

# Acquisition of Prepositional Relative Clauses in Two Types of Spanish-English Bilinguals<sup>1</sup>

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## 1. Introduction: Markedness, the Subset Principle and Prepositional Relative Clauses

The relationship between markedness and L2 acquisition was mainly explored during the 70's and 80's (Eckman 1977; Kellerman 1979; Licerias 1986) under the implicit assumption that unmarked characteristics of grammar have certain privileges with respect to acquisition. Some researchers believed that unmarked structures are acquired earlier than marked ones (Mazurkewich 1984), while others argued that unmarked structures are more likely to transfer into interlanguage grammars (Licerias 1988). Others, on the contrary, found that marked options can be transferred and even maintained in the L2 (White 1987).

To decide which properties in a particular –or in universal– grammar are marked and which are unmarked is not a simple matter. Usually, it is dependant upon the criteria applied to the classification: a criterion based on typology, or a criterion based on acquisition. Ideally, both measurements would lead to the same conclusions. But this is not always the case. For example, in the linguistic phenomenon in which we are interested in this paper –prepositional relative clauses– one can apply both criteria and have opposite results. On the one hand, if we assume that the most frequent structure cross-linguistically speaking characterizes an unmarked form, the English, Dutch and Scandinavian *Preposition Stranding* (1) would be highly marked, given its infrequent appearance in the languages of the world (Van Riemsdijk 1978). On the other hand, if we attend to the L1 data (McDaniel and McKee 1996; McDaniel, McKee and Bernstein 1998), the very same structure becomes unmarked because it is acquired before *Pied-Piping* (2).

- (1) The girl **who** I talked **to** was my student last semester.
- (2) The girl **to who(m)** I talked was my student last semester.

Markedness properties have more recently been studied in language acquisition research in terms of a subset/superset relation. The Subset Principle claims that L1 acquisition is guaranteed by exposure to positive evidence (Berwick 1985; Manzini and Wexler 1987). The idea is that the child starts by hypothesizing the narrowest possible grammar (the subset) according to the input. Later, children will develop a larger grammar through positive evidence. Thus, there is no need for negative evidence because the child will never hypothesize a larger grammar than the one that is available.

This hypothesis can be extended to the unmarked/marked properties of a linguistic phenomenon and explain these properties in terms of a subset/superset relationship. This way, we avoid contradictions such as the one for prepositional relative clauses in which, depending on the criterion applied, the unmarked structure is one or the other. Given the fact that all languages that present Preposition Stranding (PS) also display Pied-Piping (PiP), but that the presence of PiP does not imply PS, one could assume that PiP is a proper subset of PS, as represented in Figure 1.

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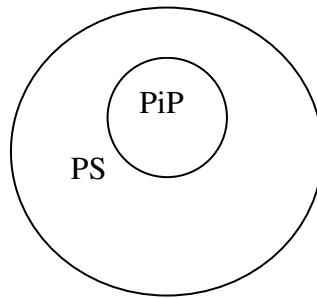


Figure 1: Pied-Piping represented as a proper subset of Preposition Stranding

The Subset Principle may also be relevant for L2 studies and bilingualism, which is the focus of this paper. However, there is an important difference from L1 acquisition: in L2 acquisition and bilingualism situations, the speaker already has a mental representation of the structure, in this case, prepositional relative clauses. So, transfer or cross-linguistic influence from the L1, or the dominant language, into the L2, or weaker language is likely to happen. But, as White (1989) points out, a transfer hypothesis and the Subset Condition would make contradictory predictions for the L2. Namely, when the L1 is a superset of the L2, (this is to say, the L2 only has the unmarked value and the L1 has both) then, if the property from the L1 transfers, the Subset Principle does not have room to apply. This is the case because the learner cannot hypothesize the smallest grammar, as she already has a bigger one in place. This is precisely the situation we will explore in this investigation.

The purpose of this paper is to examine the Subset Principle together with the transfer hypothesis in two types of adult Spanish-English bilinguals, Spanish L2 learners (late bilinguals) and heritage speakers of Spanish (early bilinguals). These bilinguals share languages –English and Spanish– but differ as to the age of onset of bilingualism. The L2 learners are native English speakers who started learning Spanish after puberty, in a classroom setting. Heritage speakers are native Spanish speakers who simultaneously acquired English or who started acquiring English very early in life (before 5 years old).

Age has been an essential variable for most of the studies in language acquisition. Age generally explains why L1 acquisition is always successful, whereas L2 acquisition may not be. However, when it comes to the acquisition of heritage languages, early age of onset does not seem to be sufficient to guarantee complete acquisition of the L1, although it provides some advantages (Montrul 2005, Montrul *et al* 2006). Transfer or influence of the dominant language seems to play as important a role as that of age in this type of bilingual speakers. Transfer has been widely reported in post puberty L2 acquisition (White 1989, Schwartz & Sprouse 1996; Bley-Vroman 1990) as well as in language attrition or language loss (Sorace 2000), particularly in bilingual heritage speakers (De Bot *et al.* 1991; Silva-Corvalán 1991; Montrul 2002, 2004). This process has been studied in countless linguistic domains, but usually not with heritage speakers taking into account the Subset Condition, a principle that makes specific predictions about L1 (and L2) acquisition. In this study, we investigate the interaction between age of acquisition, transfer and the subset principle, focusing on Spanish prepositional relative clauses.

## 2. Prepositional Relative Clauses in English and Spanish

Oblique relative sentences in English can be constructed in two different ways, as we saw in (1) and (2), repeated below in (3) and (4):

- (3) The girl [<sub>CP</sub> who<sub>i</sub> [<sub>C</sub>-I talked to  $t_i$  ]] was my student last semester.  
 (4) The girl [<sub>CP</sub> [to who(m)]<sub>i</sub> [<sub>C</sub>-I talked  $t_i$  ]] was my student last semester.

In (3), the entire prepositional phrase –i.e. the preposition *to* along with the relative pronoun *who(m)*– moves to the front of the relative clause, a process called *preposition pied-piping*. In (4), only

the *wh*-word is extracted to the beginning of the relative clause, leaving the preposition stranded at the end of the clause, a phenomenon known as *preposition stranding*. In English, both constructions are grammatical, although there are stylistic and dialectal components that decide the use of one or the other. In Spanish, only Pied-Piping (5) is allowed:

(5) La chica {con la que/con la cual/con quien}<sub>i</sub> hablé *t<sub>i</sub>* fue mi estudiante el semestre pasado.

(6) \*La chica {(la) que/(la) cual/quien}<sub>i</sub> hablé **con** *t<sub>i</sub>* fue mi estudiante el semestre pasado.

“The girl to whom I talked was my student last semester”

In sum, adopting an implicational definition, English is a bigger grammar than Spanish with respect to prepositional relative clauses. Then, Spanish, which only has the PiP property, is a proper subset of English, which has PiP and also PS.

### 3. The Study

#### 3.1. Hypotheses

1- According to the Subset Principle, if we assume that PiP is a subset of PS, then bilingual speakers whose L1 or dominant language is English (early and late bilinguals) should not display transfer from the marked option in the construction of Spanish Prepositional Clauses because the first narrowest grammar hypothesized is precisely the target grammar, one with PiP.

2- If transfer from L1/L2 dominant English into L2/L1 weaker Spanish prevails over the Subset Principle or markedness conditions, then (early and late) bilinguals may accept and construct sentences with ungrammatical PS in Spanish.

3- Finally, if age of acquisition plays a crucial role in the acquisition process, then we would expect different outcomes from the two groups tested, i.e. more native-like responses from the early bilinguals than from late learners.

#### 3.2. Participants

There was a total of three groups of speakers, two experimental groups and one which served as a control group. The control group consisted of 13 monolingual native speakers of Spanish. They were tested in Spain, and their mean age at testing time was 30.5 years. The first experimental group consisted of 20 Spanish heritage speakers, or Spanish/English early bilinguals. They were US-born and raised speaking Spanish, although they were schooled in English. They had been acquiring Spanish since birth and their age of immersion to English varied from 0 to 5 years of age. There were 5 simultaneous bilinguals, whose immersion to English started at birth; 10 early bilinguals who started learning English at ages 3 to 5 and went to school exclusively in English; and then a group of 5 bilinguals who started learning English at age 5 but went to a bilingual program until age 7 or 8. In the report of the results, these bilinguals have been combined because there were no significant differences in their responses when separated into groups. All the heritage speakers were tested in the US and their mean age at the time of testing was 20.5 years. Finally, the second experimental group consisted of 22 L2 Spanish learners whose mother tongue is English. They started learning Spanish between 13 and 15 years of age, in a classroom setting. They were all enrolled in intermediate (200 level) Spanish language classes at a research university in the United States. Their mean age at time of testing was 19.2 years.

#### 3.3. Instruments

##### 3.3.1. Grammaticality Judgment Task

The three groups were given a randomized list of written Spanish sentences, some of them grammatical and some of them substandard or ungrammatical. They were asked to judge each sentence according to a 5-point Likert scale.

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-2	Sounds bad, it is not a sentence of Spanish.
-1	Sounds bad, but not that much.
0	I don't know, I cannot decide.
1	Sounds relatively well.
2	Sounds good.

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Table 1. Grading scale

There were a total of 50 sentences, 40 target sentences and 10 fillers. The target sentences were all oblique extractions and modifications of these, all constructed with the complementizer *que*<sup>2</sup> (that). The PPs extracted were 20 [+human] and 20 [-human]. There were no significant differences regarding animacy; therefore, in the report of the results, this feature has not been taken into account. There were a total of 6 experimental conditions, 8 sentences per condition, except for the fillers that consisted of 10 sentences.

There were 2 conditions –PiP and distractors– that were completely grammatical, this means that these are types of sentences that one could easily find in written or oral Spanish. The conditions classified as substandard –the Null Prep and the bare C with a resumptive pronoun– consisted of sentences that could be found in an informal or oral register, but usually not in written Spanish (see Suñer 1998, 2000 for more details). Substandard sentences differ from ungrammatical ones because the ungrammatical ones can be found in neither a formal or written context, nor in oral discourse.

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<b>Grammatical</b>	La injusticia <b>de la que</b> nos quejamos fue muy común durante la dictadura.
1- Pied Piping	The injustice about the that refl. we-complained was very common during the dictatorship. “The injustice about which we complained was very common during the dictatorship period.”
2- Filler	La chica donó todos sus ahorros al hospital del pueblo. “The girl donated all her savings to the town hospital”
<b>Ungrammatical</b>	*La injusticia <b>que</b> nos quejamos <b>de</b> fue muy común durante la dictadura.
3- Prep. Stranding	The injustice that refl. we-complained about was very common during the dictatorship.
4- PiP+Res. Pron.	*?La injusticia <b>de la que</b> nos quejamos <b>de ella</b> fue muy común durante la dictadura The injustice about the that refl. we-complained about her was very common during the dictatorship.
<b>Substandard</b>	??La injusticia <b>que</b> nos quejamos <b>de ella</b> fue muy común durante la dictadura.
5- C+Res. Pron.	The injustice that refl. we-complained about her was very common during the dictatorship.
6- Null Prep.	??La injusticia <b>que</b> nos quejamos fue muy común durante la dictadura. The injustice that refl. we-complained was very common during the dictatorship.

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Table 2: Sentence types.

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<sup>2</sup> There has been some debate in the literature on Spanish relative clauses discussing the status of *que*. Whether it is a complementizer or a real wh-pronoun is a topic beyond the scope of this paper. For the purposes of this paper, I will adopt the idea that this *que* is a complementizer, so the relative clause has an empty operator that moves from its original position to create the predication. For a more detailed discussion on this issue, see Brucart (1992) and Suñer (2000).

### 3.3.2. Sentence-combining Task

This second task is a typical classroom production task in which subjects are presented with two independent sentences and have to rewrite them in one clause using a relative clause. The beginning of the new sentence was given. Each participant had to write a total of 10 sentences. As models, they had two different examples, one with an object relative clause and one with an oblique one, both introduced with the complementizer *que*.

The structures targeted were: *conformarse con*, *jugar con*, *enamorarse de*, *discutir por*, *quejarse de*, *pensar en*, *hablar de*, *depender de*, *hacer estudios con*, *salir con*. The English verb does not always need a preposition (conform to, play with, fall in love with, argue, complain about, think (about), talk about, depend on, do studies with, go out with). As a final comment, it should be mentioned that argument structure was given by the second sentence, so errors due to lack of knowledge of the appropriate preposition for the verb were not expected.

Example:

El señor es muy rico. María **depende de** ese señor.

El señor \_\_\_\_\_.

Expected: El señor *del que depende María es muy rico.*

## 4. Results

### 4.1. Grammaticality Judgment Task

The mean results for each structure of the grammaticality judgment task were analyzed using a factorial two-way ANOVA, with acceptability score as the dependent variable and sentences types (6) and group as the independent variables. The between-groups statistical analysis showed a main effect for type of sentence x group in all conditions tested with the exception of the structure PiP + Resumptive ( $F(2,52) = 2.807$ ,  $p = .70$ ). For more detailed comparisons, a Bonferroni post hoc test was used.

Figure 2 shows the mean results per group per sentence type. Overall, all the groups display the same patterns of acceptance except for the Null Prep condition. As is the case in this type of SLA research, learners' and heritage speakers' intuitions are not as robust as the native ones. Nonetheless, heritage speakers' acceptability scores fall closer to that of the native speakers in all conditions except for the Null Prep and the Preposition Stranding condition. Results with negative numbers mean ungrammatical (low acceptance) and results with positive numbers mean the sentences were judged as grammatical.

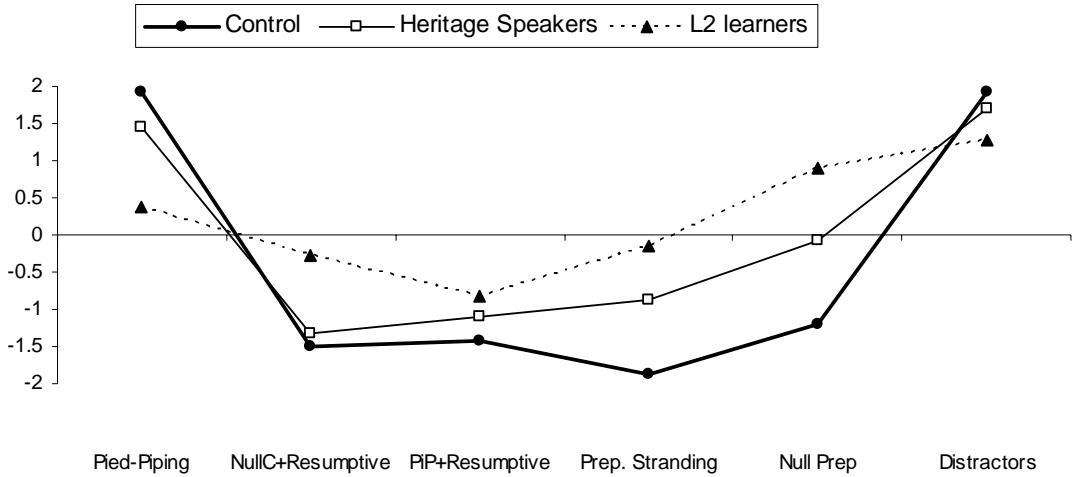


Figure 2: Grammaticality Judgment Task mean results

Below, Figure 3 displays the results for the only completely grammatical target structure, PiP. This construction requires the speakers to move the preposition along with the operator to an initial clausal position, such in *La injusticia de la que nos quejamos fue muy común durante la dictadura*. Despite the fact that English has PiP as a way of forming formal relative clauses, L2 learners do not have a clear intuition about it. A Bonferroni post hoc test revealed that the control and the heritage speaker group do not differ significantly ( $p = 0.68$ ) and that the L2 group was different from the other two at  $p < 0.001$  level. (Control = Heritage Speakers  $\neq$  L2 learners)

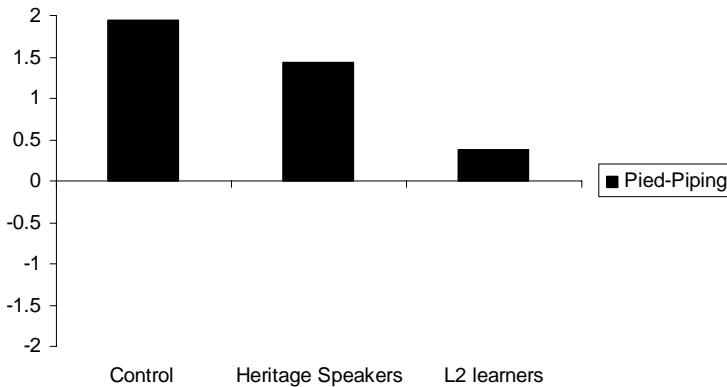


Figure 3: Mean results for Pied Piping structure

In figure 4 we have the mean results for Preposition Stranding, a structure only possible in English and completely ungrammatical in Spanish: *\*La injusticia que nos quejamos de fue muy común durante la dictadura*. The control group differed significantly from the other two groups at the  $p < 0.05$  level; and no statistical significance was attested between the heritage speakers and the L2 learners ( $p > 0.05$ ) in this condition. (L2 learners = Heritage Speakers  $\neq$  Control)

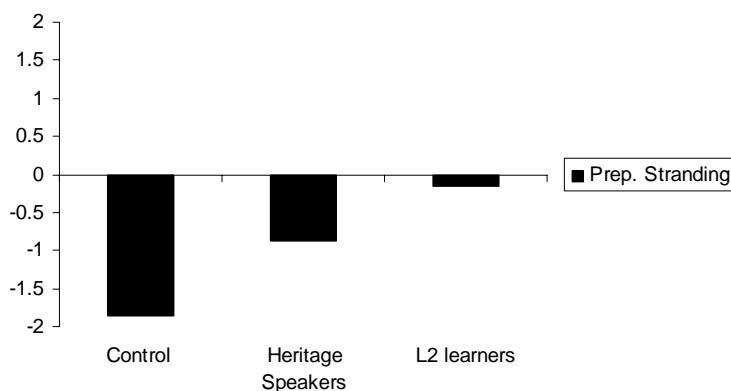


Figure 4: Mean results for Preposition Stranding structure

Figure 5 compares the responses of two types of substandard –or ungrammatical– relative clauses with resumptive pronouns, one introduced by the bare complementizer *que* and the other introduced by the pied-piped preposition with the complementizer: *??La injusticia que nos quejamos de ella fue muy común durante la dictadura* vs. *\*?La injusticia de la que nos quejamos de ella fue muy común durante la dictadura*. The ANOVA indicated no significant differences between the three groups in the PiP + RP structure at the  $p < 0.05$  level, but there were differences in the resumptive pronoun construction introduced by a bare complementizer. The Bonferroni test tells us that whereas the control group does not differ from the bilingual group ( $p = 1.000$ ) in C + Resumptive Pronoun, the L2 group is different from the other two ( $p < 0.0001$ ). A paired-samples *t*-test was used to compare the L2 responses in these two types of constructions and revealed that the L2 learners treat C+ Resumptive Pronoun and PiP+ Resumptive Pronoun differently ( $t(21) = 3.612, p = 0.002$ ). The effect size for this comparison is large ( $r = 0.62$ ). This result suggests that the L2 learners are sensitive not only to the appearance of the resumptive pronoun but also to the structure (bare *que* vs. pied-piped preposition). In fact, we could speculate and propose that what helps the L2 learners reject the structure PiP + Resumptive Pronoun is the pied-piping rather than the resumptive pronoun because the pronoun appears in both structures. The other two groups are rejecting both types of sentences with resumptives, independently of the structure in which the pronoun is located.

According to the native speakers' intuitions, both structures with resumptive pronouns are ungrammatical and there were no statistical significance between the two resumptive structures ( $t(12) = -0.54, p > 0.5$ ). Therefore, the *a priori* classification as one substandard structure and the other one as ungrammatical does not seem to be fully supported by our native speakers. However, this classification of the resumptive structures is corroborated when we attend to the data found in oral corpora<sup>3</sup>.

<sup>3</sup> Resumptive pronouns are fairly common in oral Spanish production, but they are condemned by prescriptive grammars. This is probably the reason why our native speakers rejected them:

- a. es un país que hablan tanto **de él** (from the Caracas 1977 corpus, cit. in Suñer 1998)  
it.is a contry that talk.3p so.much about it
- b. -¿cuál mujer? –La que tuvo el hijo **con ella**  
Which woman? The (one) that had.3s the son with her (Lope Blanch 1984)

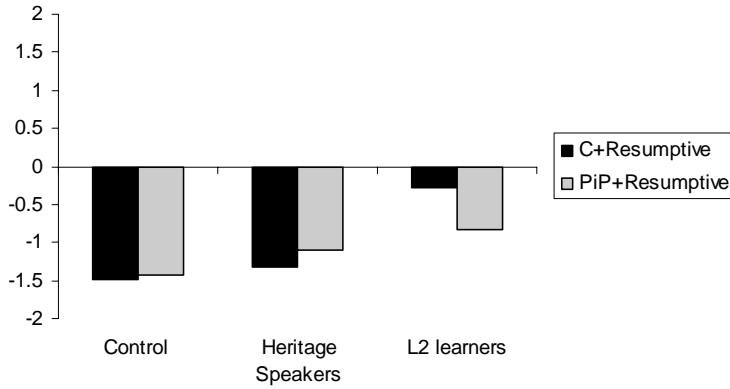


Figure 5: Mean results for structures with resumptive pronouns (bare Complementizer vs. PiP)

Finally, figure 6 shows the results for the Null Prep condition, a substandard structure in which the preposition is missing, as in *??La injusticia que nos quejamos fue muy común durante la dictadura*. In this condition, all groups behave significantly different from each other ( $p < 0.001$ ). The contrast among them is that the native group judged this construction as ungrammatical, the L2 group judged it as grammatical, and the heritage speakers did not seem to have a clear intuition about it.

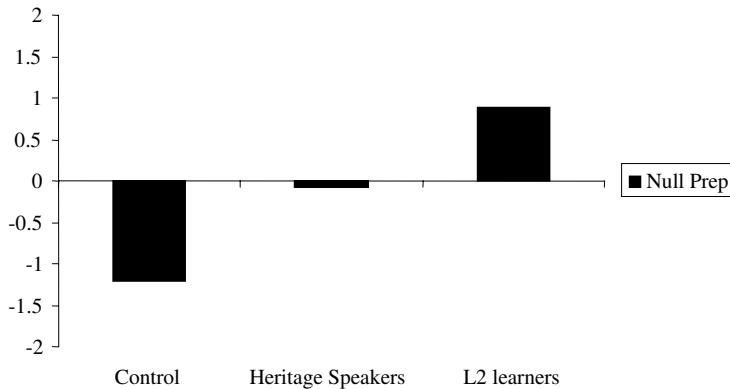


Figure 6: Mean results for Null Prep

#### 4.2. Sentence Combining Task

To analyze the sentence combining task, each produced sentence was classified according to its structure. There were 5 main categories represented in the data collected: *PiP*, *Null Prep*, *Preposition Stranding*, *Resumptive –Pronoun or NP–*, and *Other*. The category *other* grouped all kinds of changes in the structure, either because the sentence was not a relative clause, or the verb was switched with a transitive verb, or because a subject relative clause was formed instead of an oblique or object relative clause. Figure 7 shows the percentages per type of structure.

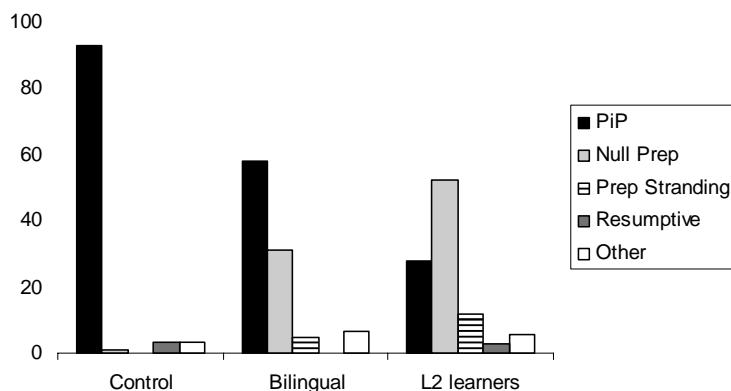


Figure 7: Percentage of responses by category and group in the Production Task

Each participant produced 10 sentences; therefore, the control group created a total of 130 sentences, the heritage speaker group (or early bilingual group) produced 200 sentences and the L2 learners generated a total of 220 sentences.

The monolingual group overwhelmingly produced PiP (N=121, 93.1%), practically only *el que* relatives, such as *La mujer de la que me enamoré hace diez años es bellísima*. Literally, ‘The woman of the who I fell in love ten years ago is very beautiful’; ‘The woman with whom I fell in love ten years ago is very beautiful’.

The L2 learners produced Null Prep more than 50% of the time (N = 115, 52.3%), either with the complementizer as in *La mujer que me enamoré hace diez años es bellísima*, or with a relative pronoun, as in *La mujer quien me enamoró es bellísima*. They also formed relative clauses pied-piping the preposition 27.7% of the time, usually with a relative pronoun or with the complementizer without the article, as in *La mujer de que me enamoré hace diez años es bellísima*. L2 learners also produced ungrammatical preposition stranding at a rate of 11.8%, such as *Las frases que Silvia hace estudios con son aburridas*, ‘The sentences that Silvia makes studies with are boring’.

The early bilingual group seemed to master PiP (58%) but also used non standard relative clauses introduced by the complementizer *que* without a preposition (31% of Null Prep). This group displayed a very low percentage of ungrammatical PS (4.5%). Yet, there speakers changed the target preposition 14.5% of the occasions in their production of PiP, either by influence of English or by overgeneralization of one particular preposition, *en* (in) for some speakers, *de* (of) for others. For example, in *La mujer con quien me enamoré hace diez años es bellísima*, the Spanish preposition *de* ‘of’ has been changed to *con* ‘with’ by influence of English.

Overall, there is a significant relationship between the number of PiP produced and the number of Null Prep. As the PiP frequency decreases, the Null Prep frequency increases, not only across the groups, as can be easily seen in figure 7, but also within the groups. There is a significant relationship for the control group,  $r = -0.601$ ,  $p$  (two tailed)  $< 0.05$ ; and also a strong correlation for the heritage speaker group,  $r = -0.913$ ,  $p$  (two tailed)  $< 0.01$ ; and for the L2 learners group  $r = -0.844$   $p$  (two tailed)  $< 0.01$ .

#### 4.3. Summary of the results

Generally, if we compare the results of the two tasks, we can conclude that both tests are complementary, as they display the same tendencies. These are, natives show robust intuitions about the grammaticality of PiP and ungrammaticality of PS on the one hand; L2 learners show high acceptance and production of Null Prep and low acceptance and production of PiP on the other. The early bilinguals’ responses placed this group in between the natives and the L2 learners in all the conditions, but their responses approximated more closely those of the natives, except for the acceptance of PS and acceptance and production of Null Prep.

## 5. Discussion and Conclusion

The results of this study indicate that there is weak evidence of transfer in the prepositional relative clauses domain, yet some, especially in the L2 learners. This group rated pied-piping sentences not significantly different than preposition stranding sentences ( $t(21) = 1.647, p > 0.05$ ), but they produced more PiP (27.7%) than PS (11.8%). So, transfer of a marked property such as PS might occasionally occur, with stronger evidence in accepting the marked structure than in producing it (see Adjémian & Licerias 1984 for similar results in low proficiency L2 learners). Although this study does not provide further evidence about the (dis)appearance of ungrammatical Preposition Stranding, its low percentages together with results found in studies such as Adjémian and Licerias (1984) or Bardovi-Harlig (1987) seem to indicate that this ungrammatical feature will easily disappear from the more advanced interlanguage grammars. In this sense and by now, we can argue that the Subset Principle makes the right predictions about transfer, and we should disregard hypothesis 2 because transfer or language influence does not prevail over the Subset Principle. This might be true for L2 learners as well as for heritage speakers, who hardly show influence of their dominant language – English – into their Spanish structures.

Nonetheless, the results also suggest that L2 learners are not hypothesizing PiP as the narrowest grammar, as the Subset Principle would predict given the subset/superset relation represented in figure 1 above. Therefore, presumably, either our traditional assumptions about the subset/superset relation between PS and PiP are not adequate, or the Subset Principle does not always hold. The statistics showed that the only relative clause type rated as acceptable by the L2 learners was the Null Prep relative clause. And Null Prep is also the most frequent sentence type this group produced (52.3% of the time). For this reason, I would like to suggest a different subset/superset relationship with regard to the acquisition of prepositional relative clauses. The present data seem to imply that the narrowest grammar that these L2 learners, and to some extent the heritage speakers, are hypothesizing, is neither PiP nor PS, but Null Prep. This will lead us to a new configuration, similar to the one represented in figure 8.

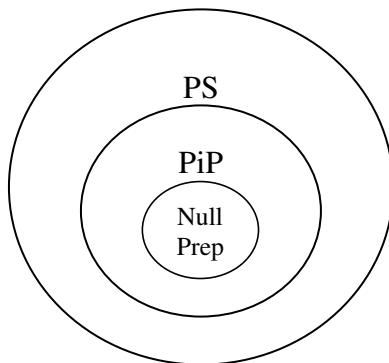


Figure 8: Null Prep as a proper subset of Pied-Piping and Preposition Stranding.

However, this new arrangement of types of structures may also be problematic. To begin with, if we follow the tenets proposed by the Subset Principle, it is not clear why the L2 learners –and some heritage speakers– are hypothesizing Null Prep as the narrowest grammar, since Null Prep is not supposed to be available in the input.

One possible solution to this puzzle is to assume that we do find Null Prep in the input, especially in oral input, as found in oral corpora (Suñer 2000). This presupposition would explain why both L1 acquirers and heritage learners could temporarily resort to this strategy when forming relative clauses, because both groups are exposed to oral Spanish from birth. Similarly, Guasti & Cardinaletti (2003) explained the absence of prepositional pied-piping relatives in their study about acquisition of L1 French and L1 Italian, proposing two varieties of relative clauses in several Romance languages. They consider that there are, on the one hand, conventional relatives with relative pronouns such as *cual* (which) and *quien* (who), which are mainly used in writing and in formal conversation; on the other

hand, there are non-standard relatives introduced by a complementizer such as *que* (that), with or without a resumptive pronoun. Guasti and Cardinaletti further explained the avoidance of prepositional pied-piping in child language because it implies the use of relative pronouns. According to these authors, these pronouns are learnt late, during school years, through explicit teaching.

Despite the existence of this parallelism between L1 and L2 acquisition, namely, the generalized avoidance of PiP; the proposal of two types of relative clauses –the conventional and the non-standard ones– would not fully justify why L2 learners do not always use PiP and resort to Null Prep when generating relative clauses. These learners received formal instruction of Spanish and are typically exposed to a standard variety of the target language, in which presumably PiP is the most common strategy of prepositional relativization. In fact, some of the L2 learners constructed Null Prep sentences introduced by a relative pronoun: *La mujer quien me enamoré es bellísima* (The woman who I fell in love is very beautiful), showing certain knowledge of the Spanish system of relative pronouns. Therefore, if we were to assume that the L2 learners, unlike children, already master the system of relative pronouns, then we would need a further reason to account for the missing obligatory preposition. Do L2 learners fail to perceive the preposition? Is this some type of processing deficit? I think additional research with different methodology needs to be done in order to reach a better interpretation of this puzzle.

Other configurations for figure 8 can also be contemplated. It is plausible, for instance, to think that PS and PiP are not in a subset/superset relation, but rather that they are independent structures. In fact, English PiP has been considered “a prescriptive artifact that they (learners) were taught through classroom teaching or a prestige dialect which is external to the grammar.” (McDaniel *et al* 1998). Regardless the relationship we assume between PiP and PS, Null Prep seems to be the handiest resource when starting to form prepositional relative clauses.

Klein (1993) studied the Null Prep phenomenon in L2 acquisition intensely. She argued that it was a developmental phenomenon placed outside Universal Grammar: a wild grammar. In her study, she investigated the L2 English acquisition of prepositional relative clauses and prepositional questions by learners with different L1 backgrounds. She concluded that Null Prep is mainly an interlanguage property that is not part of any natural language. She based her argument on the nonexistence of natural languages with Null Prep in questions, though she acknowledged the existence of natural languages with Null Prep in relative clauses (Brazilian Portuguese, some dialects of Spanish, French, Chinese, Japanese, Korean, or Quechua, especially in oral speech).

In my view, the acquisition of relative clauses and the acquisition of questions are related but they are two different phenomena. Whereas both imply mastering of wh-movement, and semantically speaking, both require interpretation through an operator-variable structure, only relative clauses are interpreted as predicates (type <e, t>). Also, relative clauses suppose a double case assignment to the same referent, which may increase the cognitive and processing load of this structure when compared to other wh-structures such as questions. These intuitions are corroborated by age of emergence of these structures in L1: questions have an early onset, around 2 years of age, while relative clauses are acquired later, starting at 3 years old (Grinstead & Elizondo 2001) but are not mastered until school age (6-10) (Guasti & Cardinaletti 2003), with special tardiness for prepositional relative clauses.

For these reasons, I believe, unlike Klein (1993) that data on acquisition of prepositional questions cannot be generalized to relative clauses, and so, we must reconsider Null Prep for relative clauses as a natural option in the languages of the world.

I would like to extend this analysis to L2 acquisition and propose that Null Prep relative clauses introduced by *que* involve wh-movement of an empty operator, as in the adult native grammar. Instances of Null Prep in this study do not appear with resumptive pronouns; this implies that they produced gaps and then movement. We could also say that, as in child acquisition, PiP is learnt later, through explicit teaching. However, these speakers –L2 learners and heritage speakers– are supposed to already know how to pied-pipe in English. If this is so, we may wonder why PiP does not automatically transfer from English into Spanish 100% of the time. There are two possible answers to this question. The first one is to assume that English –or our subjects’ grammars– do not really have PiP. In this case, as quoted before, we can consider PiP just an artifact taught at school but not really internalized in the speakers’ grammars. That would be the reason why it did not transfer.

Unfortunately, we do not have the equivalent test in English to see what these speakers would do in their native language.

The second option would explain the low percentage of transfer of PiP through the Subset Principle. If, as proposed before, Null Prep is the unmarked structure, and if L2 learners are hypothesizing this grammar as the most restrictive one, then it is impossible for PiP transfer to occur, as White (1989) suggested. If the Subset Principle applies first, transfer does not have room to occur because transfer enters in contradiction with the assumptions of the Subset Principle. Then, and according to subset conditions, PiP will be later acquired, through positive evidence.

Last, these results point to a certain effect of age of onset of bilingualism, as predicted in hypothesis 3, because early bilinguals present more native-like behavior than L2 learners do. However, we should be cautious with this conclusion because proficiency was not taken into account in this experiment. Although most of the heritage speakers were in the same intermediate level classes as the L2 learners, it is certainly possible that these early bilinguals had a higher proficiency level than the L2 learners, which could partially explain some of the results. While it has been reported that when language proficiency is factored in, early bilinguals are better than late bilinguals in some morphosyntactic domains (Montrul 2005; Montrul, Foote, Perpiñán, Thornhill, & Vidal 2006); a more recent study on knowledge of wh-movement (Montrul, Foote, & Perpiñán, 2008) shows that early onset of acquisition does not provide an advantage on this linguistic phenomenon. A more comprehensive investigation needs to be done in order to better address the effect of age of onset of bilingualism on the knowledge of relative clauses.

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