive crosslinguistic influence takes place from the superset language (i.e., Spanish or Bosnian) into the subset language (i.e., English), reinforcing the only option that is available in both language types (i.e., the overt subjects). Since the overt subjects are reinforced, a low production rate of non-native-like subjects in the case of all three participant groups is expected.

5. METODOLOGY

The current study has been conducted to test the hypotheses mentioned above. This section provides a detailed description of the methodology employed with a focus on the type of data used and the participants from whom the data were collected.

5.1. PARTICIPANTS

Three groups of participants were tested. *The heritage English group* which consists of 5 L1 Spanish/L1 English speakers living in Spain whose age ranged from 7 to 10 years. *The L2 English group* consists of 5 L1 Danish/L1 heritage Bosnian/L2 English speakers from 11 to 15 years of age. *The control group* consists of 5 L1 English participants who were 8 to 10 years of age. The L1 English data belong to the Wolf–Hemphill corpus available in CHILDES (MacWhinney, 2000).

5.1.1. THE HERITAGE ENGLISH GROUP

The heritage English group consists of 5 heritage speakers whose age ranged from 7 to 10 years when the data were collected. They are L1

bilinguals who have acquired both English and Spanish from birth in a natural context. The reason why they are classified as heritage speakers is due to their family context: one of their parents is an L1 Spanish speaker, while the other is an L1 English speaker. Thus, they are exposed to spontaneous speech in the two languages. All the participants live in Spain, where English is a minority language.

5.1.2. THE L2 ENGLISH GROUP

The L2 English group consists of 5 L1 Danish/L1 heritage Bosnian/L2 English speakers from the age of 11 to 15. They were all born in Denmark and both their parents have Bosnian as their L1. During their first year, the participants have only been exposed to Bosnian, as the language spoken at home by the parents and relatives was Bosnian. Since all participants live in Denmark, they have also regularly been exposed to Danish. After the first year, they were taken to a Danish kindergarten, where the caretakers only spoke Danish with the children and, from then on, Danish became the language spoken at the playground and later at school. Consequently, Bosnian was limited mostly to daily conversation with family, relatives and other Bosnian speakers. English, on the other hand, was introduced in 3rd grade, when the participants were 8 years old. Therefore, English is their L2.

5.1.3. The L1 English group

The L1 English group consists of 5 participants who were around 9 years of age when they were videotaped in their own homes in Miami. Initially the corpus from which these participants were selected consists of 30 children. The participants that are chosen for this study have been selected according to their age. No attention has been paid to their sex or social class.

5.2. TASK

To obtain linguistic data, all the participants were asked to narrate the story that the 24 wordless pictures of the cartoon book “Frog, where are you?” (Mayer, 1969) depicted. Each picture shows a sequence of events where a boy and his dog are looking for their frog that has escaped.

All participants were shown the pictures twice, first to get a general idea of the story and the second time for the actual narration of the story.

In the case of the first view of the story, they were allowed to ask for information regarding vocabulary which was provided to them in a non-inflected form (e.g., verbs were provided in infinitive and nouns in singular etc.). Throughout the experiment, the participants were encouraged to tell the story, and they were praised while telling it.

The heritage and L2 data were recorded orally and transcribed in CHAT format (MacWhinney, 2000). The L1 English data are available in the CHILDES database (MacWhinney, 2000).

6. RESULTS & DISCUSSION

To answer the research questions and to deal with the hypotheses formulated, the data elicited from the three groups of participants (i.e., English heritage, L2 English and L1 English) have been classified in terms of grammaticality. That is, whether the subjects produced are native-like (i.e., grammatical) or non-native-like (i.e., ungrammatical). The native-like subjects are considered to be the overt subjects expressed either as full DPs (as in 5) or pronouns (as in 6), whereas the non-native-like subjects are expressed as null subjects in English (as in 7 and 8). In other words, the use of non-native-like subjects means that the participants produced a null subject where an overt subject was expected. Imperative and expletive structures have been excluded from this study.

- 5) **the dog** is running way from the bees
- 6) **they** are running
- 7) **pro* looks up to the tree
- 8) **pro* escaped

The overall data were analyzed per participant group. Table 1 shows the distribution of the overall results obtained.

TABLE 1. *The overall distribution of the production of sentential subjects*

Group	Native-like subjects	Non-native-like subjects	Total
Heritage English	94.1% [176]	5.9% [11]	100% [187]
L2 English	84.7% [182]	15.3% [33]	100% [215]
L1 English	99.02% [350]	0.8% [3]	100% [353]

Source: own elaboration

The results obtained show a clear preference for the use of native-like subjects by all participant groups. In general terms, all participants show an overall low error rate. The L2 English participants produce the lowest amount of native like subjects (84.7%) followed by the heritage English participants (94.1%). The results from the L1 English participants are at ceiling (99.02%) as expected. Regarding the non-native-like subjects, the L2 English participants produce the highest amount of null subjects (15.3%) followed by the heritage English (5.9%) followed by the L1 English participants (0.8%). Thus, the pattern that emerges is that the L2 English participants are outperformed by the heritage English, who then are outperformed by the L1 English participants.

To compare these groups and to see if the associations drawn above are meaningful, a statistical analysis was conducted. The chi-square test was used to compare between groups as shown in table 2.

TABLE 2. *Pairwise comparisons between groups*

Groups	p-value
Heritage English versus L2 English	.006
Heritage English versus L1 English	<.050
L2 English versus L1 English	<.050

Source: own elaboration

The between groups comparison shows that there is a statistically significant difference between all groups (p -value $<.05$ in all cases). Thus, these results indicate that these three groups behave differently.

To provide a more in depth analysis of the non-native-like subjects, a further classification according to the subject-verb agreement is provided. A second analysis that takes into consideration English verb agreement markers has been carried out in order to examine the subject production and subject-verb agreement. It is important to mention that all verbs produced were in the present tense (present simple or present continuous). This is so because the story that they had to narrate (i.e., the frog story) triggered the use of present tense. The results obtained are shown in table 3.

TABLE 3. *The distribution of the production of non-native-like subjects*

Group	Non-native-like subjects		Total
	(3rd person)	(rest of persons)	
Heritage English	72.7% [8]	23.3% [3]	5.9% [11/187]
L2 English	84.8% [28]	15.2% [5]	15.3% [33/215]
L1 English	66.7% [2]	33.3% [1]	0.8% [3/353]

Source: own elaboration

These results show that most of the non-native-like subjects are produced in the cases of the 3rd person. In English this is where the agreement is overtly marked on the verb (i.e., the 3rd person -s marker). Even though the error rate was low, as previously indicated, the L1 English participants outperform the heritage English participants, who then outperform the L2 English participants.

The between groups comparison for the non-native-like subjects shows that there is no statistically significant difference between all groups (p -value $>.05$ in all cases). This indicates that, in the case of the production of non-native like subjects, there is no difference between the groups.

To sum up, a low error rate is found in the production of all participants. Nonetheless, a pattern can be established in terms of this rate: L1 English participants outperform both the heritage English and L2 English participants and heritage English outperform the L2 English participants (L1 English > heritage English > L2 English). That is, heritage English speakers can be classified in-between the L1 and L2 speakers.

Regarding crosslinguistic influence and typological similarity, the results obtained confirm that in the case of the heritage English speakers no negative crosslinguistic influence is found. That is, the dominant language (i.e., Spanish) does not influence the non-dominant language (i.e., English), since these participants produce a very low rate of non-native-like subjects. In the case of the L2 English speakers, since Danish and English are typologically similar, positive crosslinguistic influence is found from the L1 Danish into the L2 English, since these participants produce a low rate of non-native-like subjects. Thus, hypothesis 1 is partially confirmed.

Focusing on crosslinguistic influence and the lexical specialization approach, according to the results obtained crosslinguistic influence is not only present when children are acquiring two languages simultaneously, but it also seems to be present when languages are acquired sequentially (i.e., L2 acquisition). If these results are interpreted in terms of the lexical specialization approach (Liceras & Fernández Fuertes, 2019), since there is a very low error rate produced by all participants, the crosslinguistic influence found is positive. Since both the [+null subject] and [-null subject] languages share the overt option of the parameter, this option is reinforced and, therefore, acquired earlier. That is, the superset languages (i.e., Spanish and Bosnian) influence the acquisition of the subset language (i.e., English). Thus, hypothesis 2 is confirmed.

To sum up, the results obtained confirm that all three groups of participants favor the production of overt (i.e., the native-like) subjects and that a reduced number of non-native-like subjects was produced. Furthermore, the results show evidence of positive crosslinguistic influence in all language contact situations analyzed in this study.

7. CONCLUSIONS

This study has shown that when two or more languages are in contact, these languages interact. This interaction results in crosslinguistic influence which can have two effects: positive (i.e., facilitating) or negative (i.e., interfering). To interpret the results obtained, two formal approaches were adapted: typological similarity and lexical specialization approach. In the case of typological similarity, when typologically similar languages are in contact, positive crosslinguistic influence is expected. On the contrary, when typologically different languages are in contact, negative crosslinguistic influence is expected. In the case of the L2 English speakers, the results could support this theory. L1 Danish could influence positively the L2 English production, since both languages are classified as [-null subject]. The L1 Bosnian (i.e., a [+null subject] language) does not seem to interfere or affect the results, since no negative crosslinguistic influence is found. Furthermore, in the case of the heritage English speakers, whose other L1 is Spanish (i.e., a [+null subject] language), no negative crosslinguistic influence is found either. Thus, typological difference does not seem to affect the results. These results obtained seem to agree with the lexical specialization approach. That is, positive crosslinguistic influence takes place from the superset (availability of two subject types: overt and null) to the subset language (availability of only one subject type: overt). Since Spanish and Bosnian are superset to English, which is subset, the overt subject type (i.e., the shared one) is reinforced and the result is a very low production of null (i.e., non-native-like) subjects.

To further support this theory, additional empirical research on sentential subject and crosslinguistic influence could focus on different language pairs and different experimental data (for example, judgment or processing data). Therefore, data from other studies could put into perspective the results obtained in this study.

Previous studies (e.g., Ferrero, 2020; Gómez Garzarán, 2023) have revealed that the empirical research on grammatical properties can contribute to more effective and felicitous teaching techniques. Even though the formal purpose of this study sheds light on how

simultaneous and sequential bilingual speakers acquire and learn a specific grammatical property (in this case, sentential subjects), it has also shown that the participants linguistic repertoire is of crucial importance in their acquisition and learning processes. Thus, crosslinguistic influence effects should also be targeted from a pedagogical perspective to better adapt the design of the curricula for L2 instruction to the needs of the different bilingual speakers.

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