

The Acquisition of the Anaphora Resolution by French-Spanish Bilinguals

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This study investigates the division of labor between null and overt pronouns in Spanish. The Position of Antecedent Hypothesis (Carminati 2002) posits that null and overt pronouns in null-subject languages differ with respect to antecedent choice in ambiguous constructions.

The objectives of this study are to determine i) to what extent native French speakers learning Spanish in adulthood can acquire the same interpretation bias as Spanish speakers, ii) if heritage speakers (HS) of Spanish who grow up in a French environment acquire the same interpretative strategies as native speakers, and iii) if the type of exposure to Spanish influences the extent to which HS and L2 speakers of Spanish acquire the PAH tendencies.

Fifty-nine participants (10 HSs, 23 L1 French and 26 L1 Spanish speakers) filled a questionnaire on language background, and completed a written production task and a self-paced judgement task.

Our results show that the French and HS' answers were similar to those of the native speakers, except for the backward anaphora with the matrix subject as the antecedent of the overt pronoun. The French and HSs rated this type of sentence significantly higher than the native Speakers did, which suggests that while French speakers and HS might have acquired the bias for sentences with null pronouns, the bias might not be as strong for the anaphora with overt pronouns. Interestingly, the French speakers tend to be "better" than the HS at rating all sentences like the native speakers.

Keywords: acquisition, anaphora, heritage speakers

Cette étude examine la division des tâches entre les pronoms nuls et explicites en espagnol. Selon l'hypothèse de la position de l'antécédent (Carminati 2002), les pronoms nuls et explicites diffèrent en ce qui a trait au choix de l'antécédent dans les phrases ambiguës.

Les objectifs de cette étude sont de déterminer i) si les francophones qui apprennent l'espagnol à l'âge adulte peuvent acquérir les mêmes préférences d'interprétation que les hispanophones, ii) si les hispanophones de deuxième génération (*heritage speakers*) qui ont grandi dans un environnement francophone peuvent acquérir les mêmes stratégies d'interprétation que les hispanophones, et iii) si le type d'exposition à l'espagnol influence le degré d'acquisition par les hispanophones de deuxième génération et les apprenants francophones de l'espagnol des préférences d'interprétation proposées par l'hypothèse de la position de l'antécédent.

Cinquante-neuf participants (10 hispanophones de deuxième génération, 23 francophones apprenant l'espagnol et 26 hispanophones) ont rempli un questionnaire sur le bagage linguistique et complété un exercice de production écrite et un exercice de jugement de la grammaticalité.

Les résultats indiquent que les francophones et les hispanophones de deuxième génération ont des réponses similaires à celles des hispanophones, sauf dans la cataphore lorsque le sujet de la phrase est l'antécédent du pronom explicite. Les francophones et les hispanophones de deuxième génération ont été moins stricts que les hispanophones, ce qui suggère que bien que les francophones et les hispanophones de deuxième génération puissent acquérir la préférence d'interprétation de l'antécédent du pronom nul, cette préférence n'est pas aussi marquée lorsqu'un pronom explicite est utilisé. Étonnamment, les francophones ont tendance à être « meilleurs » que l'autre groupe bilingue pour imiter les résultats du groupe unilingue.

Mots-clés : acquisition, anaphore, deuxième génération

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The acquisition of anaphora resolution by French-Spanish bilinguals

Introduction

This study aims to contribute to the growing body of studies on the heritage language grammars in general and on the acquisition of anaphora resolution in particular. When different languages interact with each other, crosslinguistic influence can occur. Whether it is persistent residual optionality, a period during which the speaker's intuitions and preferences vary between the different options of a linguistic property, or attrition, the gradual loss of a language property when the speaker is exposed to another language, bilingual speakers are likely to experience changes in the way they process certain properties. One type of bilingual speakers that has been the subject of numerous recent studies are the heritage speakers (henceforth HS). HS are defined by Rothman (2012) as "individuals who have acquired both a family language and a majority language in early childhood and who have been educated in the majority language". In these cases, the HS often becomes dominant in the majority language, despite it not being his or her first chronological language. Recent studies have shown that these HS often fail to reach a native-like proficiency level (Montrul 2002, 2008; Polinsky 2008a) in their heritage language. This is why they are often compared to L2 speakers. However, even if they share some similarities, they also differ in many ways, namely in terms of the age of the first exposure, the type of input, and the mode of acquisition. HS usually learn their language from birth in a naturalistic setting and receive extensive input. L2 speakers, on the other hand, learn their L2 when they are already literate and receive formal classroom education usually no more than a few hours a week in which the emphasis is often on the writing

and reading skills. Studies comparing the acquisition of certain properties by both groups allows linguists to better understand exactly in which areas of the language they differ. One aspect of language acquisition that has received considerable attention over the last decades is the asymmetry in interpretation of null and overt subject pronouns in null subject languages (Montalbetti 1984, Luján 1985, Calabrese 1986, Rizzi 1986, Licerias 1989, Carminati 2002, Licerias & al. 2010, Licerias & Alba de la Fuente 2015). Studies have shown that null and overt language speakers use different strategies to retrieve the antecedent of a pronoun in an ambiguous sentence. In null subject languages, because there are two types of pronouns, it is believed that there has to be a division of labour between them. Many linguists have proposed different theories to explain the preference of each pronoun: the quantified vs referential antecedents (Montalbetti 1984), the stressed vs unstressed information (Luján 1985), new vs old information (Silva-Corvalán 1994), or contrast and emphasis (Davidson 1996). The theory on which we base our study is that of Carminati (2002) according to which the structural prominence is the determining factor of the pronouns' division of labour. She posits that native speakers of null subject languages tend to prefer the antecedent of the null pronoun in the most salient (prominent) position, the matrix subject position, while they prefer the antecedent of the overt pronoun in another position (usually the object). Because this division of labour only happens in null subject languages, its acquisition by native speakers of overt subject languages, such as French, can give information on the influence of the L1 on the L2. HS are another group of bilinguals that can provide insight on the influence of bilingualism on the anaphora resolution. By comparing HS, L2 speakers, and native speakers of Spanish resolving anaphora, it is possible to observe if the grammatical properties at the interface between

syntax and discourse/pragmatics are sensitive to the type of input received, whether it is naturalistic in a home environment for HS, or formal classroom instruction for L2 speakers. The effect of bilingualism on the resolution of the anaphora has been the subject of several studies. For example, Keating & al. (2014) compared Spanish HS with L2 speakers of Spanish living in the United States, and Kaltsa & al. (2015) compared HS of Greek living in Sweden with Swedish attriters of Greek living in Greece. However, it seems that there is no similar study on French and Spanish. Therefore, our study compares the acquisition of the resolution of the anaphora by L1 French speakers of Spanish and HS of Spanish who grew up in Québec, a French-speaking province or in the region of Ottawa, where exposure to French is also important. Because French is an overt subject language, its preferred strategies to retrieve antecedents are based mostly on the principle of proximity (Charolles 2008). Meanwhile, null subject languages appear to use the Position of Antecedent strategy (PAS), which is based on the Position of Antecedent Hypothesis (PAH) by Carminati (2002) that we will introduce later, along with related research already conducted on Italian, Turkish, Spanish, Catalán, Croatian, Romanian and Greek null and overt pronouns. In section one, we present the previous studies on HS. In section two we present the different theories guiding the null and overt pronouns' division of labour, as well as studies that tested those theories in different languages. In section three we present the previous research on the acquisition of anaphora resolution. In section four, we present the research questions and our hypotheses. In section five we describe the participants' background and the different tasks that they had to complete as well as the complete structure of the tasks, and finally, in section six and seven, we present and discuss the results.

1. Heritage Language and Acquisition

Native and L2 speakers' grammars have been extensively studied. However, as the immigration rate is rising and multiculturalism is becoming the norm, there is an increased focus on HS in the literature. In this study, we will be assuming Rothman's (2012) definition of the HS, as in (1).

- (1) "A heritage speaker (HS) is a bilingual who has acquired a family (the heritage language, HL) and a majority societal language naturalistically in early childhood. To qualify as HS bilingualism, acquisition crucially must take place in a situation where the home language is decisively not the language of the greater society. »

(Rothman 2012)

Even though HS grow up speaking the heritage language and acquire it at a young age, they often do not seem to reach the same level of competence in their first language as their monolingual counterparts. Current debate on the characterization of heritage speaker grammars centers on whether this lack of "convergence" is the result of incompleteness (Montrul 2004, 2008, 2009), attrition (Benmamoun & al. 2013) or the grammar being simply divergent. Following Rothman (2009, 2011, 2012), a heritage speaker is a complete learner of an emerging dialect. That is to say, a heritage speaker's competence is not incomplete, it is simply different. Rothman argues that the environment in which HS acquire their language is often overlooked and that a contributing factor to their different competences has to be the modifications to the input they receive.

Contrastively, Montrul's (2004) incomplete acquisition hypothesis suggests that the HS do not fully acquire the heritage language. Benmamoun & al. (2013) affirm that the reduced amount of input in childhood and the constant exposure to the majority language prevents the HS from developing a full L1 system. Another of their theories to explain the lack of native-like proficiency of the HS is attrition, that is, the loss of a linguistic skill due to the influence of the majority language and reduced input in the heritage language after the grammar had previously stabilized. In this section, we will look at the similarities and differences between the HS and the L1 and L2 speakers and summarize studies that support the different theories at the heart of the debate.

HS form a very heterogeneous group, with proficiency levels ranging from beginner to native, depending on when they were first introduced to the majority language and on how affected by the L2 the input they receive is. Just like monolingual children, HS receive naturalistic input at home from birth and become quickly functional in the heritage language, depending on when they are first exposed to the majority language and how much exposure they receive. However, they usually do not receive formal academic instruction in their language and hence have no or little literary experience unless they take courses to learn how to write in their heritage language later in their life. Rothman (2009) notes that not all bilingual children are HS. To be considered a heritage speaker, a child must respect specific sociolinguistic criteria: the child must be exposed to the family language from birth and at home and also acquire the majority language, and usually be schooled in that language. Monolingual speakers differ from the HS in that they go through a transitory period during which their intuitions and preferences may vary between the different options of a linguistic property. This phenomenon is called optionality. However,

for bilingual speakers, this state of optionality seems to persist, mostly for grammatical properties that are at the interface between syntax and another cognitive domain (Sorace 2000, 2004, 2005).

One of the theories that attempt to explain this residual optionality is that of the incomplete acquisition (Montrul 2008). Montrul argues that the lack of formal instruction does not explain fully why HS and monolingual speakers show differences regarding some properties (e.g. tense, aspect, modality, object marking, gender) that are acquired in very early childhood. If both the HS and the monolinguals acquire these aspects of grammar naturalistically, before going to school, then the grammar competence of the HS should not be different from that of the monolinguals.

Montrul (2004) calls “incomplete learners” the speakers who fail to reach native proficiency, either because of incomplete acquisition or language loss. She argues that for HS, most cases of incompleteness stem from the influence of the L2 on the L1, which she demonstrates in her crosslinguistic study with Kim and Yoon (Kim & al. 2005) on English and Korean anaphora. For example, in English the pronoun *himself* must necessarily refer to an antecedent within the same clause, as in (2).

(2) Bill_i said [that Tom_j blamed himself _{*i/j}] (Kim & al. 2005)

However in Korean the same pronoun can refer to an antecedent outside the clause, which would result in a sentence like (3).

(3) *Bill_i said [that Tom_j blamed himself_{i/j}.]* (Kim & al. 2005)

They tested the interpretation of this kind of anaphora on 51 Korean-English bilinguals raised in Korean-speaking families residing in the United States (22 early bilinguals and 29 late bilinguals) as well as a control group of 34 Korean monolinguals living in Korea. The results show that the HS still made a distinction between local binding in English and long distance binding in Korean, but not as often as the monolinguals. The early bilinguals exhibited a marked preference for the local binding, as in English, whereas the late bilinguals behaved more similarly to the control group. The authors interpreted this difference as an example of convergence of one system to the other, in which the minority language becomes more like the dominant language with regards to a given linguistic property.

Montrul (Montrul 2004) also tested Spanish-English bilinguals. The results show that the HS were subject to attrition, which resulted in a difficulty for them to apply a strict division of labour to the Spanish pronouns. She tested the anaphora resolution on 24 Mexican HS living in the US and who went to school in the US and compared their results with those of a control group that comprised 20 monolingual speakers. Based on their results for the Spanish proficiency test, the HS were divided in two groups: the intermediate and advanced HS. The experiment was an oral production task in which the participants were shown images of the Little Red Riding Hood story and had to tell the story in Spanish. All three groups produced a substantial amount of both null and overt pronouns. Montrul concluded that the null subject property was not lost in HS. However, only the intermediate HS group produced more overt pronouns than null pronouns, which could be interpreted as a proof of the influence of attrition on the division of labour of the pronouns for bilinguals. The author suggests that “the dominant L2 language (English) may sometimes

encroach in the domain of the L1 (Spanish), when the latter has become functionally weaker.” If the input that HS receive is already affected by attrition, they should tend to prefer the matrix subject as the antecedent in all types of anaphora (which is the norm in their L2), and not have a preference for the object when there is an overt pronoun (which, according to Carminati’s (2002) PAH, is common in null subject languages).

Montrul, Foote & Perpiñán (2008) is a study on gender agreement that illustrates some of the differences between HS and L2 speakers. The authors tested 69 HS of Spanish, 72 L2 learners and 22 native speakers on the acquisition of gender agreement. All the participants were evaluated on oral production, written comprehension, and written recognition of gender agreement. The results revealed that there was a discrepancy between the oral production and written interpretation abilities of the L2 speakers, but that it was not the case for HS (they obtained similar scores in both types of tasks). The L2 speakers had better results than the HS for the two written tasks, and the HS performed better in the oral production task. Both groups made gender agreement errors, but L2 speakers made them in oral production contexts while HS made them in written comprehension contexts. The authors believe that the L2 speakers might only seem better because when L2 speakers start learning their L2, they are already literate and therefore already have an explicit knowledge of the language and syntax. Consequently, they can use metalinguistic knowledge to compensate for their lack of implicit knowledge. This means that when they have time to analyze the sentence, they process the new language in a more problem-solving way, which could explain why they perform better than HS in written tasks. It appears that literacy can be an advantage for HS too, which could indicate that the type of input influences their grammar. This theory is supported in Keating & al.’s (2014) study,

in which it is observed that HS who had affirmed they read a lot in Spanish tended to respect the pronoun biases more often than the other participants. Rothman (2012), on the other hand, contends that the fact that HS are better than L2 speakers at dealing with “allocation of attention resources, inhibition and stress on memory system” (i.e. what is mostly needed in oral production tasks) might be explained simply by the fact that they have been bilingual for a longer period of time.

Montrul (2011) examined the differences between Mexican HS and L2 speakers on morphological variability. It was a large-scale study with 72 L2 learners of Spanish who have English as their L1 and 70 Mexican HS that aimed to test the competence of the participants in different aspects of the language, like phonology, lexical knowledge, gender agreement, object clitics and object marking, wh-movement, and tense-aspect and mood. There was a control group that consisted of 24 Spanish monolinguals. The different tasks allowed the author to criticize two important theories that attempt to explain the representational deficits of second language acquisition, and to determine whether these theories could be extended to HS. The first theory, Hawkins and Chan’s (1997) failed functional features hypothesis, suggests that the morphological mistakes made by L2 speakers are caused by their lack of functional category or abstract feature values for gender agreement. The second, the missing surface inflection hypothesis (Prévost & White, 1999, 2000), claims that mistakes occur at the morphology-syntax interface during production only, because the L2 speakers have intact functional projections or feature values. The results of Montrul (2011) were consistent with those of Montrul, Foote & Perpiñán (2008) in that the HS made more mistakes in written recognition and untimed acceptability judgment than in oral production, while the opposite was true for L2 speakers. The author

attributes this difference to the learning experience and practice. L2 speakers are instructed in a classroom setting, where meaningful oral productions are often limited, due to time and sometimes to the programs since they tend to focus on the reading and writing skills. On the other hand, the HS of Montrul's (2011) study have a less developed literacy in Spanish because they were schooled in English. As pointed out by Montrul, this means that a task that would ask them to tell a story in the past while differentiating the preterit or the imperfect would be more difficult for them than for the L2 speakers who are old enough to have learned metalinguistic vocabulary and the verb tense labels, and have experience using them in at least two languages. As for the two theories, none of them seems to apply to HS. More precisely, the Missing Surface Inflection Hypothesis, which posits that L2 speakers have implicit knowledge of some specific grammatical properties, cannot explain why HS made more errors in written recognition and untimed acceptability judgment than in oral production since it claims that the deficit only occurs under pressure. As for the Failed Functional Features Hypothesis, it cannot apply to HS either because the fact that HS perform better in some tasks goes against its predictions. Moreover, the failed functional features hypothesis suggests that the deficits are due to the fact that learners learned the language post puberty when they no longer have access to the same learning mechanisms as L1 children. But this is not the case for HS who do learn their L1 as children. Montrul attributes the heritage and L2 speakers' deficits to the fact that they fail to receive rich input in meaningful situations at a young age, L2 speakers because they start learning late, and HS because the input they receive might already be affected by the majority language and is not as varied as the input received by monolinguals living where their L1 in the majority language.

Tsimpli & al. (2003), who support the attrition theory, studied the effect of a prolonged exposure to English (a [-null subject] language) on native Italian and Greek speakers. Participants strongly preferred the matrix subject as the antecedent of the null pronoun, which shows that the null pronoun bias is not affected by attrition. However, they did not show any strong preference for any of the possible antecedents (subject, object or other) of the overt pronoun, which indicates that there is an ambiguity and that the overt pronoun bias shows effects of attrition. According to Sorace (2005), attrition might be unidirectional and only affect the more complex grammar system of a given language combination. For example, Italian near native speakers of English tend to overuse overt pronouns, while the reverse effect is not observed.

Rothman believes that the term incomplete acquisition is problematic. He argues that the incomplete acquisition would imply that we were comparing the two types of speakers, which we cannot do, because the input they receive is different, i.e. it is already affected by previous attrition or language contact consequences. Keating & al. (2014) also disagree with the incomplete acquisition theory. In their study, they tested the acquisition of pronoun biases in anaphoric construction on HS of Mexican Spanish and the results show that the participants did use both types of pronouns differently. Because the pronoun biases are only acquired at the age of 12 when the HS already have the majority language as their dominant language (Shin & Cairns 2012), Keating & al. believe that the incomplete acquisition theory underestimates the development potential of HS.

Argyri & Sorace (2007) investigated the acquisition of Greek pronouns by 32 English-Greek bilingual children, half of them being English-dominant and the other half Greek-dominant. Their study aimed to determine the directionality of crosslinguistic influence, to

determine whether the syntax-pragmatics interface is likely to be subject to that influence, and whether language dominance plays a role. Participants had to complete an elicited written production task and an acceptability judgement task. The results showed that crosslinguistic influence occurs from English to Greek and not vice versa (in accordance with Sorace 2005). Moreover, this directionality seems to be related to language dominance, as there was no crosslinguistic influence for the Greek-dominant participants. In accordance with Isabelli (2004) and in contrast with Rothman & Iverson (2007), the results indicate that a higher level of exposure to a language is beneficial to avoid crosslinguistic influence. However, unlike previous studies (Liceras 1989, Sorace 2005, Sorace & Filiaci 2006), English-dominant speakers were not found to overuse overt pronouns.

Serratrice (2007) also tested the acquisition of the anaphora on bilingual children to see if they were affected by crosslinguistic influence. She compared their results with those of monolingual children and monolingual adults. Participants were shown two pictures with two gender-matched characters and were read a sentence such as (4).

(4) Mentre Ø sbadiglia, il controllore prende il biglietto al passeggero.

While (he) yawns, the ticket inspector takes the ticket from the passenger.

Participants then had to point at the picture that better represented the sentence. The most striking difference between the groups is that for backward anaphora, both child groups chose the object antecedent a lot more often than the adult group did. In contrast, for forward anaphora, the adults and the monolingual children chose the object more often than the bilingual children. Interestingly, except for forward anaphora with an overt

pronoun, the bilingual children behaved more similarly to the monolingual children than to the adults, which the author interprets as a proof that the developmental component might have a stronger impact than anticipated on the interpretation of the anaphora. While there was no significant difference between the participants for the null pronoun, Serratrice notices that the participants treat the null pronoun differently in both types of anaphora. More specifically, when it was a backward anaphora (in which a subordinate clause containing the pronoun preceded the main clause), all the participants had a marked preference for the subject antecedent. This preference was not observed for forward anaphora, in which participants treated both the subject and the object antecedents as possible options. The author suggests that because no subject was yet identified at the end of the subordinate clause in backward anaphora, participants simply picked the first antecedent that matched the pronoun in gender and number. The results for backward anaphora are in contrast with those of Carminati (2002), in which participants exhibited a clear preference for the subject as the antecedent of the null pronoun, and consistent with those of Tsimpli & al. (2004) and Sorace & Filiaci (2006). Serratrice suggests that the discrepancy between her results and those of Carminati might be related to the fact that in this study, participants were shown pictures instead of sentences, which might have required a different processing strategy. As for the overt pronoun condition, the adults almost never selected the subject as the antecedent, while monolingual and bilingual children selected it 8% and 31% of the time respectively. These results indicate first that bilingual children are affected by crosslinguistic influence, and that the PAH seems to apply more to adults than to children, which could mean that there is a developmental delay in the anaphora resolution strategy.

Paradis & Navarro (2003) concluded that the input was a determining factor in the HS grammar. They conducted longitudinal studies on three children and their parents (two monolingual families and one bilingual family) to determine whether the mistakes produced by the children stemmed from optionality, as commonly suggested in the literature, or from the type of input they receive. They posit that if one or both of the child's parent is bilingual, and thus potentially subject to transfer errors, it is relevant to examine that input more closely. To confirm this prediction, they compared two children in monolingual Spanish families with a child in a bilingual Catalán-English family. Both the children and their parents were evaluated, so that the linguists could see if the input the participants were exposed to was influencing their use of the pronouns. They found overproduction of overt Catalán subjects in the parents' input and therefore expected the bilingual Catalán-English child to act similarly. These hypotheses were confirmed, as the bilingual child showed evidence of English influence on her use of Catalán pronouns, using overt pronouns 15% and 18% more often than the monolingual children, which reflected the input she was exposed to, which used a proportion of 60/40 overt vs null pronouns, as opposed to 40/60 in the monolingual families. It was however not possible for the authors to fully determine whether the bilingual child's different output was the result of an internal process or if it was part of the input she received, or a combination of both factors.

Sorace & Serratrice (2009) also believe that the quality and the quantity of the input received by HS affect their competence in a specific linguistic property. The authors use the null and overt pronouns produced by Italian-English speakers as an example. When both grammatical systems are competing as to whether the speaker should use an overt

pronoun when there is a topic shift, the English structure is likely to win because of its accessibility. The authors also found that the syntax-discourse interface is affected by reduced input, which means that HS who are more exposed to the null-pronoun language are less likely to make mistakes in ambiguous constructions with a topic shift.

Rothman and colleagues also conducted various studies on HS to see if formal education and literacy were the most important factors to justify the difference in proficiency levels between HS and their monolingual counterparts. Rothman and Iverson (2007)'s experiment demonstrates that Brazilian Portuguese native speakers and advanced L2 learners of Portuguese were both able to acquire the syntactic distribution and interpretive properties of inflected infinitives. In light of the previously mentioned study, Rothman (2007) conducted an experiment on Brazilian Portuguese HS to see what role literacy and formal education play in the acquisition of inflected infinitives. All participants completed a grammaticality judgement task and a context sentence matching task. The results showed that HS do not acquire inflected infinitives. One participant had determinate knowledge of inflected infinitives, and she was the only participant to have received formal education in Portuguese past grade 1, which supports the theory that inflected infinitives are acquired through formal education, as the colloquial Brazilian Portuguese dialects do not use them. Rothman concludes by suggesting that language standardization and literacy might affect the grammars of educated L1 and L2 speakers and therefore not take into account some important changes in colloquial dialects. This means that both the theory of attrition (according to which the property is acquired and then lost) and incomplete acquisition (according to which the property was never successfully acquired) ignore the possibility that the HS were actually never exposed to the structure.

2. Linguistic property

2.1 Null and overt pronouns

The null-subject parameter has been the subject of extensive study over the last several decades (Montalbetti 1984, Calabrese 1986, Rizzi 1986, Licerias 1989, Licerias & al. 2010, Licerias & Alba de la Fuente 2015, etc.). Essentially, the null-subject parameter divides languages in two categories: one that allows the speaker to use or not the subject pronoun, and one where the subject pronoun is mandatory. Unlike [-null subject] languages like English and French, [+null subject] languages (or pro-drop languages) like Italian and Spanish have a rich verbal morphology that allows the speakers to identify the subject of the verb without using a pronoun. An example with the verb *comer* (to eat) in Spanish is illustrated in (5).

- (5) (yo) como
(tú) comes
(él/ella) come
(nosotros) comemos
(vosotros) coméis
(ellos/ellas) comen

This omission allows for various phenomena to occur. Rothman and Iverson (2007) summarize and exemplify the cluster of properties as in (6) from the null-subject parameter

found in Rizzi (1982, 1986), the last of which is the Overt Pronoun Constraint from Montalbetti:

(6)

- a. the co-occurrence of null and overt subject pronouns in tensed clauses
- b. obligatory null expletive subjects
- c. free subject-verb inversion
- d. no *that*-trace effect
- e. the instantiation of the Overt Pronoun Constraint (Montalbetti 1984)

- a. *Yo hablo francés. pro hablo francés.*
- b. *pro hace mucho viento. *Ello hace mucho viento.*
- c. *Ellas se fueron. Se fueron ellas.*
- d. *¿Quién crees que no sabe bailar? *¿Quién crees _____ no sabe bailar?*
- e. *¿Quién_i dice que él_{i/j} tiene mucho dinero? vs ¿Quién_i dice que pro_{i/j} tiene mucho dinero?*

(Rothman & Iverson 2007, p.190)

Montalbetti (1984) was one of the first to observe that overt and null subjects behave differently with respect to antecedent coindexation and formalized this observation in the Overt Pronoun Constraint (OPC). The OPC states that null and overt pronouns vary with respect to their antecedent choice. Overt pronouns cannot be linked to a formal variable, as illustrated in (7) and (8).

(7) Referential antecedent context:

- a. Ogni studentessa_i crede che Ø_i supererà l'esame.

Every female student_i thinks that Ø_i will pass the exam.

- b. Ogni studentessa_i crede che lei_i supererà l'esame.

Every female student_i thinks that she_i will pass the exam.

(8) Quantified antecedent context:

- a. Ognuno_i crede che Ø_i supererà l'esame.

Everyone_i thinks that Ø_i will pass the exam.

- b. *Ognuno_i crede che lui_i supererà l'esame.

Everyone_i thinks that he_i will pass the exam. (Montalbetti 1984)

According to the OPC, when the antecedent is referential (as in (7)), the overt pronoun and the null subject pronoun have the same referential properties, but when the antecedent is quantified (as in (8)), the overt pronoun cannot be bound by the quantified antecedent, but the null subject pronoun can.

While Liceras (1989) is an acquisition study, she was one of the first to observe that referential differences also existed in Spanish for null and overt pronouns and that these differences were based on discourse constraints. In her study, she looked at the acquisition of three properties of the pro-drop parameter, namely null subjects, verb-subject inversion and that-t violations, for four levels of English and French speakers learning Spanish. She tested 32 French and 30 English speakers at the University of Ottawa, and only included students who had learned Spanish in the classroom and not in immersion. The students had to respond to a grammaticality judgement task of 17 questions that contained missing pronouns, overt pleonastic (i.e. pronouns that do not have an actual reference in the world) or nonpleonastic pronouns, verb-subject inversion, that-t sentences, and subordinate sentences with empty or lexicalized complementizers. The students also had to correct the sentences, and to translate them to make sure they had a correct interpretation. In Liceras' study, all the students accepted the pleonastic pro, which confirmed that it becomes easily part of the interlanguage. It was however not the case for the overt pleonastic pro, which

was only accepted by beginner speakers, either because the French students did not know how to treat the Spanish clitic, or because the English students may have associated it to the English “it”. All the students also accepted third person plural null subjects with arbitrary reference. The fact that the null subject pronoun was accepted by all subjects showed that there did not seem to be interference in the interlanguage.

While Montalbetti (1984) and Rothman and Iverson (2007) call the OPC a “universal principle of grammar for null-subject languages”, Gürel (2003) determined that while the referential properties of null and overt pronouns in Spanish and Japanese respected the principles of the OPC, it was not the case for Turkish pronouns, because the overt pronoun “o” can never be coreferential or bound to the matrix subject. This means that the null and overt pronouns in Turkish behave differently in both contexts, which proved that the OPC does not apply to all null subject languages.

Other linguists have formulated theories on the distribution of pronouns in null subject languages. For example, Rigau (1989) suggests the Discourse Hypothesis, which states that when referents occupy a subject position and are a discourse topic, they are expressed by null pronouns. In contrast, when a referent is being reintroduced and its antecedent is not in the sentence immediately before, when there is ambiguity, emphasis or contrastive meanings, an overt pronoun should be used. Luján (1985, 1986) suggests that because the overt pronoun exists phonologically, it can be stressed, unlike the null pronoun. Luján suggests the following equivalence to Italian pronouns:

Italian null pronoun = unstressed English pronoun

Italian overt pronoun = stressed English pronoun

With these, Luján formulated the Economy Hypothesis, according to which null pronouns are more frequent because they are more economical. Carminati (2002) shows that while Luján's first comparison is correct, the second is not always valid. It is possible that the Italian overt pronoun be equivalent to the English unstressed pronoun. For that reason, Carminati extended Montalbetti's OPC and posited more general principles to explain the different behaviors of the null and overt subject pronouns. She suggested that the use of a certain type of pronoun is based on structural prominence. For example, a subject, which appears at a high position in the tree structure, is more prominent (or salient) and therefore is more accessible to be the antecedent of the null pronoun, especially in cases of preverbal subjects. Instead of Montalbetti's grammatical constraint, she put forward the theory that the null and the overt subject pronouns have different antecedent biases, which she calls the Position of Antecedent Hypothesis (PAH). The PAH is illustrated in (9).

- (9) The Position of Antecedent Hypothesis for the Italian null and overt pronouns in intra-sentential anaphora: the null pronoun prefers an antecedent which is in the Spec IP position, while the overt pronoun prefers an antecedent which is not in the Spec IP position. (Carminati 2002, p.29)

The examples in (10) illustrate the PAH. In (10a), because the subject of the second clause is a null pronoun, the preferred antecedent would be Mario, the matrix subject. In

However, as observed by Keating & al. (2014), it is difficult to say if the effect is the same, as Carminati focused mostly on intrasentential anaphora cases and Alonso-Ovalle used intersentential material. As for intrasentential anaphora in Spanish, the results of Keating & al. (2014) showed that the PAH applies to Mexican Spanish for both the null and overt pronouns, while the results of Filiaci & al. (2014) indicate that the biases of peninsular Spanish pronouns are not as clear-cut as those of Italian pronouns. More precisely, they demonstrated that the association of the overt pronoun with a topic change in Spanish is not as common. In Liceras & al. (2010), it is shown that in some cases, the ambiguity is not caused by the null pronoun, but by the lack of specific DP. In this case, an overt pronoun would not solve the ambiguity. The authors suggest that there are two sets of pronouns in Spanish: weak (-topic shift) and strong (+topic shift) pronouns. Filiaci et al (2014) compared Spanish and Italian with regards to both the null and the overt pronoun. They found that both languages are similar with regards to how they use syntax to encode the information structure of a sentence. However, both languages obtained different results for the overt pronouns. The reading times for Italian speakers was longer when the antecedent was syntactically prominent, whereas there was no significant difference in the Spanish speakers' reading times. The authors concluded that Spanish and Italian overt pronouns have different anaphoric preferences and are governed by different rules. In Liceras & Alba de la fuente (2015), it is mentioned that Spanish might have two kinds of overt pronouns: a weak and a strong one.

Kras (2006) showed that the PAH holds in Croatian for both null and the overt pronouns, in both forward and backward anaphora. The results of her picture-selection task show that native Croatian speakers almost always interpreted the null pronoun as

coreferential with the matrix subject, and the overt pronoun as coreferential with either the complement or the deictic referent. Kras concluded that Croatian and Italian exhibit a perfect overlap regarding intrasentential anaphora. Just like Italian, Croatian pronouns are influenced by the discourse-pragmatic principle according to which overt pronouns are used for topic shift, and null pronouns for topic maintenance.

Geber (2006) tested the validity of the PAH in Romanian. Participants had to complete one task that consisted of an ambiguous sentence followed by a question on the antecedent. There were only two possible options: subject and object. In both canonical and non-canonical sentences, participants unanimously chose the subject as the antecedent of the null pronoun. The object was preferred as the antecedent of the overt pronoun, although this preference was not as marked as that of the null pronoun, especially in non-canonical sentences. Geber argues that sentences with a dative subject and nominative object structure were not sufficient to exclude Luján's Economy Hypothesis according to which the null subject pronoun is preferred in this kind of structure. However, by adding the sentences with nominative subject and accusative object, Geber was able to exclude the Economy Hypothesis and therefore clearly confirmed that the PAH holds for Romanian. She concluded that the syntactic position of the antecedent is a determining factor when processing the pronouns in Romanian.

Mayol & Clark (2010) used a similar strategy and came to a similar conclusion for the null pronouns in Catalán, but not for the overt pronoun. Participants had to complete a questionnaire in which they had to pick their favorite antecedent for the null and overt pronouns. The results show that neither the PAH nor the structure information hypothesis can guide alone the referential preferences in Catalán. The null subject pronoun is only

regulated by syntax while the overt pronoun is regulated both by syntax and pragmatics. This means that the PAH should be modified for Catalán: when an antecedent is considered less salient according to both syntax and structure information, it will be preferred by the overt pronoun, but when both factors disagree on the salience, the overt pronoun shows no clear preference.

Bel & al. (2010) obtained different results. They also investigated the referential properties of null and overt pronouns in Catalán, but instead of using experimental data, they examined the semi spontaneous production of oral and written sentences. Just like Italian, null pronouns in Catalán generally refer to the discourse referent whereas the overt pronoun tends to indicate a shift in topic, as in (11).

(11)

topic continuity:

En Max volia sorprendre la seva amiga I, per tant, ___ li va preparar una festa.

Max wanted_3SG to surprise his friend and, then, ___ prepared_3SG her a party.

topic change:

La Núria no va poder ensenyar el cotxe nou al seu pare perquè *ell* tenia una reunió de treball.

Núria could_3SG not show the new car to her father because he had_3SG a work meeting.

(Bel & al. 2010, p.238)

The productions used for this paper were obtained from a corpus of semi spontaneous productions of Catalán-Spanish bilingual children aged 9-10, 12-13, 15-16. Participants were shown short films without dialogs about conflicts in school and were asked to share a similar story that had happened to them both orally and in writing. Then they were asked to discuss the situation again. The results show no significant difference between the different age groups, with all groups using very few overt pronouns. Participants consistently chose the subject as the antecedent of the null pronoun, and also preferred the

subject as the antecedent of the overt pronoun, which goes against the PAH. Null pronouns were mostly used to introduce referents, while it was never the case for overt pronouns. Contrary to the authors' expectations, overt pronouns were often used for topic maintenance and had both subjects and objects as their antecedent. These results are in accordance with those of Alonso-Ovalle & al. (2002) for Spanish, but go against Carminati's PAH and the results of Sorace & Filiaci (2006) and Mayol & Clark (2010).

Bauman & al. (2014) tested the PAH on Portuguese speakers. Their first experiment was a questionnaire consisting of 16 ambiguous sentences with the conjunctions *antes que* (before) and *depois* (after that) followed by a question. They tested both intra and intersentential anaphora in sentences like (12).

- (12) a. O pintor viu o pescador, antes que ele abrisse a janela.
The painter saw the fisherman before he opened the window.
- b. O pintor viu o pescador. Depois ele abriu a janela.
The painter saw the fisherman. After that he opened the window.
- c. O pintor viu o pescador, antes que abrisse a janela.
The painter saw the fisherman before (he) opened the window.
- d. O pintor viu o pescador. Depois abriu a janela.
The painter saw the fisherman. After that (he) opened the window.

Ten native Portuguese speakers completed the task. The results were in accordance with the PAH, in that null pronouns referred most often to subject antecedents and overt pronouns to objects.

To summarize, it appears that Carminati's theory that the PAH would apply crosslinguistically is not correct, as the bias of the overt pronoun in Catalán and in Spanish is not as strong as in Italian, and it has been shown that Spanish pronouns might be governed by different rules.

2.2 Anaphora resolution in French

As mentioned above, French is a [-null subject] language and therefore only has overt pronouns, which means that technically, in ambiguous constructions, the pronoun could refer to both the subject and the object as in (13).

- (13) Pierre_i a salué Jean_j quand il_{i/j} est entré.
Pierre greeted Jean when he came in.

Colonna & al. (2010) conducted experiments to determine the preference of native French speakers in terms of antecedent. Their results show that French speakers tend to prefer the topic as the antecedent only when it is explicitly topicalized as in (14).

- (14) Quant à Pierre_j, il_j a giflé Jean_k quand il_j était jeune.
As for Pierre, he hit Jean when he was young.

Otherwise they prefer the matrix object as the antecedent of the pronoun in a subordinate clause, as can be seen in (15).

(15) Pierre_j a frappé Jean_k quand il_k est entré.

Pierre_j hit Jean_k when he_k came in.

As observed by Colonna & al. (2010), this preference is different from the other [-null subject] languages (like English and German), which tend to prefer the matrix subject as the antecedent. The authors suggest that this preference could be influenced by the fact that in French, there is an unambiguous way to link the subordinate clause to the matrix subject using infinitive as in (16).

(16) Pierre a frappé Jean avant de rentrer à la maison.

Pierre hit Jean before getting home (infinitive).

Consequently, French speakers would associate ambiguous subordinate clauses with the object, and generalize this principle when the infinitive form is not possible, as in constructions with “quand” as in (15). The authors defend this theory by saying that in German, a language for which there is no option with infinitive, the matrix subject is the preferred antecedent. While there is an alternative with gerund in English as in (17), it is not nearly as frequent as the infinitive option in French.

(17) Peter hit John before going home.

This could explain why the English speakers' preference for the matrix subject as the antecedent is not as strong as that of the German speakers, but also not reversed like that of the French speakers.

3. Previous research on the acquisition of anaphora resolution

Anaphora resolution is a complex process that is acquired late and not fully addressed in the classroom. This fact has led many researchers to believe that naturalistic input is necessary to acquire the full array of constraints on anaphoric constructions. It is the case of Isabelli (2004), who examined to which extent naturalistic input has an impact of the acquisition of the null-subject parameter. The participants were 31 English-speaking students in a year-long exchange to Barcelona, Spain, and 18 native Spanish speakers of the same age, of which 9 were monolinguals from the region of Extremadura and 9 were Catalán-Spanish bilinguals from Barcelona. Participants completed two tasks: a grammaticality judgement task and an oral interview. For the first task, they had to determine if 50 individual sentences (25 target and 25 distractors) were “possible” or “impossible”, and to correct the sentences judged impossible. The target sentence represented three null subject parameter properties: null subjects in present tense, subject-verb inversion and that-trace sequence violation. As for the oral interview, participants were asked to do the following:

- (1) discuss personal activities;
- (2) explain a process;

- (3) state advantages and disadvantages;
- (4) support an opinion;
- (5) hypothesize on an impersonal topic.

(Isabelli 2004, p.156)

They were also asked to do the following with different pictures:

- (1) ask questions;
- (2) describe a place or activities;
- (3) give directions from one place to another using a map;
- (4) narrate a sequence of scenes in the present tense;
- (5) narrate a sequence of scenes in the past tense

(Isabelli 2004, p.156)

Participants completed both tasks again after their year-long stay in Spain. When comparing the first results with the last ones, Isabelli observed that participants had significantly improved regarding all three null subject parameter properties, and especially that of the subject-verb inversion and concludes that positive evidence does have a beneficial effect on second language acquisition.

However, in Rothman and Iverson (2007), the data showed a different tendency. They investigated the resetting of the null-subject parameter on 30 intermediate English L2 speakers of Spanish. Participants were tested right before and after a five-month stay in a Hispanic country as part of a study-abroad experience. This was done to verify if naturalistic input is necessary for the participants to fully reset the null-subject parameter.

The first task was a logical sentence formation task to test the participants' ability to use the null pronoun in structures that would be ungrammatical in English. The second task was a co-reference judgment matching task and the third task was a context translation task. Both were intended to examine if participants respected the OPC. Participants' performance did not improve significantly after the time spent abroad. The results show that the resetting of the null-subject parameter is indeed possible, and that naturalistic input is not mandatory to achieve it, as two thirds of the participants already mastered it before the exchange.

As a complement to their previous experiment, Rothman and Iverson (2007) compared the 30 English L2 Spanish students who studied abroad with 24 students of the same level who received classroom instruction during the same period of time. The results are in accordance with the authors' previous findings in that the prolonged naturalistic exposure was not significantly gainful to the first group for the acquisition of the different properties. Both groups already had determinate knowledge of null pronouns at the onset of the experiment, but, in accordance with Licerás' (1989) study, they tend to overuse the overt pronoun, for example in overt expletive structures, which are not allowed in Spanish.

Sorace & Filiaci (2000, 2003 and 2005) demonstrated that grammatical aspects that require interface between syntax and other cognitive systems tend to show residual L1 effects, indeterminacy or optionality. They came to the generalization that because there is no evidence of optionality regarding syntactic properties alone, L2 speakers should be able to acquire those syntactic properties completely, but they might not succeed in fully acquiring interface properties involving syntax and another cognitive domain, like pragmatics. They called this theory the Interface Hypothesis. The goal of their experiment

was to test the validity of the Interface Hypothesis using the acquisition of pronominal subjects since it is agreed upon that pronoun distribution is governed by both syntax and pragmatics. The authors used a picture verification task to test the PAH in intrasentential backward and forward anaphora on English speakers who had learned Italian post-childhood. Participants were shown a sentence consisting of a main clause followed by a subordinate clause (forward anaphora) or a subordinate clause followed by a main clause (backward anaphora) and had to indicate which picture was representative of the sentence. The results for forward anaphora with an overt pronoun demonstrate a clear preference for the object as the antecedent of the overt pronoun by the natives. This option was also preferred by the L2 speakers, but not as significantly. There was no significant difference between the two groups for anaphora with null subjects, as both groups ambiguously allowed the null pronoun to co-refer with both the subject and the object of the sentence, although still choosing the matrix subject most often. The participants therefore did not always respect the PAH for this condition. As for backward anaphora, the near native speakers clearly preferred the matrix subject as the antecedent of the overt pronoun while the native speakers preferred a deictic referent. As for the null pronoun condition, both groups preferred the matrix subject as the antecedent. Sorace & Filiaci (2006) came to the conclusion that native speakers tend to be stricter regarding the use of the PAH when there is a possible misinterpretation while near native speakers are not as sensitive to this factor and therefore tend to overgeneralize the use of the overt pronoun. The authors concluded that the residual optionality showed by L1 English speakers stems from indeterminacy at the syntax-discourse interface when they are processing pronouns.

Kras (2008) also concluded that the syntax-discourse interface was problematic when she tested the anaphora resolution on Italian speakers and native Croatian speakers with a near-native proficiency in Italian. This experiment is interesting because the L2 speakers had a null-subject language as their L1, which means that the distribution of pronominal subjects in Croatian is subject to the same discourse-pragmatic conditions as Italian. The study aimed to test the prediction that if two languages share a same interface property (discourse-pragmatic in this case), instability should not occur. Because the tendency of English speakers and Italian speakers under attrition tested in previous acquisition studies to misinterpret overt pronouns as co-referential with the matrix subject is attributed to the influence of English (Belletti & al. 2007, Sorace & Filiaci 2006, Tsimpli & al. 2004, Serratrice 2005), Croatian native speakers were expected to perform better. This prediction was confirmed, as all participants used the overt pronouns when there was a topic shift and the null pronoun when there was a topic maintenance. This proved that the misinterpretation of the overt pronouns by English speakers stems from the underspecification of the [+Topic Shift] feature on overt pronouns. This proves that the problems regarding the use of pronouns by bilinguals are most likely attributed to crosslinguistic influence, and that the theory saying that the discourse-syntax interface is problematic is correct.

Belletti, Bennati & Sorace (2008) also support the theory that some discourse factors play an important role, even if the availability of null and postverbal subjects was considered the determining factor for the positive setting of the null subject parameter in previous literature. One of their experiments was also a picture verification task to test the interpretation of the pronouns in intrasentential forward and backward anaphora by L1

British English participants who learned Italian post puberty and had been living in Italy for years. The results for anaphora with null subjects were similar to those of Alonso-Ovalle (2002). The control and the bilingual groups had no marked preference for the null or the overt pronoun in forward anaphora, but had a strong preference for the matrix subject as the antecedent of the null pronoun in backward anaphora, which suggests that the L2 speakers do have a null-subject grammar. The authors suggest that in forward anaphora, the preference for the null pronoun could be caused by economy. Because the non-native speakers do not have null pronouns in their L1, it may not cost them as much as it costs the natives to use an overt pronoun, which could explain why near natives also accept an antecedent that is not necessarily the matrix subject. On the other hand, the near-native speakers used the overt pronoun significantly more often than the native speakers, and they chose the matrix subject as the antecedent of the overt pronoun significantly more often than the natives. The authors attribute this preference of both groups for the matrix subject as the antecedent of the overt pronoun in backward anaphora to the fact that backward anaphora is more difficult to resolve since it requires that the reader keep in mind the pronoun until he or she finds an antecedent. However, choosing the matrix subject as the antecedent of the overt pronoun goes against the PAH, and could explain why the natives chose the complement and the deictic referent more often. The same tendency was observed in forward anaphora: the native speakers chose either the complement or a deictic referent as the antecedent, while the near-native speakers had a tendency to always pick one of the existing referents. This experiment shows that the near native speakers were influenced by their L1, in which pronouns are necessarily overt.

Belletti, Bennati and Sorace (2007) observed a similar phenomenon when they conducted their experiment on British immigrants in Italy who had learned Italian as a second language after puberty. In their picture verification task, the authors tested both the forward and backward anaphora with overt pronouns. The object was the preferred antecedent of both groups in forward anaphora with overt pronouns, but the near native speakers choose the matrix subject slightly more often than the control group did. In backward anaphora, the natives preferred a deictic referent (i.e. a referent outside of the sentence), while the near natives preferred the matrix subject. The natives rarely chose the matrix subject in backward anaphora. As for sentences with null subjects, the results are in accordance with those of Sorace & Filiaci (2006): there was no significant difference between the two groups. The only noteworthy detail is that the L2 speakers were slightly more accepting of the matrix subject as the antecedent of the null pronoun. A story telling task was also conducted and the results show that the near native speakers used overt pronouns significantly more often than the control group. Both the native speakers and the near native speakers chose the matrix subject significantly less often than the object as the antecedent of the overt pronoun in backward anaphora. However, the near natives chose the matrix subject a lot more often than the control group in both types of anaphora. Consistent with the findings of Licerias (1989), this study also shows that L2 speakers can and do indeed reset the null subject parameter, but tend to overuse overt pronouns. While the native speakers seem to apply a constraint to the overt pronoun that prevents it from referring to the sentence matrix, this constraint is not as strong for the L2 speakers, most likely because of the absence of null pronouns in their L1. The fact that L2 speakers preferred the matrix subject as the antecedent of the overt pronoun in backward anaphora

could be explained by the complexity of backward anaphora. The reader has to keep in mind the subject pronoun and therefore tends to link it to the first encountered subject, which is the matrix subject in backward anaphora. However, because this option goes against the constraint that says the overt pronoun cannot have the matrix subject as the antecedent, the native speakers choose a deictic referent.

Keating & al. (2011) conducted an experiment to see if early exposure to Spanish gave HS an advantage over adult L2 speakers of Spanish in terms of anaphora resolution in Spanish. Because of the growing Spanish-speaking community in the United States, the country makes for an excellent opportunity to observe the differences between the two bilingual groups and the effect of naturalistic input on their proficiency level. The participants (19 Spanish monolinguals, 25 HS of Spanish and 19 English post-childhood L2 speakers of Spanish) were asked to complete an offline questionnaire with complex ambiguous sentences consisting of a main clause that introduced two referents followed by a subordinate clause containing either a null or a subject pronoun like (18).

- (18) Juan vio a Carlos mientras pro /él caminaba en la playa
John saw Charles while he was walking on the beach.

These sentences were followed by a comprehension question on who was performing the action. The results show that both bilingual groups did not exhibit strong pragmatic biases in antecedent preferences. Both the native and L2 speakers performed better than the HS with regards to the overt pronoun bias, as the HS associated it to the subject antecedent significantly more often than the other groups. The L2 speakers were the least respecting

group of the null pronoun bias, as they chose the subject as its antecedent significantly less often than the other groups did. Overall, even for the monolinguals, the biases are not as clear-cut as predicted by the PAH since they only interpreted the overt pronoun as coreferential with the object 46% of the time. HS respected the null pronoun bias, but had no clear preference for the antecedent of the overt pronoun. As for the L2 speakers, they did not show a bias for the antecedent of the null or overt pronoun, which might mean that they are interchangeable for them.

In light of their previous findings, Keating & al. (2014) conducted a self-paced reading task on Mexican Spanish HS and L2 speakers of Spanish living in the US. Their results show that both the HS and the control group read the sentences significantly faster when the antecedent of the null pronoun was the matrix subject. As for the overt pronoun, the reading times of the control group were slightly shorter when the antecedent was in the object position. The authors suggest that the type of exposure to the language might have an influence on the strategies used by bilingual English-Spanish speakers because the participants who read a lot in Spanish had shorter reading times than the other groups, even when the sentences did not respect the PAH.

While most acquisition studies regarding the anaphora resolution were conducted in Italian and Spanish with L1 English speakers as the near native speakers, Garcia-Alcaraz & Bel (2014) tested Moroccan Arabic HS in Spain, and Moroccan Arabic L2 speakers of Spanish to determine whether participants had the same pronoun biases when both of their languages are null subject languages. 26 HS, 26 Moroccan Arabic L2 speakers of Spanish and 34 native speakers of Spanish (as the control group) took part in the experiment. All the HS were either born in Spain or had moved to Spain before the age of six, and therefore

were introduced early to the Spanish language. In contrast with other studies however, all the HS considered themselves dominant in Moroccan Arabic. The L2 speakers were adults studying Spanish at the Instituto Cervantes of Marrakech (Morocco) with a B2 level. The native speakers were university students. With an offline acceptability judgement task, the authors found that all the coreferences were accepted in forward anaphora by all three groups, except the subject as the antecedent of the overt pronoun, which was not accepted by the control group and the L2 speakers. Native speakers only respected the PAH for the null pronoun in backward anaphora, while they always associated the overt pronoun to an object, consistently with the PAH. These results are in contrast with those of Filiaci (2011) and Jegerski & al. (2011), which the authors attribute to the fact that instead of picking an antecedent, for this study they only had to judge its acceptability. Overall, there was no significant difference between the three groups, which suggests that both the bilinguals and the L2 speakers are able to fully acquire the Spanish pronoun biases, although the bilingual group was more often accurate.

Kaltsa & al. (2015) is another study in which the L2 speakers were not English speakers. They measured the effect of attrition on the acquisition of the resolution of the anaphora in Greek (another null-subject language) by Swedish immigrants who learned Greek post-childhood and by HS of Greek living in Sweden. Kaltsa & al. define attrition as follows: "In non-pathological cases, first language (L1) attrition is viewed as a process during which a native speaker of a language who has grown up monolingual shows signs of changes in his native language use as a result of extensive contact with a second language. [...] The severity of the effects varies and depends on various factors such as the regularity of L1 use and the length of L2 exposure and use" (Kaltsa et al., p. 267). The

results showed that both bilingual groups had a stronger preference for the subject of the sentence as the antecedent than the control groups. As a result, both bilingual groups accepted more often the subject as the antecedent of the overt pronoun. The authors argue that the bilingual speakers in their study allow a lot more coreference between the overt pronoun and the subject antecedent than monolinguals because of their access to different grammars, which is caused by attrition. The fact that attriters and older monolinguals had similar matching decisions could be explained by a theory that states that the subject antecedent preference weakens with age. To summarize, most of the acquisition studies confirmed that both the heritage and the L2 speakers differentiate the null and overt pronouns in the anaphora, but that the division of labour is not as clear-cut as that of the native speakers. In most cases, heritage and L2 speakers behaved similarly, respecting the null pronoun bias and allowing more coreference between the overt pronoun and the subject antecedent or overproducing overt pronouns in production tasks, which the authors attributed to attrition (Belletti & al. 2007, Sorace and Filiaci 2006, Tsimpli & al. 2004 and Serratrice 2005). However, in Alonso-Ovalle (2002) and Belletti & Sorace (2008), the participants showed no clear preference for the null or the overt pronoun. Finally, it is not clear if a prolonged exposure to the target language is beneficial to the L2 speakers, as the results of Isabelli (2004) and Rothman & Iverson (2007) are contradictory.

4. Research questions and hypotheses

With previous studies showing that heritage and L2 speakers who have an overt subject language as their first language are able to acquire the null subject languages pronoun biases but that they are more permissive with the overt pronouns, we wanted to examine

whether a similar effect would be observed on a new language pairing: French and Spanish. French, being a Romance language, is typologically closer to Spanish than English is. Valenzuela (2010) compared HS of Spanish in Canada and in the US to see if the fact that HS in Canada are formally educated in another Romance language would have an effect on their knowledge of stative and eventive passive structures in Spanish. The results showed that the Canadian group's performance matched that of the control group, but that the US group's performance did not. However, French and Spanish are not typologically similar with regards to pronouns. French, like English, is an overt subject language and always requires an explicit subject pronoun, independently of whether or not there is a topic shift. This means that, like the L2 speakers of previous studies, French speakers are expected to show more optionality with respect to the overt pronoun antecedent (Belletti & al. 2007, Sorace & Filiaci 2006, Tsimpli & al. 2004 and Serratrice 2005). This means that they are likely to pick the matrix subject as the antecedent of the overt pronoun in backward anaphora, where the sentence offers no referent in the subordinate, which prompts the reader to pick the first encountered gender and number matching antecedent as the referent. Recent studies have not only focused on the acquisition of the pronoun biases by L2 speakers, but also on its acquisition by HS and therefore on the influence of naturalistic input on this process. It is recognized that despite both being bilingual groups, HSs and near native speakers differ on many levels and have different strengths and weaknesses (Montrul 2008, Rothman 2012). For example, HS typically perform better in oral spontaneous tasks, whereas L2 speakers work in a more problem-solving way, which allows them to perform well in most written grammatical tasks. As mentioned in sections

1 and 2, grammatical properties that are at the interface¹ between syntax and another cognitive domain, such as discourse or pragmatics, are more likely to be affected by residual optionality (Sorace & Filiaci 2000, 2003, 2005, Sorace & Serratrice 2009). The complexity of the anaphora resolution and the fact that it is accepted to be at the interface between syntax and pragmatics make for a good opportunity to get concrete examples of the different effects of optionality on both groups of bilingual speakers, as well as to measure the influence of the type of input (naturalistic vs formal classroom input) on the acquisition of this property. While Spanish HS in the United States have been the subject of numerous studies (Valenzuela 2015, Keating & al. 2011, 2014), to the best of our knowledge, Spanish HS living in Canada who are French-dominant have not been studied. Therefore, in this study, we examine HS of Spanish who grew up in a Canadian French environment and L1 French speakers who learned Spanish post childhood and explore the following research questions:

- i) To what extent can native French speakers learning Spanish in adulthood acquire the same interpretation biases for null and overt subject pronouns as native Spanish speakers, and does the fact that French is typologically closer to Spanish allows French speakers to perform better than the English speakers of previous studies?
- ii) Do HS of Spanish who grow up in a French environment acquire the same interpretative strategies as native speakers?

¹ Sorace and Filiaci (2000, 2003 and 2005) call Interface Hypothesis the fact that grammatical aspects that require both a linguistic domain and a cognitive system to be processed are more likely to trigger optionality. For example, while purely syntactic properties are easily acquired by L2 speakers, it is not the case for the anaphora resolution, which is governed by both syntax and discourse/pragmatics. Testing the validity of the Interface Hypothesis is not the focus of this research.

iii) Will the type of exposure to Spanish received by the HS and the L2 speakers result in divergent grammars?

Because French is not a null subject language and always requires an explicit pronoun, we expect interference by French speakers in their production task results. More specifically, we expect them to prefer the object as the antecedent of both the null and overt pronouns. Indeed, as demonstrated by Colonna & al. (2010), in an ambiguous sentence where in the main clause, the subject is the agent and the object is the focus, the object will be the preferred antecedent. We therefore expect French speakers to fully respect the overt pronoun bias, but less so for the null pronoun in forward anaphora. As for backward anaphora with the null pronoun, the French speakers will likely behave like the native speakers of some previous studies and pick the first possible antecedent (Serratrice 2007). As for the HS we expect them to behave more like the French speakers than like the control group regarding the overt pronoun biases based on two main theories: 1) their dominant language is French (overt pronoun language) and they could be influenced by it, 2) the input received by HSs might have been subject to attrition and therefore might already be influenced by French, the majority language. Moreover, Shin & Cairns (2012) demonstrated that children start showing sensitivity to topic switch around the ages of 7-9. Because all the HS in this study completed elementary school in French, we believe that they might not have been exposed to naturalistic input long enough to acquire strict pronoun biases. Based on this observation, we expect heritage and L2 speakers to be more accepting than the native speakers of the subject as the antecedent of the overt pronoun in forward anaphora. In the judgement test, we expect the HS to be less strict than the French speakers because the HS have been bilingual for a longer period of time and therefore have

an easier access to both grammatical systems (Rothman 2012), which means that they have more options for the realization of overt pronouns (Kaltsa & al. 2015). This also means that in the production task, HS are expected to produce more answers that go against the overt pronoun bias than the French speakers. Finally, because Sorace & Serratrice (2009) demonstrated that the syntax-discourse interface is affected by quantitatively reduced input and because Rothman & Iverson's (2007) results showed that literacy does affect the grammars of L1 and L2 speakers, we expect French and HS to treat the pronouns differently, with the French speakers being closest to the native's results in both tasks.

5. Methodology

5.1 Participants

Participants were recruited through word of mouth in the cities of Ottawa, Montreal, Gatineau and Quebec. There were three types of participants: 23 L1 French speakers who have learned Spanish post childhood and have an advanced level of Spanish, 10 HS of Spanish who grew up in a French community language environment in the province of Quebec or in the Ottawa region, and 26 L1 Spanish speakers from University of Valladolid in Spain as the control group. The control group's data were collected in 2011 by members of University of Ottawa's Language Acquisition Research Lab and presented at various conferences². The average age of the L1 French participants was 37.2, with the youngest participant being 18 and the oldest being 74. The L1 French participants' average age of exposure to Spanish is 21, with the earliest age being 18 and the latest age being 67. The

² Valenzuela & al. (2015), Valenzuela & al. (2011), Valenzuela & al. (2010)

L1 French participants spent between 0 and 1.5 year in a Spanish-speaking country, but mostly learned Spanish through formal classroom education. Even though we will henceforth call this group the L2 speakers, it should be noted that all the French speakers also had English as a second or third language. As for the fourth language, two L1 French participants had Portuguese, two had German, one had Italian and one had Latin. The HS were aged between 18 and 41. Five of them were born in Canada and one moved to Canada at the age of four, two at the age of seven and two at the age of nine³. In Canada, they were all schooled in French. Seven lived in the city of Gatineau, one in Quebec City and two in Ottawa. The table below illustrates the Spanish dialects that the HS participants were exposed to.

Dialect	Number of participants
Mexican Spanish	3
Argentinian Spanish	2
Chilean Spanish	1
Peninsular Spanish	2
Peruvian Spanish	2

In the language background questionnaire, four HS indicated that they spoke Spanish every day at home while the other six HS indicated that they spoke Spanish at least once a week with a family member. All the HS also had English as a third language, and one HS had Italian as a fourth language.

³ Because four of the HS participants were old enough to have received formal education in Spanish before they moved to Canada, we thought it was a possibility that they would behave differently from the other HS. However, after comparing their results with those of the other HS, we observed no significant difference for all the conditions and therefore decided to keep all the HS in the same experimental group.

5.2 Tasks⁴

All the participants took an independent, standardized proficiency test for Spanish (Wisconsin test) to ensure that their level was adequate (i.e. advanced) to participate to the study and to keep the groups as homogeneous as possible. The test consisted of 26 questions on language usage and 8 reading comprehension questions. Only one heritage speaker made one mistake, and all the French speakers made four mistakes or less. Once it was confirmed that the participants had an advanced level of Spanish, they had to complete a language background questionnaire (see Appendix A) in which they were asked their age, sex, occupation, first language learned, language currently spoken at home as well as questions on how and when they learned and use all of their languages. The participants also had to self-evaluate their level for each language for each of the following skills: listening comprehension, oral production and reading. The possible levels for each skill were: beginner, intermediate, advanced, near native, native. The tables below shows the Wisconsin test and skills auto-evaluation results of both experimental groups (L1 French and HS).

⁴ The scaled judgement task and the written production task were created by the Language Acquisition Lab of University of Ottawa and administered to various other groups of speakers. The results were presented at several conferences.

L1 FRENCH (N=23)	
MEAN AGE	37.2
MEAN AGE BEGAN LEARNING SPANISH	21
WISCONSIN TEST MEAN RESULT (MAXIMUM=36)	29.2
% ADVANCED ORAL COMPREHENSION	61%
% NEAR NATIVE ORAL COMPREHENSION	39%
% INTERMEDIATE ORAL PRODUCTION	4%
% ADVANCED ORAL PRODUCTION	59%
% NEAR NATIVE ORAL PRODUCTION	37%
% INTERMEDIATE READING COMPREHENSION	4%
% ADVANCED READING COMPREHENSION	46%
% NEAR NATIVE READING COMPREHENSION	50%

HS (N=10)	
MEAN AGE	27.9
WISCONSIN TEST MEAN RESULT (MAXIMUM=36)	35.5
% NATIVE ORAL COMPREHENSION	100%
% NATIVE ORAL PRODUCTION	100%
% NATIVE READING COMPREHENSION	100%

Once it was confirmed that the participants had the required language profile, they were asked to proceed with the experiment. In order to answer our research questions, participants were given two offline tasks: a scaled judgement task (see Appendix B) and an elicited written production task (see Appendix C).

5.2.1 Scaled judgement task

The first task was a scaled judgement task that contained 51 questions. There were 24 experimental items with four conditions (forward anaphora with a null subject, forward anaphora with an overt subject, backward anaphora with a null subject, and backward

anaphora with an overt subject), and six items per condition (two targeting the subject as the antecedent, two targeting the object as the antecedent and two targeting a deictic referent). There were three different question lists attributed randomly to the participants. The questions in all three lists were the same, but the target antecedent was different in each list in order to ensure that the sentence and the order were not influencing the participants. The questions consisted of a context sentence with a main clause and a subordinate clause, a question on who performed the action and an answer. Participants were shown sentences like (19) on a PowerPoint presentation. All the context sentences were ambiguous as both possible referents were matched in number and gender and the context was pragmatically ambiguous. Again for forward anaphora, the main clauses consisted of a noun phrase and a verb followed by an indirect object. The subordinate clause consisted of a conjunction followed by a pronoun (null or overt), a verb and a complement. For backward anaphora, the subordinate clause came first. All the clauses were canonical, i.e. they respected the subject-verb-complement (SVO) order. Participants were given instructions on a PowerPoint. They were asked to not revise their answers. The experiment started with two sample questions, so that the participants could get familiar with the keyboard and the procedure, followed by the experimental questions.

- (19) Mientras ella miraba por la ventana, Anita vio a Teresa.
While she was looking out the window, Anita saw Teresa.
¿Quién miraba por la ventana?
Who was looking out the window?
Anita

Participants then had to rate the target item on a 5-point Likert scale, and circle the appropriate answer on their answer sheet:

1 = completely unacceptable, the sentence is strange

2 = relatively unacceptable, but not completely

3 = cannot decide

4 = relatively acceptable, but not as good as 5

5 = completely acceptable, the sentence sounds natural

This experiment was conducted offline. The table below gives an example of a question for each condition and target antecedent.

Question	Condition	Target antecedent
Jorge vio a Enrique mientras iba conduciendo. ¿Quién iba conduciendo? Jorge	Forward null	Subject
Beatriz almorzó con Sara cuando estaba de vacaciones. ¿Quién estaba de vacaciones? Sara	Forward null	Object
Silvia ayuda a Lucía porque es una buena amiga. ¿Quién es una buena amiga? Ni Silvia ni Lucía sino otra persona.	Forward null	Other
Juan saludó a Pablo mientras él cerraba la puerta. ¿Quién cerraba la puerta? Juan	Forward overt	Subject
Ernesto le leía a Carlos mientras él estaba sentado en el sofá. ¿Quién estaba sentado en el sofá? Carlos	Forward overt	Object
Luisa hizo un retrato de Nancy mientras ella estaba sentada en una silla. ¿Quién estaba sentada en una silla? Ni Luisa ni Nancy sino otra persona.	Forward overt	Other

Mientras estaba estudiando en Madrid, Isabel vivía con Ana. ¿Quién estaba estudiando en Madrid? Isabel	Backward null	Subject
Como tenía el día libre, Beatriz almorzó con Sara. ¿Quién tenía el día libre? Sara	Backward null	Object
Como es una buena amiga, Sofía pasa mucho tiempo con Lucía. ¿Quién es una buena amiga? Ni Sofía ni Lucía sino otra persona.	Backward null	Other
Mientras ella miraba por la ventana, Anita vio a Teresa. ¿Quién miraba por la ventana? Anita	Backward overt	Subject
Mientras él tomaba un café, Pedro se sentó con Francisco. ¿Quién tomaba un café? Francisco	Backward overt	Object
Mientras ella escucha música, María cocina para Sara. ¿Quién escucha música? Ni María ni Sara sino otra persona.	Backward overt	Other

5.2.2 Elicited written production task

The production task consisted of 51 questions, 24 of which were used for the data collection. As in the scaled judgement task, there were 27 experimental questions, with six items (two targeting the subject as the antecedent, two targeting the object as the antecedent and two targeting a deictic referent) in each of the four conditions (forward anaphora with a null pronoun, backward anaphora with a null pronoun, forward anaphora with an overt pronoun, and backward anaphora with an overt pronoun). There were also 27 distractor items. There were two different lists of questions (the sentences were the same but with different target antecedents) and they were attributed to participants randomly to ensure that the sentence and the order were not influencing their answers. The questions consisted

of a sentence like (20) with a subordinate clause and a main clause, followed by a question on who was performing the action. All the context sentences were ambiguous, in that both referents were of the same gender and number. Both the null and the overt pronouns could refer to both the matrix subject and object. All of the sentences were, to the best of our knowledge, pragmatically ambiguous. In forward anaphora, the main clauses consisted of a noun phrase and a verb verb (such as *cantar* [to sing], *almorzar* [to have lunch], *conocer* [to meet], etc.) followed by an indirect object. The subordinate clause consisted of a conjunction (such as *mientras* [while], *como* [since], *cuando* [when], etc.) followed by a subject (null or overt), a verb and a complement. The subordinate clause came first in backward anaphora. All the clauses were canonical, i.e. they respected the subject-verb-complement (SVO) order.

(20) Laura conoció a Emilia mientras estudiaba en Montreal.

Laura met Emilia while (she) was studying in Montreal.

¿Quién estudiaba en Montreal?

Who was studying in Montreal?

Participants were first explained the task, and were given four examples before they started the experiment. They had to produce the name of the person or write that it was a third person (deictic referent). This experiment was completed also offline and participants could take as long as they needed to answer all the questions. The table below gives an example of a question for each condition.

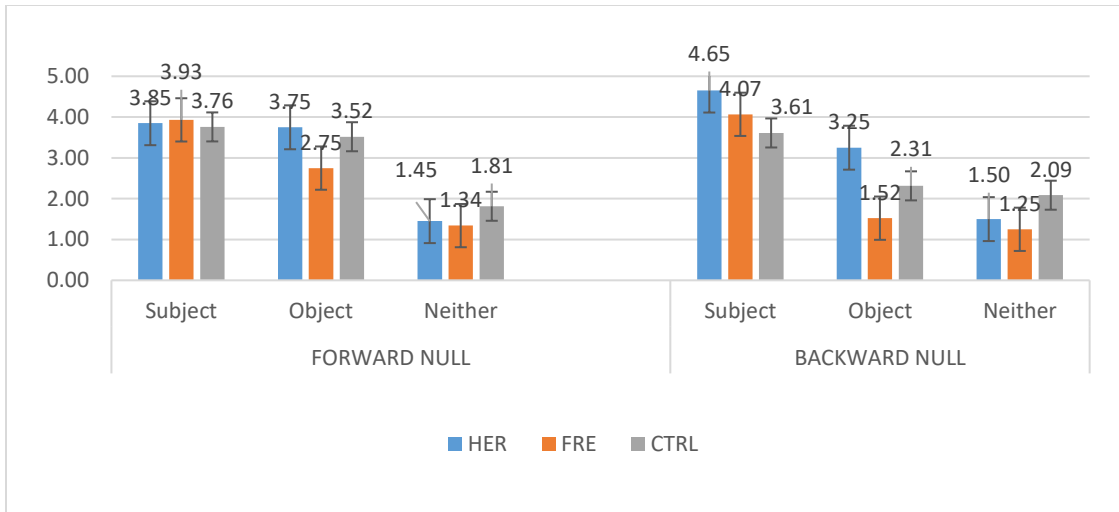
Question	Condition
Laura conoció a Emilia mientras estudiaba en Montreal. ¿Quién estudiaba en Montreal?	Forward null
Mientras ella estaba sentada en el sofá, Susana le cantó a Luisa. ¿Quién se sentaba en el sofá?	Forward overt
Mientras visitaba la ciudad, María almorzó con Ana. ¿Quién visitaba la ciudad?	Backward null
Mientras ella se tomaba un café, Angela habló con Nancy. ¿Quién se tomaba un café?	Backward overt
Carmen cree que Ágata admira a su jefe. ¿A quién cree Carmen que admira Ágata?	Distractor

6. Results

6.1 Scaled judgement task

In Table 1 we show the average rating for all groups with null pronoun interpretation in both forward and backward anaphoric constructions.

Table 1 Forward and backward anaphora with null pronoun



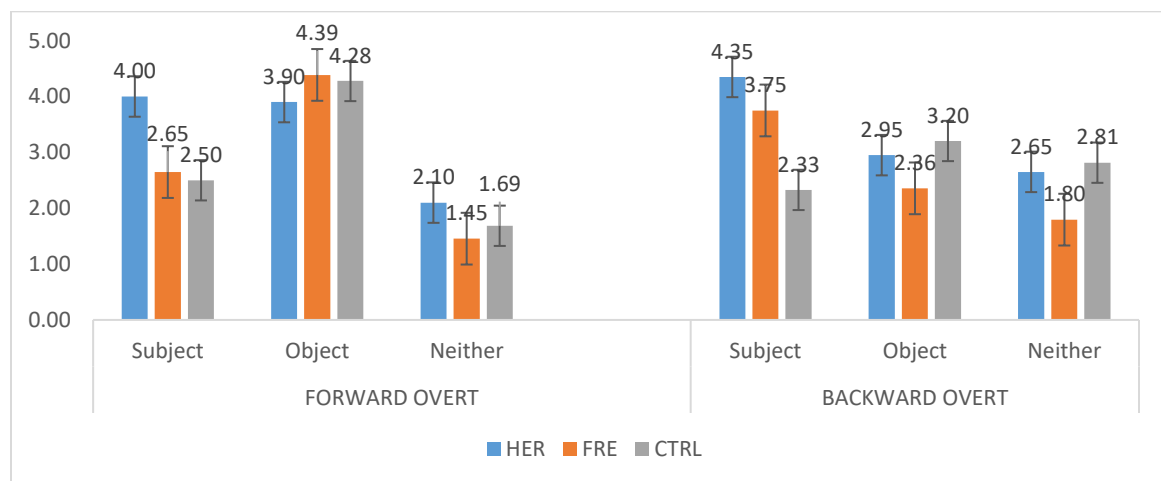
As can be seen in Table 1, there was no significant difference of the ratings between groups for forward anaphora. However, a significant difference was found between groups for backward anaphora in the object condition where the HS were the most accepting of this antecedent with an average of 3.25, while the French speakers gave it only 1.6 in average. The control group's average rating was slightly closer to the French speakers' at 1.52. For backward anaphora with the object as the antecedent of the null pronoun, a three-way factorial ANOVA showed a significant difference between the HS and the French speakers' results ($F(1,17) = 23.04377, p < 0.001$). In both the forward and backward anaphora, all three groups rated sentences with a 'deictic'⁵ referent as the antecedent relatively low. When comparing the ratings for one group at a time for both types of anaphora, we observe no significant difference between the French and the HS' rating of the subject as the antecedent of the null pronoun in backward anaphora and their rating of

⁵ The tasks were made without a full context. That is, the anaphoric relationship is established within the sentence but the tasks did not provide a logical third party outside of the sentence, a 'deictic' reading. However, we will assume that the « neither a nor b but rather someone else » option was given a logical deictic reading.

the same condition in forward anaphora. However, there was no within group significant difference between the control group's rating of the subject as the antecedent of the null pronoun in forward anaphora and its rating of this condition in backward anaphora. The HS' ratings for the object as the antecedent of the null pronoun in forward anaphora showed no significant difference with their ratings of the same condition in backward anaphora, while both the control group and the French speakers rated this condition differently in both types of anaphora (CTRL: $F(1,4) = 0.75283, p = 0.00496$; FRE: $(F(1,4) = 0.75283, p = 0.0011)$). None of the three groups showed significant difference between their ratings of the deictic referent in forward anaphora and in backward anaphora.

Turning to Table 2, we see the average ratings for forward and backward anaphora with overt pronouns.

Table 2 Forward and backward anaphora with overt pronoun

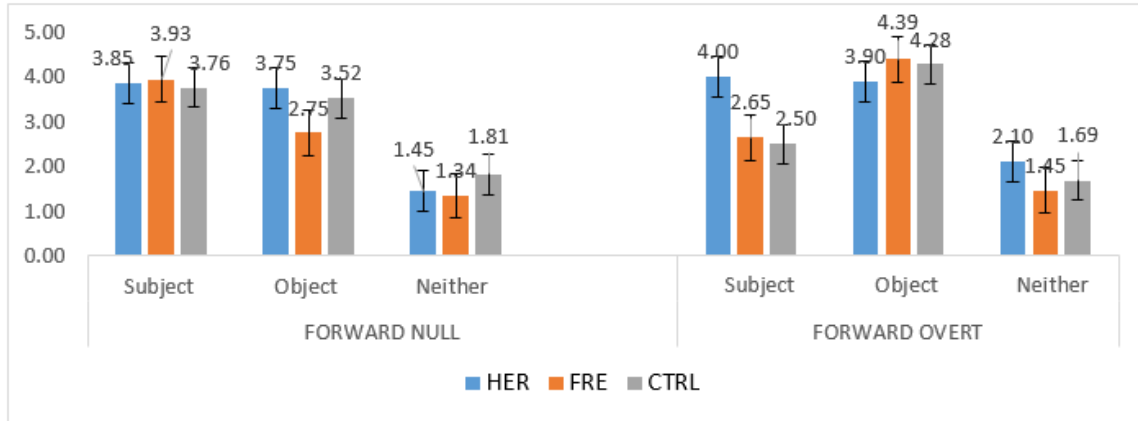


We then compared the participants' ratings for the forward and backward anaphora with an overt pronoun. We can observe an important discrepancy between the groups' ratings

of forward anaphora with the subject as the antecedent of the overt pronoun. The HS rated it 4 in average while the French speakers and the control group rated it significantly lower at 2.65 and 2.5 respectively. A three-way factorial ANOVA showed a significant difference between the HS and the control group ($F(1,17)=17.89278$, $p=0.02907$), but not between the French speakers and the control group. When comparing the ratings of all three groups for the subject as the antecedent of the overt pronoun in forward anaphora with their ratings of this condition in backward anaphora we observe that all three groups treated the two anaphora similarly and the three-way factorial ANOVA revealed no significant difference. The HS also rated very high (4.35) backward anaphora with the subject as the antecedent of the overt pronoun compared to the French speakers (3.75) and the control group (2.33). As for the deictic referent, the HS were the most accepting, although not by much since all three groups rated this type of anaphora relatively low, with no significant difference between their ratings. However when comparing the ratings of each group individually for both types of anaphora, the three-way factorial ANOVA revealed significant difference in the control group's ratings of the object and of the deictic referent (OBJ: $F(1,4)=4.50081$, $p=0.00698$; DEI: $F(1,4) = 4.50081$, $p=0.00299$). The French speakers' ratings of the object as the antecedent in both types of anaphora were also significantly different ($F(1,4)=4.50081$ $p<0.001$). There was no significant difference for the HS' ratings when comparing the same condition in both types of anaphora.

Table 3 illustrates average ratings for forward anaphora with null and overt pronouns.

Table 3 Forward anaphora with null and overt pronouns

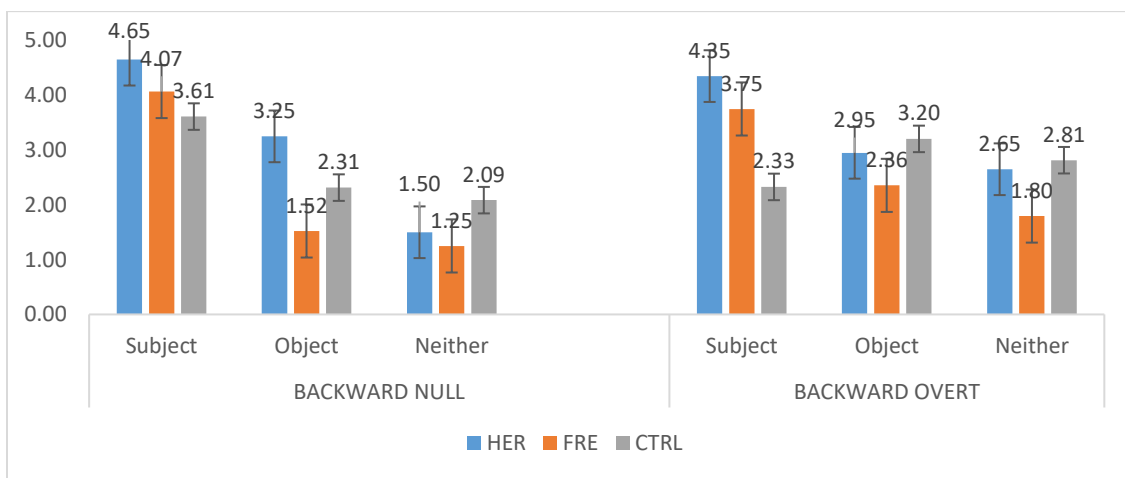


As can be seen, there was no significant difference between the ratings of all three groups for all three possible antecedents in forward anaphora with the null pronoun. The HS were relatively accepting of the matrix subject as the antecedent of both the null and the overt pronoun in forward anaphora. However, while the French speakers and the control group rated the subject as the antecedent of the null pronoun in forward anaphora similarly to the HS, they rated it much lower when it was the antecedent of the overt pronoun ($F(1,17)=24.29134$, $p=0.00513$). The three-way factorial ANOVA also showed a significant difference between the HS and the control group for this condition ($F(1,17)=24.29134$, $p=0.0253$). There was no significant difference between the three groups when the object was the antecedent of the overt pronoun in forward anaphora. As for the deictic referent, all three groups rated it relatively low for both types of pronouns in forward anaphora. As for the comparison within the groups, the three-way factorial ANOVA showed that only the French speakers and the control group rated the subject as the antecedent of the null pronoun in forward anaphora differently from the same condition with an overt pronoun (FRE: $F(1,4)=3.83424$, $p=0.00513$; CTRL: $F(1,4)=3.83424$,

$p < 0.001$). Moreover, the French speakers were the only group whose ratings of the overt pronoun differ significantly in both types of anaphora ($F(1,4)=3.83424, p < 0.001$).

Turning now to Table 4, we see the results for backward anaphora with null and overt pronouns.

Table 4 Backward anaphora with null and overt pronouns



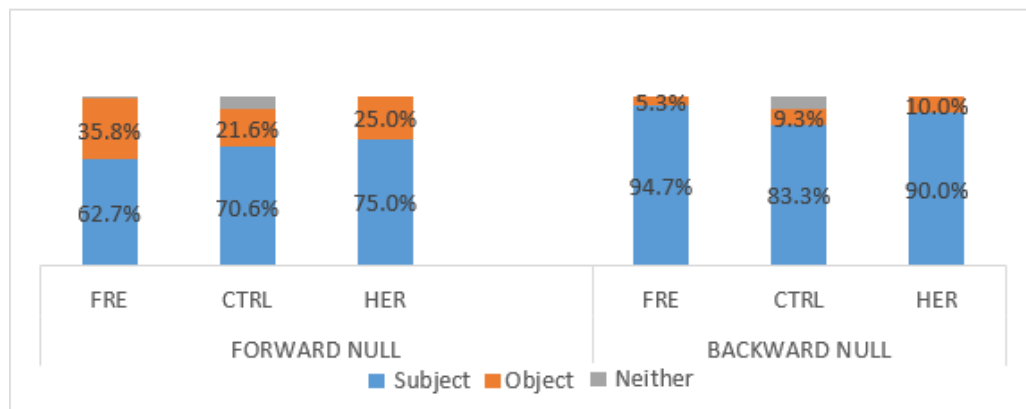
For this table, the three-way factorial ANOVA shows that the control group rated the subject as the antecedent of the overt pronoun significantly lower than when it was the antecedent of the null pronoun ($F(1,4)=3.02917, p < 0.001$), while the ratings of the French speakers and the HS were almost the same for both pronouns. Again, the HS (at 3.25) were the most accepting of the object as the antecedent of the null pronoun in backward anaphora, while the French speakers rated it relatively low (1.52) and the control group somewhere in between (2.31). The three-way factorial ANOVA showed a significant difference between the French speakers and the HS for this condition ($F(1,17)=16.74715, p < 0.0017$). No significant difference was found for the overt pronoun in backward

anaphora. The deictic referent was rated higher in backward anaphora than in forward anaphora by all three groups.

6.2 Written production task

When comparing the forward and backward anaphora with null pronouns as shown in Table 5, we observe that all three groups strongly preferred the subject as the antecedent.

Table 5 Forward and backward anaphora with null pronoun

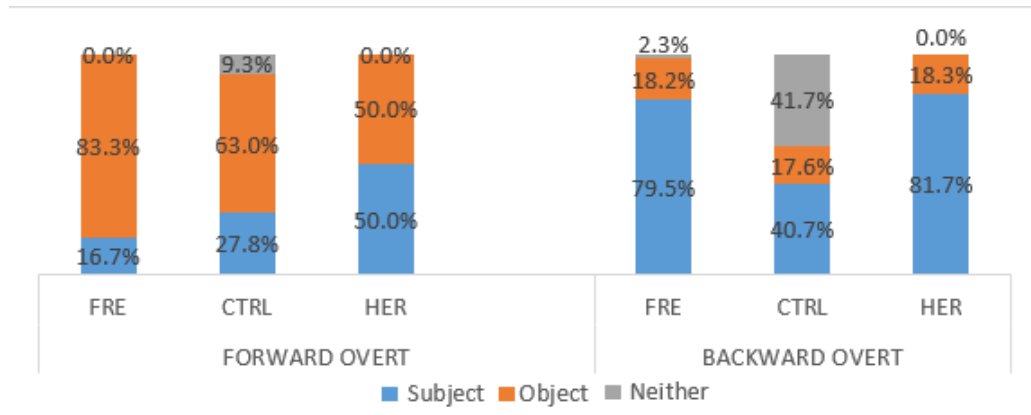


A three-way factorial ANOVA showed no significant difference between the groups for the subject antecedent. However, for the object antecedent in forward anaphora with a null pronoun, the three-way factorial ANOVA revealed significant difference between the French speakers and the other groups: the French speakers chose the object more frequently than the control group ($F(1,17)=96.25642, p=0.04138$). There was no significant difference for the deictic referent in forward anaphora. When comparing the results within each group between the two types of anaphora, we observe that the French speakers chose the subject as the antecedent of the null pronoun more frequently in backward anaphora

than in forward anaphora ($F(1,17)=96.25642, p<0.001$), but that there was no significant difference for this condition for the HS. As for the object, the three-way factorial ANOVA revealed that only the French speakers treated the object differently in the forward and backward anaphora, choosing it significantly more often in forward anaphora ($F(1,4)=5.10827, p<0.001$).

In Table 6 we compare the forward and backward anaphora with an overt pronoun.

Table 6 Forward and backward anaphora with overt pronouns

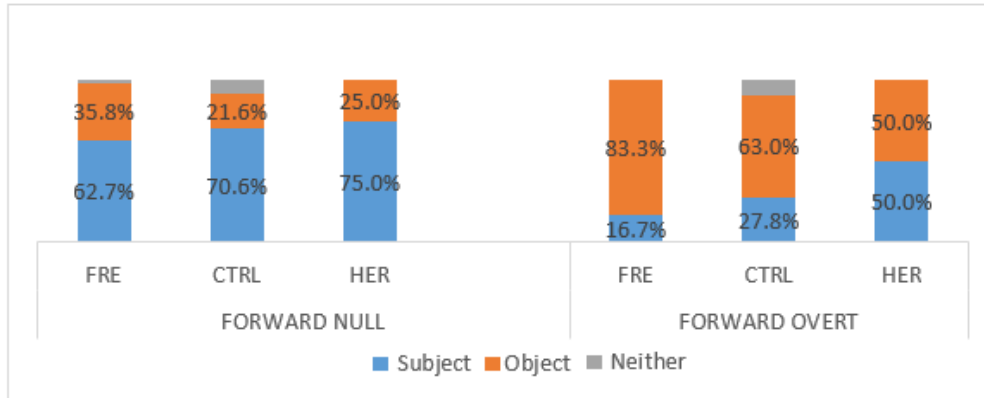


As shown in Table 6, an important discrepancy can be observed when comparing the forward and backward anaphora with overt pronouns. In forward anaphora, both the French speakers and the control group strongly preferred the object as the antecedent of the overt pronoun, while the HS were more indecisive and accepted both the subject and the object 50% of the time. The three-way factorial ANOVA showed a significant difference between the HS and the other two groups for the subject antecedent (FRE: $F(1,17)=38.67072, p<0.001$; CTRL: $F(1,17)=38.67072, p<0.001$). As for backward anaphora with the overt pronoun, both the French speakers and the HS strongly preferred the subject as the

antecedent, while the control group's favorite option was the deictic referent (although by only 1%). The control group was the only group that chose the deictic referent with a significant frequency. The three-way factorial ANOVA showed significant differences between the control group and French speakers, and between the French speakers and HS, regarding the choice of the object as the antecedent of the overt pronoun in forward anaphora (CTRL-FRE: $F(1,17)=38.67072$, $p<0.001$; CTRL-HER: $F(1,17)=38.67072$, $p<0.001$). When comparing the results within each group for the subject between the two types of anaphora, we observe that all three groups chose the subject more often in backward anaphora than in forward anaphora. The three-way factorial ANOVA revealed significant difference for all three groups for this condition (FRE: $F(1,4)=12.37241$, $p<0.001$; CTRL: $F(1,4)=12.37241$, $p=0.0485$; HER: $F(1,4)=12.37241$, $p<0.001$). As for the object, the three-way factorial ANOVA revealed significant difference between the two types of anaphora for both the French speakers and the HS (FRE: $F(1,4)=12.37241$, $p<0.001$; HER: $F(1,4)=12.37241$, $p<0.001$). The control group is the only group that treated the deictic pronoun differently in both types of anaphora, choosing it significantly more often in backward anaphora ($F(1,4)=12.37241$, $p<0.001$).

We also compared the preferred antecedents for both types of pronouns in forward anaphora, as shown in Table 7.

Table 7 Forward anaphora with null and overt pronouns

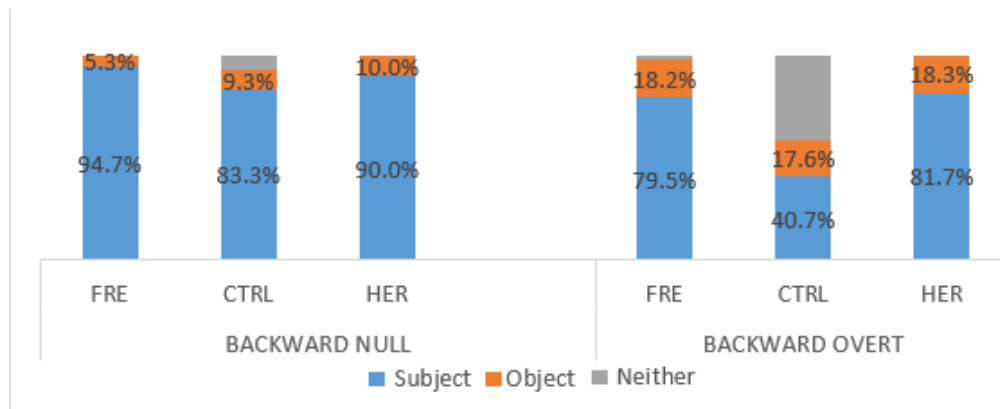


When the sentence contained a null pronoun, all three groups strongly preferred the subject as the antecedent, but still chose the object between 21% and 35% of the time, with the French choosing it the most often. Both the French speakers and the control group preferred the object as the antecedent of the overt pronoun in forward anaphora, while the HS accepted equally the subject and the object. Only the control group seldom chose the extralinguistic referent as the antecedent of the null and overt pronoun in forward anaphora. All three groups chose the subject as the antecedent less often for the overt pronoun than for the null pronoun. The results within the French and the HS groups for the subject between both types of pronouns were proven significantly different by the three-way factorial ANOVA (FRE: $F(1,4) = 3.41843, p = 0.001$; HER: $F(1,4) = 3.41843, p = 0.00294$) in forward anaphora with a null pronoun. As for the object, the three-way factorial ANOVA showed significant difference for the HS ($F(1,4) = 3.41843, p = 0.00294$). There was no significant difference between and within the groups for the deictic referent in forward anaphora with a null pronoun. As for forward anaphora with an overt pronoun, there was significant difference between the French and HS, and between the control group and the HS, which HS choosing it more often than the other two groups did (FRE-HER: $F(1,17) =$

35.94568; $p < 0.001$, CTRL-HER: $F(1,17) = 35.94568$, $p < 0.001$). As for the object antecedent for this condition, there was significant difference between the French speakers and the other two groups, with the French speakers choosing it most often (FRE-CTRL: $F(1,17) = 35.94568$, $p = 0$; FRE-HER: $F(1,17) = 35.94568$, $p < 0.001$).

As seen in Table 8, the subject was always the preferred option by all three groups in backward anaphora, except for the control group when there was an overt pronoun.

Table 8 Backward anaphora with null and overt pronouns



The three-way factorial ANOVA showed no significant difference between the groups when the subject was the antecedent of the null pronoun. When comparing the results within each group for the subject as the antecedent, we observe significant difference for the French speakers and the control group only (FRE: $F(1,4) = 14.87085$, $p = 0.0022$; CTRL: $F(1,4) = 14.87085$, $p < 0.001$). As for the object, the three-way factorial ANOVA showed no significant difference within the groups. However, the control group chose the deictic referent significantly more often when there was an overt pronoun than when there was a null pronoun ($F(1,4) = 14.87085$, $p < 0.001$). There was significant difference between the

bilingual groups and the control group regarding the subject as the antecedent of the overt pronoun (FRE-CTRL: $F(1,17) = 159.55865$, $p < 0.001$; CTRL-HER: $F(1,17) = 159.55865$, $p < 0.001$), with the heritage and the French speakers choosing it a lot more often than the control group did. There was no significant difference between the groups for the object as the antecedent of the overt pronoun. However, the three-way factorial ANOVA revealed significant difference between both bilingual groups and the control group for the deictic referent (FRE-CTRL: $F(1,17) = 159.55865$, $p < 0.001$; CTRL-HER: $F(1,17) = 159.55865$, $p = 0$).

7. Discussion

In this section, we will discuss the results and compare them with those of previous studies while answering our research questions. Overall results are in line with previous studies in that the experimental groups behave similarly to the control group regarding forward anaphora with a null pronoun, but less so when there is an overt pronoun, especially in backward anaphora. As expected, the HS exhibited more optionality than the other groups, rating both the subject and object relatively high in both the forward and backward anaphora. Surprisingly, the French speakers had the most clear-cut bias of all three groups, except in backward anaphora with an overt pronoun. Let us now look more closely at the results of the control group.

In the scaled judgement task, the native speakers gave similar ratings to the subject and the object as the antecedents of the null pronoun in forward anaphora, but did respect the PAH in backward anaphora. These results are in accordance with those of Alonso-Ovalle & al. (2002), in which the Spanish monolinguals only chose the object as the antecedent of

the overt pronoun 50% of the time (although this was in intersentential anaphora), and with those of Filiaci (2011) who demonstrated that the bias of the overt pronoun is a lot less strong than that of the null pronoun in Spanish. These results contrast with those of Keating & al. (2014), whose Mexican monolingual group did respect the PAH. Filiaci (2011) argues that this could be explained by the fact that the Spanish overt pronoun does not facilitate a topic change like the Italian pronoun does. As for the difference between our results and those of Keating & al.'s (2014), it should be noted that their experiment was conducted on Mexican Spanish, while our participants and those of Alonso-Ovalle & al. (2002) and Filiaci & al. (2011) are from Spain. That is, overt pronoun antecedent interpretation may possibly be subject to variation. However, this optionality was not reflected in the elicited production task, in which the native speakers had a clear preference for the subject as the antecedent of the null pronoun in both backward and forward anaphora.

As for the scaled judgement task results regarding the overt pronoun, the control group was respectful of the overt pronoun's bias in forward anaphora, rating the object significantly higher than the other two options. However, in backward anaphora, they rated similarly the object and the "other" referent. The results of the production task reflected these judgement task results: the object was the preferred antecedent in forward anaphora, but was chosen as frequently as the "other" referent in backward anaphora.

To summarize, our control group obtained results similar to those of Geber (2006), Alonso-Ovalle & al. (2002), Filiaci & al (2014) Belletti & al.(2007, Serratrice (2007), Sorace & Filiaci (2006) and Tsimpli & al. (2004): they seem to respect the null pronoun's bias, although to a lesser extent than Carminati's (2002) participants, and while they respect

the overt pronoun's bias in forward anaphora, it is less true for backward anaphora. Unlike Croatian in Kras' (2006) study, it appears that Spanish and Italian are not a perfect overlap.

When looking at the judgement task results for the L2 speakers, we observe that they almost always behave similarly to the control group, except in backward anaphora with an overt pronoun and for the deictic referent, which they always rate lower. These results are reflected in the production task, which means that overall our L2 speakers did not behave like the L2 speakers of previous studies in which they tended to prefer the subject as the antecedent of the overt pronoun in forward anaphora or had no marked preference for any of the two pronouns (Sorace & Filiaci 2000, Benneti 2007, Kaltsa & al. 2015). Unexpectedly, their bias for the overt pronoun was even stronger than that of the control group. This could be explained by the fact that in French, the antecedent is almost always the closest one to the pronoun, which means that it is "natural" for them to respect the overt pronoun bias in forward anaphora, and the null pronoun bias in backward anaphora. This would also explain why they were not as respectful of the null pronoun bias in forward anaphora. If we look at the HS' results for the scaled judgement task, we can see that they are generally the most accepting group of both the subject and object antecedent. In backward anaphora with a null pronoun, they rated the object a lot higher than the other two groups did, while also rating the subject very high, which shows, as expected, that they exhibit more optionality than the other groups. Another proof of this optionality is that in forward anaphora with an overt pronoun, they rated the subject antecedent very high (as high as the object), instead of having a marked preference for the object like the French and control groups.

In the production task, the HS behaved like the other groups for both types of anaphora with a null pronoun and in backward anaphora with an overt pronoun. However, they were very indecisive in forward anaphora with an overt pronoun and chose the subject and the object equally as often, which is in accordance with the results of other studies (Keating & al. 2011, Garcia-Alcaraz & Bel 2014). Let us now look at the research questions.

Our first research question asked whether native French speakers learning Spanish in adulthood could acquire the same interpretation bias as native Spanish speakers. The results of the judgement task indicate that overall, they do have the same interpretation biases for both the forward and backward anaphora with a null pronoun. Just like the control group, they preferred the subject antecedent in both the forward and backward anaphora. One interesting fact is that they rated the object antecedent in both types of anaphora lower than the control group did, which is unexpected considering the findings of Colonna & al. (2010) according to which French speakers are supposed to always prefer the object antecedent. Tsimpli & al. (2003) observed similar results with their English L2 speakers. They hypothesize that the L2 speakers might be treating the subordinate clause as an infinite clause, which would read like (21) in their example in English.

(21) The old woman greeted the girl, while crossing the street.

(Tsimpli & al. 2003)

The progressive tense could also be used to create a similar sentence in French, as in (22).

(22) La vieille dame a salué la fille en traversant la rue.

In this case, just like Tsimpli & al.'s (2003) example, the matrix subject has to be performing the action in the subordinate clause, which could explain the lower ratings for the object antecedent. In the production task however, the French speakers produced more object antecedents than the control group did, but still produced significantly more subject antecedents for the null pronoun. This confirms that French speakers do respect the null pronoun bias, to a certain extent. In forward anaphora with an overt pronoun, the French speakers' ratings were very similar to those of the native speakers, preferring the object antecedent. However, in backward anaphora, the French speakers rated significantly higher the subject antecedent, which goes against the PAH and is in contrast with the control group's preference. As suggested by Belletti, Bennati and Sorace (2007), choosing the matrix subject as the antecedent of the overt pronoun goes against the PAH, and could explain why the control group rated the object and the deictic referent higher. While the native speakers seem to apply a constraint to the overt pronoun that prevents it from referring to the sentence matrix, this constraint is not as strong for the French speakers, most likely because of the absence of null pronouns in their L1. Furthermore, because there are only overt pronouns in French, in backward anaphora there is no ambiguity and the antecedent is always the noun phrase closest to the verb. The results of the production task were representative of the ratings in the judgement task. French speakers produced a lot more object antecedents in forward anaphora and a lot more subject antecedents in backward anaphora. For backward anaphora, the control group did not respect the PAH either, but instead chose the subject antecedent and the deictic referent equally as often (over 40% of the time). Overall, we can say that the French speakers do respect the PAH

and do behave like native speakers for the null pronoun bias, and in forward anaphora with an overt pronoun. However, they do not respect the PAH in backward anaphora with an overt pronoun and also do not have the exact preferences as the control group.

Our second research question asked whether HS of Spanish who grew up in a French environment could acquire the same interpretative strategies as native speakers. In forward anaphora with a null pronoun, the HS rated both the subject and the object antecedent quite high, which is similar to the control group. However, in backward anaphora, even though they still had the same preference as the control group, the HS rated both the subject and the object higher than the control group did. In the production task, they produced subjects more than 75% of the time in both the forward and backward anaphora with a null pronoun, which was similar to what the control group did. In forward anaphora with an overt pronoun however, they behaved differently, rating the subject antecedent much higher than the other groups did while also being accepting of the object antecedent. In backward anaphora, they also rated the subject much higher than the control group did. Overall the results indicate that HS do behave like the control group when there is a null pronoun. However, they had the weakest bias of all three groups for the overt pronoun. In the production task, they preferred the subject for all types of anaphora except for forward anaphora with the overt pronoun where they picked the object equally as often. Even though HS sometimes perform better than L2 speakers because they have received more input and have spoken the language for longer, it was not the case here. Belletti, Bennati and Sorace (2007) suggested that because bilingual speakers have access to both grammatical systems, they might have access to more options for the realization of overt pronouns than the monolingual speakers

do. Since the French speakers have not been bilingual for as long, it is possible that they have not yet restructured their grammar.

Our third research question asked if the type of exposure to Spanish influences the extent to which HS and L2 speakers of Spanish acquire the pronoun biases. Let us first compare the results for both groups to see in what ways HS and French speakers answered differently. For both types of anaphora with the null pronoun, the HS were more accepting of all the options (except the subject in forward anaphora) than the French speakers. As for the anaphora with an overt pronoun, they rated every option close to or higher than the French speakers did. In backward anaphora, they preferred the subject as the antecedent of both the null and overt pronouns. All this shows that they are clearly more tolerant of the antecedents that go against the PAH than the other groups. This could be explained by the fact that the input that HS receive might already be affected by previous attrition or language contact consequences. It has been shown that structural proximity encourages attrition, and especially so when there is a partial overlap (Tsimpli & al. 2003), which is the case for the pronouns in French and Spanish. In the case of the participants of this study, not only could they have received input influenced by French, but also by English because of the proximity between the provinces of Quebec and Ontario. Evaluating the quality of the input in the HS' families would have been beyond the scope of this study, but could have provided information as to whether they were exposed to the "right" structures. Indeed, Sorace & al.'s (2009) study supports the theory that the community language has an influence on the bilinguals' performance for anaphora resolution. In their case, they found that bilinguals living in the United Kingdom were more likely than those living in Italy to use the incorrect pronoun, and that they were overly accepting of the subject as the

antecedent of an overt pronoun that was supposed to indicate a topic shift. This could however be justified by Carminati's (2002) theory, according to which the redundant overt pronoun might be the default form in sentences where there is no ambiguity. Moreover, Shin and Cairns (2009) showed that children only started being sensitive to topic switch references between the ages of 7 and 9, which is a few years after the HS of our study started school in French. Because the HS were more tolerant of the pronoun bias violations than the other groups, it appears that early exposure and increased input does not confer an advantage to HS for the anaphora resolution. In accordance with this observation, Montrul (2008) concluded that the HS did not perform better than L2 speakers with regards to grammatical properties that are proved to be acquired after HS are exposed to the majority language.

To sum up, we can affirm that the fact that HS have received more input (because they started learning the language earlier and in a naturalistic environment) is not beneficial with regards to anaphora resolution, and that the main difference between the heritage and the French speakers is that the HS exhibit more optionality.

8. Shortcomings

One limitation of this study is that both experiments were conducted offline. As a result, it is not possible to know if the ratings in the judgement task were the initial reaction of the participants or if they hesitated.

Another limitation is that the age of acquisition of our L2 speakers was very diverse. In Kaltsa et al (2015), because the age of the participants was varied, they decided to split the participants in two groups, young and old, to examine the age factor effects. The results

show that attriters and older monolinguals had similar matching decisions, and the authors suggest that the subject antecedent preference weakens with age. In the same study, the older participants showed weaker biases than the young ones, allowing both subject and object antecedents more often than the younger participants did. The authors claim that this proves that the vulnerability of the syntax-discourse interface might be influenced by more than attrition or bilingualism. To the best of our knowledge this has not been tested for Spanish pronouns, but it is possible we would observe the same phenomenon.

Moreover, because some previous studies demonstrate differences between peninsular and Latin American Spanish (Alonso-Ovalle & al. 2002, Filiaci 2011, Keating & al. 2014) , using HS of the same dialect would make for more precise results.

9. Conclusion

In conclusion, this study provided new empirical evidence for the acquisition of the Spanish anaphora resolution by French and HS. According to Carminati's (2002) PAH, null pronouns in null subject languages prefer their antecedents in the subject position while overt pronouns prefer their antecedents in the overt position. Our study, in line with Filiaci & al. (2014), demonstrated that despite the resemblance between Italian and Spanish, those biases are not as clear-cut in Spanish. As for the acquisition of the biases, it appears that while the null pronoun bias can be acquired by both French and HS to a certain extent, it is not exactly the case for the overt pronoun bias, especially in backward anaphora because of its complexity and because of the influence of French. The most common outcomes were the frequent selection of the object as the antecedent of both pronouns in the production task and the over-acceptance of the object as the antecedent of the null

pronoun, and the subject as the antecedent of the overt pronoun in the judgement task. As observed in Argyri & Sorace (2007), because of the overlap between the null subject language (Spanish) and the overt subject language (French), crosslinguistic influence is likely to occur from the [-null subject] language to the [+null subject] language. In the future, a longitudinal study of HS that would also take into consideration the input they are exposed to would help measure the influence of the input, and therefore potentially support Rothman's theory that the HS' grammars can be seen as complete versions of emerging grammars.

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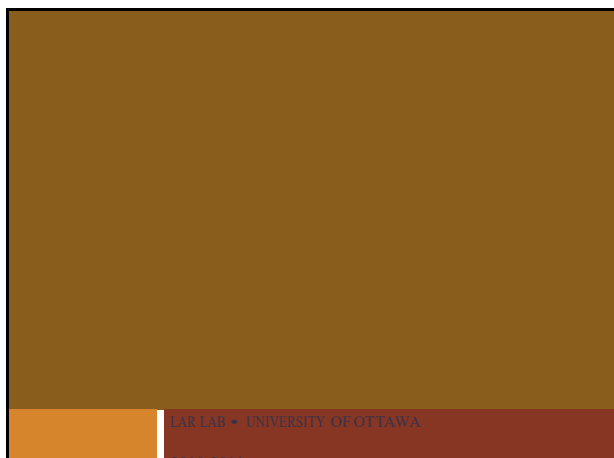
Appendix A – Language Background Questionnaire

1	Nom :		
2	Âge :		
3	Sexe :	M_____	F_____
4	Occupation :		
5	Quelle(s) langue(s) avez-vous parlé en premier lorsque vous étiez enfant?		
6	Quelle(s) langue(s) parlez-vous à la maison maintenant?		
7	Quelle(s) langue(s) parlez-vous? (Inclure votre ou vos langues premières)		
	Langue 1: _____ Langue 2: _____ Langue 3: _____ Langue 4: _____		
Langue 1:			
	<i>À quel âge avez-vous commencé à apprendre ou à parler cette langue?</i>		
	<i>Où avez-vous appris cette langue? (p. ex. À la maison, à l'école primaire ou secondaire, à l'université, etc.)</i>		
	<i>À quelle fréquence et dans quel contexte utilisez-vous cette langue?</i>		
	<i>Avez-vous déjà habité dans un pays où cette langue est parlée? Si oui, quel pays et pendant combien de temps?</i>		
	<i>À quel niveau évaluez-vous vos compétences dans cette langue? (Veuillez encercler une réponse.)</i>	Compréhension orale : débutant intermédiaire avancé quasi langue maternelle langue maternelle Expression orale : débutant intermédiaire avancé quasi langue maternelle langue maternelle Lecture : débutant intermédiaire avancé quasi langue maternelle langue maternelle	
Langue 2			

À quel âge avez-vous commencé à apprendre ou à parler cette langue?	
Où avez-vous appris cette langue? (p. ex. À la maison, à l'école primaire ou secondaire, à l'université, etc.)	
À quelle fréquence et dans quel contexte utilisez-vous cette langue?	
Avez-vous déjà habité dans un pays où cette langue est parlée? Si oui, quel pays et pendant combien de temps?	
À quel niveau évaluez-vous vos compétences dans cette langue? (Veuillez encercler une réponse.)	<p>Compréhension orale :</p> <p>débutant intermédiaire avancé quasi langue maternelle langue maternelle</p> <p>Expression orale :</p> <p>débutant intermédiaire avancé quasi langue maternelle langue maternelle</p> <p>Lecture :</p> <p>débutant intermédiaire avancé quasi langue maternelle langue maternelle</p>
Langue 3	
À quel âge avez-vous commencé à apprendre ou à parler cette langue?	
Où avez-vous appris cette langue? (p. ex. À la maison, à l'école primaire ou secondaire, à l'université, etc.)	
À quelle fréquence et dans quel contexte utilisez-vous cette langue?	
Avez-vous déjà habité dans un pays où cette langue est parlée? Si oui, quel pays et pendant combien de temps?	
À quel niveau évaluez-vous vos compétences dans cette langue? (Veuillez encercler une réponse.)	<p>Compréhension orale :</p> <p>débutant intermédiaire avancé quasi langue maternelle langue maternelle</p> <p>Expression orale :</p>

		débutant intermédiaire avancé quasi langue maternelle langue maternelle
		Lecture : débutant intermédiaire avancé quasi langue maternelle langue maternelle
Langue 4		
	À quel âge avez-vous commencé à apprendre ou à parler cette langue?	
	Où avez-vous appris cette langue? (p. ex. À la maison, à l'école primaire ou secondaire, à l'université, etc.)	
	À quelle fréquence et dans quel contexte utilisez-vous cette langue?	
	Avez-vous déjà habité dans un pays où cette langue est parlée? Si oui, quel pays et pendant combien de temps?	
	À quel niveau évaluez-vous vos compétences dans cette langue? (Veuillez encercler une réponse.)	Compréhension orale : débutant intermédiaire avancé quasi langue maternelle langue maternelle Expression orale : débutant intermédiaire avancé quasi langue maternelle langue maternelle Lecture : débutant intermédiaire avancé quasi langue maternelle langue maternelle
8	Dans quelle langue êtes-vous le plus à l'aise? Classez les langues que vous parlez (1= le plus à l'aise).	1 _____ 2 _____ 3 _____ 4 _____

Appendix B – Scaled Judgement Task



PARTICIPANTE

□ Nombre:

□ Fecha:

- En la siguiente prueba le presentamos una oración en la que se describe una situación y, a continuación, una pregunta relacionada con dicha oración. Se le pide que juzgue si la respuesta que aparece en **negrita** es apropiada.

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

Por favor puntúe cada respuesta en una escala del 1 al 5, donde:

- 1 = es totalmente inaceptable
- 2 = es relativamente inaceptable, pero no del todo
- 3 = es difícil decidir
- 4 = es relativamente aceptable, pero no tanto como (5)
- 5 = es totalmente aceptable

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

- Al terminar cada pregunta pase a la siguiente. Por favor, **NO REVISE LAS ANTERIORES.**

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

- **VAMOS A EMPEZAR CON DOS PREGUNTAS DE PRACTICA Y EL EJERCICIO EMPEZARA A CONTINUACION**

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

Práctica 1

Marta dice que Susana está muy ocupada con la pintura.
¿Qué está pintando?

Susana está haciendo un retrato de sí misma.

1 2 3 4 5
desired response

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

Sample 2

Marta dice que Susana está muy ocupada con la pintura.
¿Qué está pintando?

Susana está haciendo un retrato de sí mismo.

1 2 3 4 5
desired response

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

□ LA PRUEBA COMENZARÁ AHORA...

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

1

Andrea dice que los vasos deberían estar en el armario de la cocina.

¿Qué dice Andrea dónde deberían estar los vasos?

Andrea dice que deberían estar en el armario de la cocina.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

2

Jaime cree que Ricardo ha ido a Montreal a ver a sus padres.

¿A quién cree Jaime que ha ido a ver Ricardo?

Jaime cree que Ricardo ha ido a ver a sus padres

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

3

Mientras ella miraba por la ventana, Anita vio a Teresa.

¿Quién miraba por la ventana?

Anita

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

4

Carmen cree que Ágata admira a su jefe.

¿A quién cree Carmen que admira Ágata?

Carmen cree que a Ágata le gusta su jefe.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

5

Ernesto dice que Miguel salvó a Lidia de ahogarse en la piscina.

¿Qué dice Ernesto a quién salvó Miguel de ahogarse?

Ernesto dice que Miguel salvó a Lidia de ahogarse.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

6

Irene cree que Carlos quiere invitar a todos sus amigos a su cumpleaños.

¿A quién cree Irene a quién Carlos quiere invitar?

Irene cree que Carlos quiere invitar a todos sus amigos.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

7

Elena cree que Miranda debería tomar un curso de español en la universidad.

¿Qué cree Elena dónde debería Miranda tomar un curso de español?

Elena cree que Miranda debería mejorar su español.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

8

Silvia ayuda a Lucía porque es una buena amiga.

¿Quién es una buena amiga?

Ni Silvia ni Lucía sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

9

Mientras ella escucha música, María cocina para Sara.

¿Quién escucha música?

Ni María ni Sara sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

10

Mientras él tomaba un café, Pedro se sentó con Francisco.

¿Quién tomaba un café?

Francisco

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

11

Tomás se fijó en Pedro cuando entró en clase.

¿Quién entró en clase?

Ni Tomás ni Pedro sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

12

Raquel dice que David ha heredado mucho dinero de su abuelo.

¿Quién dice Raquel quién ha heredado mucho dinero?

Raquel dice que ahora David es rico.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

13

Sandra cree que Clara debería esconder el diario en un lugar seguro.

¿Dónde cree Sandra dónde debería Clara esconder el diario?

Sandra cree que Clara debería esconder el diario en un lugar seguro.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

14

Francisco cree que sus hijos prefieren el invierno al verano.

¿Qué cree Francisco quién prefiere el invierno al verano?

Sus hijos prefieren el invierno

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

15

Pedro cree que Jorge espera terminar la tesis este mes.

¿Cuándo cree Pedro cuándo Jorge espera terminar la tesis?

Jorge espera terminar la tesis este mes.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

16

Jorge vio a Enrique mientras iba conduciendo.

¿Quién iba conduciendo?

Jorge

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

17

Ernesto le leía a Carlos mientras él estaba sentado en el sofá.

¿Quién estaba sentado en el sofá?

Carlos

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

18

Julio cree que Josefina se ha ido al extranjero.

¿Quién cree Julio que se ha ido al extranjero?

Josefina se ha ido al extranjero.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

19

Como tenía el día libre, Beatriz almorzó con Sara.

¿Quién tenía el día libre?

Sara

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

20

Mientras estaba estudiando en Madrid, Isabel vivía con Ana.

¿Quién estaba estudiando en Madrid?

Isabel

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

21

Isabel vivía con Ana mientras era estudiante de música.

¿Quién era estudiante de música?

Isabel

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

22

Elisa cree que Mariano quiere acompañar a Rosa a la fiesta.

¿Qué cree Elisa a quién quiere acompañar Mariano a la fiesta?

Elisa cree que a Mariano le gusta Rosa.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

23

Sandra se sentó con Cristina mientras ella se comía una hamburguesa.

¿Quien se comía una hamburguesa?

Cristina

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

24

Catalina cree que Paula va a comprarse una mansión.

¿Qué cree Catalina quién va a comprarse una mansión?

Catalina cree que Paula va a comprarse una mansión.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

25

Jairo dice que Marco conoció al primer ministro la semana pasada en una recepción.

¿A quién dice Jairo a quién conoció Marco la semana pasada?

Marco conoció al primer ministro.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

26

Vicente cree que Sara va a tener el niño en mayo.

¿Qué cree Vicente cuándo va a tener el niño Sara?

Sara va a tener el niño en mayo.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

27

Cuando ella caminaba por la calle, Natalia saludó a Ana.

¿Quién caminaba por la calle?

Natalia

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

28

Sonia dice que Julián bebe demasiado.

¿Quién dice Sonia quién bebe demasiado?

Sonia dice que Julián bebe demasiado.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

29

Mientras estaba viajando por el país, Jorge llamó a Enrique por teléfono.

¿Quién estaba viajando por el país?

Jorge

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

30

Luisa hizo un retrato de Nancy mientras ella estaba sentada en una silla.

¿Quién estaba sentada en una silla?

Ni Luisa ni Nancy sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

31

Javier cree que Laura contrató a Pablo hace dos meses.

¿A quién cree Javier a quién contrató Laura hace dos meses?

Javier cree que Pablo trabaja para Laura.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

32

Paco dice que Marina empujó a José sin motivo.

¿Qué dice Paco a quién empujó Marina?

Marina empujó a José.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

33

Martina dice que el museo debería inaugurarse para el final del año.

¿Cuándo dice Martina que debería inaugurarse el museo?

Martina dice que debería inaugurarse pronto.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

34

Juan saludó a Pablo mientras él cerraba la puerta.

¿Quién cerraba la puerta?

Juan

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

35

Juan cree que María te quiere.

¿Quién cree Juan que te quiere?

Juan cree que María te quiere

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

36

Mientras ella estaba sentada en la escalera, Lorena hablaba con Claudia.

¿Quién estaba sentada en la escalera?

Claudia

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

37

Anita vio a Teresa cuando ella abrió la puerta.

¿Quién abrió la puerta?

Anita

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

38

Teo dice que Nico podría salir del hospital en dos días.

¿Cuándo dice Teo que Nico podría salir del hospital?

Nico podría salir del hospital en dos días.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

39

Beatriz almorzó con Sara cuando estaba de vacaciones.

¿Quién estaba de vacaciones?

Sara

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

40

Marco dice que Silvia tiene muchas cosas que hacer.

¿Quién dice Marco que tiene muchas cosas que hacer?

Marco dice que Silvia está muy ocupada.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

41

Luisa cree que Marisa quiere mencionar el incidente en la próxima reunión.

¿Qué cree Luisa quién quiere mencionar el incidente en la próxima reunión?

Luisa cree que Marisa quiere que todo el mundo sepa lo que pasa.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

42

Gloria cree que Amalia habla swahili porque es de Tanzania.

¿Quién cree Gloria quién habla swahili?

Amalia habla swahili.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

43

Como es una buena amiga, Sofía pasa mucho tiempo con Lucía.

¿Quién es una buena amiga?

Ni Sofía ni Lucía sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

44

Alejandro cocina para Juan mientras él escucha música.

¿Quién escucha música?

Ni Alejandro ni Juan sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

45

Carmen no pudo hablar con Pilar porque perdió el teléfono.

¿Quién perdió el teléfono?

Pilar

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

46

Carolina dice que Leonardo debería vivir en Granada.

¿Dónde dice Carolina dónde debería vivir Leonardo?

Carolina dice que Leonardo debería irse a otra ciudad.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

47

Verónica cree que Inés quiere casarse cuanto antes.

¿Cuándo cree Verónica que quiere casarse Inés?

Verónica cree que Inés quiere casarse cuanto antes.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

48

Cuando entró en la sala, Tomás se fijó en Pedro.

¿Quién entró en la sala?

Ni Tomás ni Pedro sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

49

Como perdió el teléfono, Andrés no pudo ponerse en contacto con Marcos.

¿Quién perdió el teléfono?

Marcos

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

50

Juanita dice que Esteban no escucha a su madre.

¿A quién dice Juanita que no escucha Esteban?

Esteban no escucha a su madre.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural

51

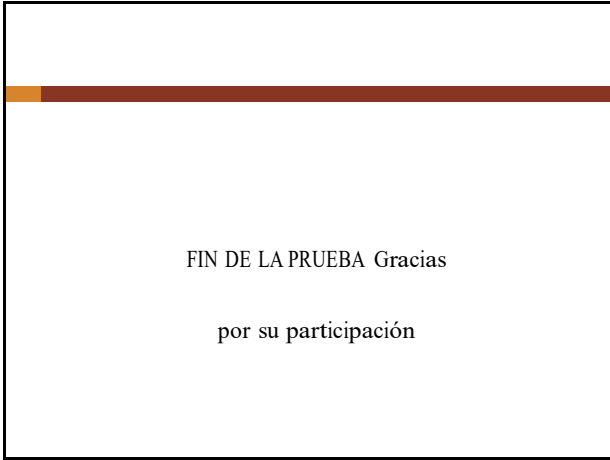
Mientras ella preparaba el café, Luisa hablaba con Marta.

¿Quién preparaba el café?

Ni Luisa ni Marta sino otra persona.

1 2 3 4 5

1=completamente inaceptable, suena raro; 5=completamente aceptable, suena natural



Appendix C – Elicited Written Production Task

NAME: _____

TAREA DE PRODUCCION ESCRITA

En la siguiente prueba le presentamos una oración en la que se describe una situación y, a continuación, una pregunta relacionada con dicha oración. Por favor conteste la pregunta en el espacio señalado.

Tenga en cuenta que, en ocasiones, la pregunta puede parecer poco natural o incluso, incorrecta. Pero, aun en esos casos, le pedimos que haga un esfuerzo por interpretar esa pregunta y nos proporcione la respuesta que le parezca más apropiada.

WRITTEN PRODUCTION TASK

In the following test you will read a context sentence followed by a question about this sentence. Please answer the question with the response that feels most natural to you.

Please keep in mind that, on occasion, the question may sound unnatural or even incorrect. However, even in these cases we ask that you make an effort to interpret the question and answer it in the way that sounds most natural to you.

EJEMPLO/SAMPLE:

Juan saludó a María mientras pintaba un retrato de si misma.

¿Quién pintaba un retrato de si misma?

RESPUESTA POSIBLE: *María*

Alvaro comió con Laura cuando ella fue a visitarlo.

¿Quién fue a visitarlo?

RESPUESTA POSIBLE: *Laura*

José está seguro de que Tomás se va a Boston con Marta.

¿Quién se va Tomás a Boston con?

RESPUESTA POSIBLE: *Se va con Marta.*

Laura dice que Miguel debería buscar trabajo en Europa en el verano.

¿Qué dice Laura?

RESPUESTA POSIBLE: *Que Miguel debería buscar trabajo.*

1	Jairo dice que Marco conoció al primer ministro la semana pasada en una recepción. ¿A quién dice Jairo a quién conoció Marco la semana pasada?
2	Francisco cree que sus hijos prefieren el invierno al verano. ¿Qué cree Francisco quién prefiere el invierno al verano?
3	Laura conoció a Emilia mientras estudiaba en Montreal. ¿Quién estudiaba en Montreal?
4	Mientras visitaba la ciudad, María almorzó con Ana. ¿Quién visitaba la ciudad?
5	Carmen cree que Ágata admira a su jefe. ¿A quién cree Carmen que admira Ágata?
6	Sandra cree que Clara debería esconder el diario en un lugar seguro. ¿Dónde cree Sandra dónde debería Clara esconder el diario?
7	Mientras ella se tomaba un café, Angela habló con Nancy. ¿Quién se tomaba un café?
8	Juanita dice que Esteban no escucha a su madre. ¿A quién dice Juanita que no escucha Esteban?
9	Mientras ella estaba sentada en el sofá, Susana le cantó a Luisa. ¿Quién se sentaba en el sofá?

10	Verónica cree que Inés quiere casarse cuanto antes. ¿Cuándo cree Verónica que quiere casarse Inés?
11	Jorge pegó a Rodolfo cuando llegó a la fiesta. ¿Quién llegó a la fiesta?
12	Marco le escribe a Juan mientras él escucha música. ¿Quién escucha música?
13	Ernesto dice que Miguel salvó a Lidia de ahogarse en la piscina. ¿Qué dice Ernesto a quién salvó Miguel de ahogarse?
14	Mientras ella bailaba, Yadira vio a Teresa. ¿Quién bailaba?
15	Mientras ella maneja el auto, María habla con Catalina. ¿Quién maneja el auto?
16	Jaime cree que Ricardo ha ido a Montreal a ver a sus padres. ¿A quién cree Jaime que ha ido a ver Ricardo?
17	Sonia vio a Marisa mientras ella se lavaba los dientes. ¿Quién se lavaba los dientes?
18	Cristina no entiende a Marta porque solamente habla swahili. ¿Quién habla swahili?
19	Teo dice que Nico podría salir del hospital en dos días. ¿Cuándo dice Teo que Nico podría salir del hospital?

20	Catalina cree que Paula va a comprarse una mansión. ¿Qué cree Catalina quién va a comprarse una mansión?
21	Porque es una buena amiga, Eva le hace compañía a Leonor. ¿Quién es una buena amiga?
22	Angela nominó a Alicia mientras ella trabajaba en la universidad. ¿Quién trabajaba en la universidad?
23	Como se rompió la pierna, Andrés no pudo correr con Marco. ¿Quién se rompió la pierna?
24	Como tenía día libre, Beatriz fue al gimnasio con Sara. ¿Quién estaba en su día libre?
25	Julio cree que Josefina se ha ido al extranjero. ¿Quién cree Julio que se ha ido al extranjero?
26	Andrea dice que los vasos deberían estar en el armario de la cocina. ¿Qué dice Andrea dónde deberían estar los vasos?
27	Elisa cree que Mariano quiere acompañar a Rosa a la fiesta. ¿Qué cree Elisa a quién quiere acompañar Mariano a la fiesta?
28	Alex vio a Juan mientras montaba en bicicleta. ¿Quién montaba en bicicleta?

29	Mientras ella cruzaba la carretera, Julia saludó a Lía. ¿Quién cruzaba la carretera?
30	Vicente cree que Sara va a tener el niño en mayo. ¿Qué cree Vicente cuándo va a tener el niño Sara?
31	Andrés saludó a Ramiro cuando él cerró la puerta. ¿Quién cerró la puerta?
32	Carolina dice que Leonardo debería vivir en Granada. ¿Dónde dice Carolina dónde debería vivir Leonardo?
33	Catalina habló con Juana cuando se compró el móvil. ¿Quién se compró el móvil?
34	Sonia dice que Julián bebe demasiado. ¿Quién dice Sonia quién bebe demasiado?
35	Martina dice que el museo debería inaugurarse para el final del año. ¿Cuándo dice Martina que debería inaugurarse el museo?
36	Betty se encontró con Lidia mientras visitaba Ottawa. ¿Quién visitaba Ottawa?
37	Sandra habló con Gemma mientras ella almorzaba. ¿Quién almorzaba?
38	Irene cree que Carlos quiere invitar a todos sus amigos a su cumpleaños. ¿A quién cree Irene a quién Carlos quiere invitar?

39	Paco dice que Marina empujó a José sin motivo. ¿Qué dice Paco a quién empujó Marina?
40	Cuando entró en la sala, Eric le gritó a Jacobo. ¿Quién entró en la sala?
41	Mientras viajaba por todo el mundo, Alex se acordaba de Roberto. ¿Quién viajaba por todo el mundo?
42	Elena cree que Miranda debería tomar un curso de español en la universidad. ¿Qué cree Elena dónde debería Miranda tomar un curso de español?
43	Mientras él fregaba los platos, Pedro discutía con Francisco. ¿Quién fregaba los platos?
44	Marco dice que Silvia tiene muchas cosas que hacer. ¿Quién dice Marco que tiene muchas cosas que hacer?
45	Gloria cree que Amalia habla swahili porque es de Tanzania. ¿Quién cree Gloria quién habla swahili?
46	Luisa cree que Marisa quiere mencionar el incidente en la próxima reunión. ¿Qué cree Luisa quién quiere mencionar el incidente en la próxima reunión?
47	Pedro cree que Jorge espera terminar la tesis este mes. ¿Cuándo cree Pedro cuándo Jorge espera terminar la tesis?

48	Juan cree que María te quiere. ¿Quién cree Juan que te quiere?
49	Javier cree que Laura contrató a Pablo hace dos meses. ¿A quién cree Javier a quién contrató Laura hace dos meses?
50	Raquel dice que David ha heredado mucho dinero de su abuelo. ¿Quién dice Raquel quién ha heredado mucho dinero?
51	Samuel llamaba a Tomás mientras él entraba por la puerta. ¿Quién entraba por la puerta?