INVERSION AND CASE ASSIGNMENT IN THE LANGUAGE OF SPANISH HERITAGE SPEAKERS *

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1. Introduction

The language of heritage speakers has been a recent area of investigation in linguistic studies (Polinsky, 1997; Montrul, 2008; Benmamoun, Montrul & Polinsky, 2010; Silva-Corvalán, 1991; Valdés, 2006). Typically, heritage speakers are early bilinguals (simultaneous or sequential) who are exposed to the family language at home, but that for societal reasons (schooling, peer-pressure, language identity, etc) they experience a language dominance switch early in their lives. Studies have shown divergent grammars when Heritage Speakers (HS) are compared to monolingually raised native speakers of the heritage language, and that HS typically do not achieve the same competence in the L1 (heritage) language demonstrated by monolingual native speakers. It has been proposed that this divergence is the result of a combination of factors, such as arrested development, exposure to different input, incomplete acquisition, and/or language attrition. Identifying the root of this phenomenon is an intricate task given the difficulty of isolating these factors, and the nature of the experimental approach that must be adopted to study them. In order to explain it we must identify whether HS were successful acquiring structures during childhood and eventually start loosing them as their dominance in the majority language develops (language attrition), or whether certain structures never fully developed during childhood (incomplete acquisition). A further variable that one may need to take into account is not only the quantity of input but also the quality of this input, since first generation of immigrants may already experience attrition of the ethnic language, and as a result, pass it along qualitatively different to the 2nd generation of immigrants, the heritage speakers (Montrul & Sánchez-Walker, 2013). Therefore, research on this particular population is focused on describing their implicit grammar, identifying the vulnerable domains of language, and differentiating the potential factors that lead to divergent acquisition and possible language loss.

The present paper seeks to further describe the grammar of heritage speakers. We focus on two related linguistic phenomena that have been shown to be selectively vulnerable in this type of population: relative clause interpretation (Polinsky, 2011), and direct object marking (Montrul & Bowles, 2009; Montrul & Sánchez-Walker, 2013). To our knowledge, these two linguistic structures have been studied in isolation in the language of HS, showing language attrition in comprehension of Russian direct object relative clauses; and attrition and

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incomplete acquisition in the production of DOM in the language of children and adult heritage speakers of Spanish. However, the interaction of these two linguistic phenomena has yet to be investigated. In particular, we wonder whether HS are able to comprehend and process Spanish relative clauses marked with DOM in the same way monolinguals do. We further question whether the interaction of these two vulnerable linguistic phenomena increases the difficulty of sentence comprehension.

2. Linguistic Phenomena and Previous Studies

2.1 Inversion in Relative Clauses

In most Romance languages, subject-verb inversion in relative clauses is optional, a phenomenon that was termed as 'Stylistic Inversion' (Styl-Inv) for French by Kayne & Pollock (1978). In Spanish, a language whose unmarked word order in declarative sentences is SVO, this subject-verb inversion in object relative clauses is the preferred word order, not a focalized construction (Contreras, 1989; Torrego, 1984), as the example in a broad focus context in (1) shows, from Gutiérrez-Bravo (2005).

(1)

- a. ¿Qué pasó? What happened?
- b. Pedro no leyó el libro [que escribió la maestra]. [(O) VS] Pedro not read the book that wrote the teacher
- c. #Pedro no leyó el libro [que la maestra escribió]. [(O) **SV**] Pedro not read the book that the teacher wrote 'Pedro did not read the book that the teacher wrote.'

A similar scrambling phenomenon is observed in Russian relative clauses, where the non-extracted DP within the relative clause can either precede or follow the verb. As in Spanish, the distribution of inversion affects the information structure of the sentence (topic/focus considerations), but the thematic roles are kept intact. Polinsky (2011) tested the comprehension of subject and object relative clauses in American Russian heritage speakers. Using a picture-matching task with reversible actions, she compared four groups of Russian speakers: children and adult heritage speakers, and children and adult monolingual speakers. By comparing age-matched groups of speakers, Polinsky was able to determine that the divergent results in the adult heritage speaker group compared to the monolingual one were due to attrition and not to incomplete acquisition or transfer from English since the young HS were more accurate than the adult HS. Overall, she found that adult heritage speakers were at chance in their interpretation of object relative clauses, regardless of word order, which indicates that English was not the source of transfer, otherwise SV relative clauses would have been interpreted significantly better than VS relative clauses. The study

showed reanalysis due to attrition in the form of a subject bias in relativization, and a significant loss of inflectional morphology (case system) that distinguishes subject relative clauses from object relative clauses. Based on these findings, further exploration on the vulnerability of constituent order in relative clauses and case assignment for heritage speakers needs to be conducted.

Another study (Perpiñán 2011) looked at relative clauses and attrition. The author compared monolingual Spanish speakers and monolingually raised Spanish speakers who became Spanish-English bilinguals as adults in their production and comprehension of wh-questions and relative clauses. Results indicated that subject-verb inversion in syntactically obligatory contexts, such as in wh-questions, remains intact in the grammar of both groups, but the production of inverted relative clauses (the unmarked word order in this case) is significantly different between the groups. Whereas the monolingual group showed a strong preference for inverted object RC (72% of inversion vs. 28% of non inversion), the bilingual group had exactly the opposite pattern. Also, the results showed that although there were no comprehension differences between bilinguals and monolinguals, there was an overall preference for the subject-verb word order even when it is the marked form in relative clauses.

2.2 Differential Object Marking (DOM)

Spanish has structural accusative and dative case (Montrul & Bowles 2009), which are usually marked by the preposition 'a'. Although superficially similar, this marker is used differently with direct and indirect objects. The indirect object is marked by the dative preposition 'a', but direct objects are not always marked by 'a'. This distinction in direct objects is called Differential Object Marking (DOM) or *a personal*. In Spanish this phenomena is regulated by a complex combination of semantic aspects such as [animacy] and [specificity]. Example (2) shows that specific animate direct objects require the 'a', whereas inanimate objects cannot take it (3, 4). On the other hand, indefinite animate objects employ DOM for a specific reading (in 5 with DOM, the doctor is looking for a specific nurse that he has in mind), and don't employ DOM for non-specific contexts (when the doctor is looking for any nurse):

- (2) Juan vio *(a) la niña del vestido azul. [+animate, +specific]
 Juan saw DOM the girl of-the dress blue
 'Juan saw the girl with the blue dress.'
- (3) Los estudiantes estudiaron (*a) la lección. [-animate, +specific] The students studied DOM the lesson
 'The students studied the lesson.'
- (4) El doctor pidió (*a) una camilla. [-animate, -specific] the doctor asked-for DOM a strecher
 'The doctor asked for a stretcher.'

(5) El doctor busca (a) una enfermera. the doctor looks-for DOM a nurse 'The doctor is looking for a nurse.'

The distribution of DOM has been vastly explored in the linguistic literature (Aissen, 2003; Bossong, 1991) and although there is a consensus that specificity and animacy of the NP are the main conditions that trigger DOM, the exact semantic and syntactic constraints are still unclear² (Leonetti, 2008; Torrego 2002).

[+animate, ±specific]

In terms of first language acquisition, it has been reported that Spanish monolingual children acquire the distribution of preposition 'a' by the age of three (Rodriguez-Mondoñedo 2008). In this longitudinal study, data from 6 Spanish-speaking children ages between 0;9 and 2;11 from the CHILDES database was taken in order to investigate the acquisition of DOM in L1. Although the children had some errors in both using *a* when it was not required and omitting *a* the accuracy rate was over 98% showing that monolingual Spanish children acquire the distribution of DOM before the age of 3.

However, due to the semantic complexity and unclear nature of DOM it has been found to be problematic for heritage speakers (Montrul & Bowles, 2009), and for bilinguals (Zapata, Sánchez & Toribio, 2005). Recently, Montrul & Sánchez-Walker (2013) have found that DOM is subject to both attrition and incomplete acquisition in Spanish heritage speakers living in the US. In a comprehensive study that tested DOM production in young and adult heritage speakers (simultaneous and sequential early bilinguals), in two age-matched monolingual groups (young and adult), and in a group of first generation Hispanic immigrants, they found that only the monolingual groups had ceiling performance at their production of DOM. The children HS provided the obligatory 'a' between 40% and 69% of the times, depending on the task, whereas the adult HS produced the obligatory 'a' around 80% of the times. These results alone would indicate incomplete acquisition of DOM in early childhood, but the results of the 1st generation immigrants (between 81% and 87% accuracy) show some degree of attrition in their first language. Taken as a whole, this study shows delayed acquisition of DOM in childhood with further development later in life, but this development does not catch up with native-like performance, probably because this complex pragmatic-semantic feature seems to be undergoing attrition in the first generation.

2.3 The Interaction of Inversion in Relative Clauses and DOM

The present study investigates the interaction of these two linguistic phenomena that have been shown to be particularly problematic in heritage languages. Neither inversion in relative clauses, nor DOM are present in English, which is the dominant language of the population at hand. Therefore a double learnability issue arises when using DOM in relative clauses. For English speakers, word

² For further discussion see: Leonetti (2004), Torrego (2002), Guijarro- Fuentes (2012).

order is the only clue to assign thematic roles to the arguments. In Spanish declarative sentences, the unmarked SVO word order can also be used to interpret the sentence, obviating the DOM if wanted. However, in relative clauses, that word order is usually inverted, which makes it absolutely necessary to pay attention to the DOM in order to identify the object of the sentence. For instance, in example (6a), the marker *a* indicates that *Juan* is the object of the sentence, and that *el chico* 'the boy', not marked by DOM, is the subject. Whereas in (6b), since *Juan* does not carry the otherwise obligatory DOM, then it can only be interpreted as the subject of the sentence, making *el chico*, the object of the relative clause. Notice that the argument structure of the sentence cannot be determined until we reach the differential object marker or the lack thereof, which increases the processing difficulty of the structure.

- (6) a. El chico que vio **a** Juan es muy alto. The boy that saw DOM Juan is very tall 'The boy that saw Juan is very tall.'
 - b. El chico que vio Juan es muy alto. The boy that saw Juan is very tall 'The boy seen by Juan is very tall.'

Given that Spanish word order is not a reliable cue for thematic role assignment in relative clauses, the correct analysis of DOM becomes crucial for the interpretation of these sentences. These two linguistic phenomena have been shown to be linguistic structures highly susceptible to attrition and/or incomplete acquisition in the language of heritage speakers, but have not been tested together. For this reason, we question first whether Spanish HS would be able to process adequately subject, object and prepositional relative clauses. If, as found for Russian (Polinsky, 2011), there is a subject bias in the interpretation of RC, then we would expect that sentences such as (6a), a subject RC, would be easier to process than object RCs (6b). However, if DOM is not fully mastered in these speakers, as previously shown (Montrul & Bowles, 2009; Montrul & Sánchez-Walker, 2013), then they will fail to interpret (6a) appropriately, since the understanding of DOM is mandatory in this construction to correctly assign the thematic roles. On the other hand, regarding word order, we are interested in assessing whether HS grammar's have available the stylistic inversion in relative clauses. We predict that if there is a strong English transfer in the grammars of these bilinguals, then the subject-verb inversion optionality in RCs will be severely reduced, eventually affecting the processing comprehension of these RCs.

3. Experiment

All participants completed a three-part survey online through surveygizmo.com. The first part was a language questionnaire about the participants' language background, where they grew up, their self-proficiency ratings in both languages,

and their average use of each language. The second section consisted of a short Spanish proficiency test (cloze test parts of DELE test) used by Montrul (2004) that consisted of a passage of text and 20 fill-in the blank comprehension questions; the maximum score was 20. The third part was an audio picture-matching task. The complete survey was done online at the convenience of each participant and the results were recorded by the survey platform.

3.1 Participants

Two groups were tested: one control group of monolingually raised Spanish speakers (N=9) and one group of Spanish HS (N=18). Subjects from the control group ranged from 21 to 44 (M=30) years of age. They live in Canada, but have been in the country for 5 years or less and were raised monolingually in different Spanish speaking countries (Spain, Colombia, Venezuela and Mexico). They are all graduate students and speak English as their second language. The Heritage Speaker group ranged from 18 to 50 (M=25) years of age. They were all born and raised in Canada or the USA to Spanish speaking parents. Thirteen of them reported Spanish as their L1 and five of them reported English as their L1, however; all of them reported learning their L2, either English or Spanish, before the age of 8. Furthermore, all HS reported English to be their most used language and their dominant language. The self-reported language use for the Spanish HS group averaged 74% use of English and 26% use of Spanish. The results of the proficiency test with a maximum possible score of 20, averaged for the native speakers 95% (M=19, SD= 0.81) and for the heritage speakers 68% (M=13.6, SD=1.94).

3.2 Task: Audio Picture Matching Task

All participants completed an online audio picture-matching task. This task consisted of 24 target questions and 12 distractors where participants had to listen to a sentence once (or twice if needed), and then match the sentence with two possible pictures by choosing A or B. The audio was recorded on PRATT and then each individual sentence was uploaded to the survey platform. The pictures were organized in pairs with reversible actions with animate referents i.e., each picture had the same actors, but in one picture one of the characters carries out the action (subject of the sentence), and in the other picture that same character is receiving the action (object). The 24 target questions and 12 distractors (K=36) were randomized and presented one at a time in a forward-only survey to avoid participants comparing the sentences that had the same pair of pictures. Two linguistic variables were manipulated, type of relative clause, with three levels (subject, direct object or prepositional RC), and subject-verb inversion, with two levels (V-DP or DP-V word order), making a total of 6 different categories, with 4 items in each category (a total of 24 target sentences). We included Prepositional RCs because it is the only construction in which word order and DOM do not interact, so this will be our baseline structure. The following are examples of each type, together with an example of the pairs of reversible-action pictures that were used in the experimental design:

- (7) Direct Object Relative Clauses
 - a. La novia que **cargó** <u>el novio ganó</u> el concurso. [(O)VS] The bride that carried the groom won the contest 'the groom that carried the bride won the contest.'
 - b. El novio que <u>la novia</u> cargó ganó el concurso. [(O)SV] The groom that the bride carried won the contest 'the bride that carried the groom won the contest.'

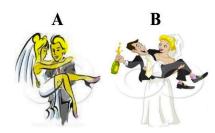


Figure 1. Reversible action picture sample used for the direct object relative clause.

- (8) Prepositional Relative Clauses
 - a. El ratón con el que **soñó** <u>el gato</u> era gris. [(Ob)VS] The mouse with the that dreamt the cat was grey 'the mouse about which the cat dreamt was gray.'
 - b. El gato con el que <u>el ratón</u> **soñó** era marrón. [(Ob)SV] The cat with the that the mouse dreamt was brown 'the cat about which the mouse dreamt was brown.'

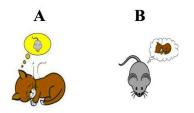


Figure 2. Reversible action picture sample used for the oblique relative clause.

- (9) Subject Relative Clauses
 - a. La señora que saludaba <u>a la chica</u> es muy amable [(S)VO] The lady that greeted DOM the girl was very kind 'the lady that greeted the girl was very kind'

b. La chica que <u>a</u> la señora saludaba es muy amable [(S)OV] the girl that DOM the lady greeted was very kind 'the girl that greeted the lady was very kind'



Figure 3. Reversible action picture sample used for the subject relative clause.

The same set of pictures were used for both the Direct Objet RC's and for the Subject RC's thus presenting these pictures 4 times to each participant. The pictures with the Prepositional RC's were only presented twice to each participant. The main goal of this task was to test participants on their comprehension of case assignment within relative clauses, but with different word order.

4. Results

Each token was coded with the correct answer in the survey platform giving correct answers a value of one and incorrect answers a value of zero. Therefore, the maximum score each participant could get per category was 4. With 4 tokens per 6 categories there was a total maximum of 24 possible correct answers. The answers were added per category for each person and the mean was calculated per person and per group. Figure 4 summarizes the proportions of correct responses by Word Order, group and type of RC.

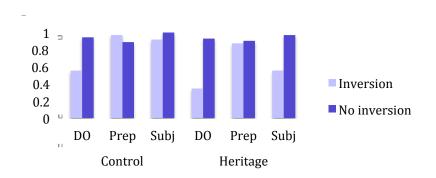


Figure 4. Proportions of correct responses by word order.

The overall accuracy for Spanish HS was 76% (SD= 0.25) and for the control

group 88% (SD=0.16). Furthermore, results showed that the control group and HS group had similar accuracy in 4 of the 6 categories: Direct Object RC without inversion 94% control, 93% HS; Prepositional RC with inversion 97% control, 88% HS; Prepositional RC without inversion 89% control, 90% HS; and Subject RC without inversion 100% control, 97% HS. However, the Direct Object RC with inversion was the least accurate for both groups: 56% control, 35% HS, suggesting that this type of clauses are difficult for all speakers, but even harder for the HS to interpret. Finally, the Subject RC with inversion had 92% accuracy for the control group but 56% accuracy for the HS group. Accuracy rates were submitted to a repeated measures ANOVA with two within-subjects variables, syntactic position (subject, DO and prepositional RC) and inversion (with and without), as well as one between-subjects variable of group (HS vs. control group). Results indicated that there was a significant main effects for inversion (F(1,25) = 6.94, p = .014); and a significant main effect for function (F(2,50) =15.002, p < .001). Also, there was only one significant interaction between function and inversion (F(2, 50) = 72.027, p < .001). No significant interaction was found between function per group (p>.05). Also, a main effect for group was found (F(1,25) = 10.63, p = .003) since the control group was more accurate than the HS group. These results demonstrate that non-inverted relative clauses are processed more easily than inverted relative clauses for both groups. Prepositional relative clauses had the most accuracy, followed by Subject RC and finally Direct Object RC. In terms of significant interactions, these findings show that word order is processed differently by Spanish HS than by the control group and Subject RC with inversion are not processed correctly by Spanish HS.

5. Discussions and Conclusion

The present study examined the comprehension of inversion and case assignment in relative clauses in Spanish HS due to their vulnerability to language loss. Through an auditory sentence picture-matching task, Spanish HS were compared to monolingually raised Spanish native speakers. The results showed that although for the most part Spanish HS are almost as accurate as the natives, there were two problematic areas that resulted in low accuracy. The first was the Direct Object RC with inversion [(O)VS] where both groups had low accuracy. This deficiency suggests that this type of construction is difficult in general for Spanish speakers, maybe it is even ambiguous for native speakers, since they seem to accept both interpretations in this type of sentences, disregarding the lack of DOM. This result also shows that monolingually raised native speakers use unmarked word order SV to interpret relative clauses. It remains for further research whether or not this split interpretation is due to incipient attrition of subject-verb inversion in these native speakers-recall that they live now in an English-environment-and that inversion in RCs in first generation immigrants has been proved to be subject to attrition (Perpiñán, 2011). Most importantly, this effect is tightly linked to the presence/absence of the *a personal* with animate referents, due to the fact that low accuracy rates were only found when DOM and word order interacted.

There is one construction, Subject RCs with inversion [(S)OV], that was only problematic for the Spanish HS, with 56% accuracy (vs. 92% accuracy in the monolingually raised Spanish speakers). Sentences such as La chica que a la señora saludaba es muy amable, are at chance level in HS, showing a processing difficulty when DOM and word order seem to send contradictory signals. This result is at odds with what Polinsky (2011) found, the HS in her study did not have particular problems with subject RCs, regardless of word order. In the present study, subject-verb inversion was not a problematic feature in the Prepositional RCs (the baseline construction), demonstrating that inversion is not the source of the problems; however, all constructions with no subject-verb inversion had higher accuracy rates (7b, 8b, 9a) than their inverted counterparts, in both groups. These results show that HS did not have problems interpreting subject-verb inversion, unless it interacts with DOM. So, we can conclude that it is the interaction of word order and DOM the focus of the difficulty, or simply the DOM. All participants, regardless of the unmarked word order in Spanish RCs, resort to word order over DOM as a reliable cue for sentence processing, proving that DOM is a vulnerable linguistic structure, as previous studies have shown (Montrul & Bowles, 2009; Montrul & Sánchez-Walker, 2013). On the other hand, even the structures that did not have DOM but had inversion (7a, [(O)VS]) also presented low accuracy rates amongst the Spanish HS. This fact can have two different (yet related) explanations. On one hand, we could assume that it is the unreliable knowledge about DOM that is causing the low accuracy rates, indicating that whether or not DOM is present, this feature is vulnerable, and thus, not processed by these speakers in order to assign thematic roles to the constituents. On the other hand, we can assume that it is when inversion and DOM interact that we find the problems. In any case, this study provides another piece of evidence about the vulnerability of structural case marking and in particular of DOM.

In conclusion, there are some clear differences between native speakers and heritage speakers. However, the fact that inverted and non-inverted oblique RC (Styl- Inv) were interpreted equally well indicates that heritage speakers are aware of the optionality of the Styl-Inv rule. The difficulty lies in understanding sentences where the object precedes the verb: (O)VS and (S)OV, which can be ambiguous, but only the Spanish HS had problems with SOV sentences with DOM. Therefore, DOM is not processed correctly in relative clauses that have marked order, and furthermore the default word order SVO is preferred even if DOM is present and required in Spanish.

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