On the production of differential object marking and *wh*-question formation in native and non-native Spanish

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The present study explores the elicited production of differential object marking and subject-verb inversion in matrix and embedded *wh-* questions in Spanish among 16 English-speaking L2 learners and 17 Spanish-speaking immigrants serving as control baseline. Results from an elicited production task show high levels of variability among the L2 learners, crucially with differential object marking in animate and specific contexts and with obligatory inversion in embedded *wh-* questions. Furthermore, our data show overall more difficulty with inversion in embedded questions than with differential object marking, suggesting that structural complexity, frequency and transfer from English may cause a structure not on an interface level to present more difficulties for advanced L2 learners in this case. The results are discussed along the lines with previous research on vulnerable domains, and the role crosslinguistic influence, structural complexity and surface overlap in language development.

1. Introduction

This study examines the elicited production of differential object marking (DOM) and interrogative subject-verb inversion among advanced English-speaking learners of Spanish, and compares their results with those of long-term Spanish immigrants to the United States as a control baseline. Differential object marking refers to the use of the preposition *a* to introduce animate and specific direct objects (1a) (Aissen, 2003; Leonetti, 2004). Interrogative subject-verb inversion, on the other hand, refers to the position that the verb occupies in interrogative questions (2a and 2b) (Goodall, 1993; Pesetsky & Torrego, 2001; Suñer, 1994). In most dialects

of Spanish, the lexical verb must always appear in pre-subject position, in argument matrix and embedded *wh*-questions. This is represented below:

(1) a. *Diego ayudó **a** Dora con su tarea.*
         "Diego helped Dora with her homework."   [+animate, +specific]

(2) a. *¿Qué compró Mario?*
         "What did Mario buy?"   [matrix *wh*-question]
     b. *No sé dónde escondió Dora sus juguetes.*
         "I don't know where Dora hid her toys."   [embedded *wh*-question]

Although the development of subject-verb inversion and DOM occur without incident during the first three years of life in Spanish monolingual children (Hernández-Pina, 1984; López-Ornat, 1994; Rodríguez-Mondoñedo, 2008), previous research among bilingual speakers documents different degrees of variability in the acceptability and interpretation of both DOM (Guijarro-Fuentes & Marinis, 2007; Montrul, 2004; Montrul & Bowles, 2009; Montrul & Sánchez-Walker, 2013) and interrogative subject-verb inversion (Austin, Blume, & Sánchez, 2013; Bruhn de Garavito, 2001; Cuza, 2013; Guijarro-Fuentes & Larrañaga, 2011; Mandell, 1998). Despite extensive work, researchers do not seem to agree on the source of these difficulties. Whether native-like ultimate attainment is possible or not and which factors affect performance appears to vary depending on the type of population, the type of task and the structures under analysis.

    We contribute to this current discussion by examining the acquisition of these two structures among very advanced English-speaking second language (L2) learners of Spanish and by comparing their knowledge of the two structures under analysis with that of long-term Spanish immigrants serving as controls. In addition, we introduce a much-needed elicited production task. Comparing L2 learners with long-term immigrants is more logical than comparing them with monolingual speakers simply because, as Grosjean (1989) rightly points out, the bilingual speaker is not two monolinguals in one person. Expecting L2 learners to behave like monolinguals in a language contact situation is simply unrealistic, and ignores the realities of bilingual development. L2 learners and long-term immigrants are similar in that they are both exposed to limited and variable Spanish input; furthermore, they both share another developed linguistic system as either a first or second language, and can both potentially be affected by cross-linguistic influence[1] (Schwartz & Sprouse, 1996; Sorace, 2000; Tsimpli, Sorace, Heycock, & Filiaci, 2004). However, these two groups are intrinsically different in regards to

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1. Cross-linguistic influence refers to the process where internalized language patterns from the L1 inhibit or facilitate the L2 acquisition process (Gass & Selinker, 1994; Odlin, 1989). This can also occur from the L2 into the L1 in the case of long-term immigrants undergoing L1 attrition.

age of onset of acquisition of Spanish. While the long-term immigrants acquired Spanish as a first language (L1) from birth, the English-speaking learners acquired Spanish as an L2 past maturation. If, as has been previously argued, the difficulties L2 learners have stem from age-related factors (Johnson & Newport, 1989), we would expect long-term immigrants to outperform post-puberty L2 learners. However, it is also possible that long-term-immigrants and L2 learners might show similar difficulties, in which case they could not be directly associated to age-related effects (Hopp & Schmid, 2011; Köpke, 2004).[2] As mentioned earlier, we also introduce an elicited production task to examine the knowledge L2 learners have of DOM and subject-verb inversion. Exploration of performance on this type of task is necessary given that previous research has centered primarily on acceptability judgments, which, as we know, are constrained by metalinguistic factors which favor L2 learners.

Furthermore, we are interested in examining whether the degree of difficulties with DOM and inversion, if any, is asymmetric, as would be predicted by previous research claiming interface vulnerability accounts (Argyri & Sorace, 2007). If, as argued, difficulties with the development of DOM stem from vulnerability issues at the syntax-semantics interface (Guijarro-Fuentes & Marinis, 2007; Montrul, 2004), we would expect L2 learners to show more deficits with DOM than with obligatory subject-verb inversion. Subject-verb inversion in Spanish *wh*-questions is a syntactic-driven operation, devoid of pragmatic or discourse extensions. That is, it is not licensed by interpretive phenomena, as is the distribution of subjects, for example (see Argyri & Sorace 2007; Pollock, 1989). Although there are some pragmatic implications in the formation of *wh*-questions in Spanish, inversion itself is not regulated by pragmatic factors in the sense of Sorace's interface-conditioned properties or in the sense that the distribution of personal *a* is. The distribution of differential object marking, in contrast, is an interface-driven operation, regulated by the interpretability of universal semantic and discourse features, including animacy, specificity, definiteness, agentivity of the subject and lexical aspectual class of the predicate (Aissen, 2003; Bossong, 1991; Torrego, 1984).

We propose that cross-linguistic influence from English, lower frequency levels, input ambiguity as well as the complexity of the structure easily explain the difficulties L2 learners have with these two structures. Specifically with inversion,

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L1 attrition refers to the grammatical restructuring of previously acquired L1 grammatical elements (Cuza, 2010; Gürel, 2004).

2. A reviewer is concerned that using long-term immigrants as control baseline is a limitation, as they might be undergoing L1 attrition depending on their age of immigration and level of proficiency in the dominant language. This is unlikely to be the case in our study given the socio-demographic background of our participants.

embedded questions are statistically less frequent than matrix questions and might, therefore, be more difficult to acquire. For example, a search on the Davies corpus of Spanish showed only 1 to 7 instances of indirect questions with *qué* ("what"), *cuándo* ("when") or *dónde* ("where") introduced by the indirect clause *Me pregunto…* ("I wonder…") compared to thousands of entries for the same *wh-*words as part of a matrix question. Embedded questions are also naturally more complex because they imply the subordination of a direct question, which is associated with an extra layer of syntactic structure. Thus, they are more marked, if we follow Roberts' (1999) proposal on markedness, and more difficult to acquire among English-speaking L2 learners of Spanish (see Frank, 2013a, 2013b for further discussion). In the case of DOM, the literature consistently documents considerable variability in the input, making this structure less categorical and, as a result, more difficult to process due to its intrinsic fuzziness (Montrul, 2004; Tippets, 2011) *vis a vis* other more salient or categorical structures like inversion.

   This chapter is organized as follows. In Section 2, we present a syntactic analysis of the two structures under examination. Section 3 provides a review of previous research on the bilingual development of subject-verb inversion and DOM in Spanish, together with our research questions and hypotheses. Section 4 presents the details of study, including the participants and methods. Section 5 provides the results and discussion, followed by the conclusions in section 6.

2.   The syntax of DOM and interrogative inversion in Spanish and English

2.1 Differential object marking

Differential object marking in Spanish refers to the obligatory marking of animate and specific objects with the preposition *a* (Aissen, 2003; Laca, 2006; Torrego, 1998). Inanimate objects, specific or non-specific, are not differentially marked. This is shown in (3a) and (3b) below:

> (3)   a.   *Ramiro extraña **a** su madre.*
>   "Ramiro misses his mother."   [+animate, +specific]
>   b.   *Ramiro extraña su casa.*
>   "Ramiro misses his house."   [−animate, +specific]

In (3a), there is an animate and specific direct object (*madre* "mother"). Therefore, the preposition *a* is required. In (3b), however, the direct objet (*casa,* "house") is inanimate, thus, differential marking is not required. Animacy, definiteness and specificity are considered to be the main interpretative features regulating differential object marking (Aissen, 2003). Definiteness refers to whether the direct

object is known or not by the speaker, while specificity refers to whether a particular entity is identifiable by the speaker due to its reference in the discourse (Farkas, 2002; Lyons, 1999).

Other properties such as lexical aspect have also been argued to play a role in regulating differential object marking in Spanish (Leonetti, 2004; Torrego, 1998). Leonetti (2004) refers to the existence of "donkey sentences" which, despite being non-specific, often elicit differential object marking from native speakers due to the animacy features of the object NP:

(4) *Ella conoce (**a**) muchas personas aquí*
     "She knows many people here"   [−definite, −specific]

The felicitousness of (4) becomes an argument for Leonetti (2004) to question specificity constraints in the regulation of differential object marking, and thus the author places more relevance on animacy features. Animate direct objects are always marked regardless of their specificity features. This contrasts with inanimate direct objects, which are prescriptively unmarked. A role for lexical aspect as a key component of DOM in Spanish is also supported by Torrego (1998). Torrego argues that when the subject is inanimate, accomplishment and achievement predicates (+telic/endpoint) are more likely to elicit the differential marking of animate/indefinite objects (*El vino emborrachó a varios invitados* "The wine got various guests drunk") than stative and activity predicates (-telic) (**La opera conoce a varios invitados* "The opera knows various guests") (examples taken from Torrego, 1998).

In terms of phrasal word order, the *a* marker in Spanish can appear either in a post verbal position in matrix questions or in a sentence initial position in clitic left dislocation structures (CLLD). Even in cases where the marker is optional in matrix sentences, it is required in CLLD structures with animate objects as a topic marker (Leonetti, 2004):

(5) *A muchos estudiantes, ya los conocía*
     "Many students I already knew"   (from Leonetti, 2004)

Although the [+animacy] feature is a relevant dimension for differential object marking in Spanish, this is not a categorical dimension intra or inter-dialectically speaking, which leads to ambiguity in the input. A case in point is the personification of non-animate objects (*Ernesto ama **a** su país* "Ernesto loves his country"), where the personal *a* is used with an inanimate object. Moreover, the use of DOM is often optional with animal direct objects (i.e., *La Caperucita Roja vio a**l**/el lobo* "Little Red Riding Hood saw the wolf") despite their intrinsic [+animate] features. Furthermore, when both the subject and the direct object are inanimate, the direct object is differentially marked (i.e., *El carro siguió **a** la bicicleta* "The

car followed the bicycle"). The ambiguous nature of DOM in the input is further enhanced by the variability that exists in many dialects of Spanish including the dialects of Mexico City, Buenos Aires and Madrid (Tippets, 2011). This "fuzziness" in the input, as Montrul calls it, represents a learnability problem for English-speaking L2 learners exposed to different varieties of Spanish in the United States (Montrul, 2010).

In contrast to Spanish, English does not encode differential object marking morphosyntactically. Although animacy and specificity features are universal semantic categories also present in English NPs, animate objects (specific or non-specific) are not introduced by any specific morphosyntactic element, as shown in the translations provided above. As we discuss in Section 3, this may lead English-speaking L2 learners of Spanish to omit the *a* marker in contexts where it is required [+animate, ±specific].

2.2 Subject-inversion in wh-questions

Spanish, like other Romance languages, presents obligatory subject-verb inversion in both matrix (6a) and embedded (6b) argument *wh*-questions (Baauw, 1998; Pesetsky & Torrego, 2001).[3] The lexical verb always appears before the subject (WH + V + S), except with adjunct interrogative clauses introduced by *por qué* ("why") (e.g., *¿Por qué Rosa compró el regalo?* "Why did Rosa buy the present?) (Suñer, 1994). In English, the subject remains *in situ* in both matrix (7a) and embedded questions (7b) (Rizzi, 1996). Lexical verb movement to a pre-subject position (COMP position) is not allowed in English but auxiliary verbs do raise to COMP position in matrix questions in the form of *do* support (T-to-C movement). Neither lexical verb movement nor *do* support, however, occur in embedded questions (Adger, 2001; Radford, 1997). This is represented in the Spanish examples in (6) and their corresponding English translations in (7):

(6) *Rosa compró manzanas.*
    a.   *¿Qué compró Rosa?*
    b.   *Me pregunto qué compró Rosa.*

(7) Rosa bought apples.
    a.   What did Rosa buy?
    b.   I wonder what Rosa bought.

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3. Subject-verb inversion in wh-phrases is not obligatory in Caribbean Spanish. The literature also argues for no obligatory inversion with adjunct clauses introduced by 'why'. Inversion with other adjunct wh-clauses introduced by 'when' or 'how' have been found to be less categorical than argument wh-questions introduced by 'what' or 'who' (Suñer & Lizardi, 1995).

As represented in (6a) and (7a), in both English and Spanish there is overt subject-verb inversion in matrix questions. In embedded questions, however, Spanish and English diverge, as there is no lexical or auxiliary verb movement in English.

Goodall (1993) proposes the VP-internal subject position hypothesis to explain this syntactic transformation in Spanish. According to his proposal, the lexical verb in Spanish is base-generated in initial position and the subject originates in post-verbal VP-internal position (Spec, VP). There is no subject raising to C, leading to a VOS word order (Contreras, 1987; Suñer, 1994). For English, Rizzi (1996) proposes a T-to-C movement operation, which argues for T(tense)-to-C(complementizer) movement of the AUX verb in matrix questions (*do* support). Regardless of the theoretical approach adopted for English or Spanish, the main point of interest for the purpose of this study lies in the lack of structural overlap between English and Spanish in regards to subject-verb word order in *wh*-questions, leading to potential learnability issues (Bruhn de Garavito, 2001; Mandell, 1998). In what follows, we discuss previous research on the acquisition of DOM and subject-verb inversion in Spanish among adult L2 learners and heritage speakers.

3.   The bilingual acquisition of DOM and subject-verb inversion in Spanish

3.1   Differential object marking

Research on the L2 acquisition of DOM has focused on the acquisition of the semantic and discourse properties constraining the realization of the personal *a* in Spanish, such as animacy and specificity (Bowles & Montrul, 2008; Guijarro-Fuentes, 2012; Montrul, 2010). Guijarro-Fuentes & Marinis (2007) examined the acquisition of DOM in Spanish among a group of English-speaking L2 learners via an acceptability judgment task (AJT). The authors examined the acquisition of personal *a* distribution in contexts regulated by specificity and animacy features of the object noun phrase (±animate and ±specific) as well as verbal semantics. Results showed significant differences between the L2 learners and the native speakers, specifically with more complex contexts involving the combination of animacy/definiteness features with verbal semantics. The authors account for the results on the basis of instructional effects and complexity issues associated with interface vulnerability phenomena (Sorace, 2005). However, the fact that the control participants were all speakers of Peninsular Spanish represents a methodological shortcoming given the documented dialectal variation in the distribution of personal *a* (Alfaraz, 2011; Tippets, 2011). It is not clear whether the L2 learners were only exposed to that variety of Spanish.

Difficulties with DOM were also found by Montrul (2010). The author conducted a narrative task and an AJT to examine the knowledge of DOM among heritage speakers and L2 learners. Montrul found difficulties even among the advanced learners, who showed around 26% of *a*-marking omission with animate objects in the narrative task. These results were corroborated by the AJT, although in this task the L2 learners outperformed the heritage speakers. The author attributes the difficulties to morphosyntactic convergence with English and to processing difficulties typical of interface-related phenomena.[4] Similar difficulties were found by Montrul & Bowles (2009), where heritage speakers accepted ungrammatical sentences and showed high omission rates in an oral narrative. The authors also found generalization of omission errors to instances of inherent dative case marking, including dative experiencers in *gustar*-type verbs. They conclude that difficulties stem from deeply rooted competence issues and that heritage speakers may not in fact instantiate inherent case marking due to input reduction and incomplete acquisition during early childhood.

Guijarro-Fuentes (2012) re-examined the L2 acquisition of interpretable features regulating personal *a* distribution, including animacy, specificity, as well as agentivity of the subject with different lexical verb classes (stative, activity, accomplishment and achievement predicates). An AJT and a fill-in-the-blank task showed significant differences between groups, although advanced learners did better with animate contexts. The author concludes that personal *a* marking is acquired in a gradual fashion depending on the complexity of the context and the amount of input. These results are limited as the author did not examine elicited production; thus, the actual production of these structures across different contexts remains unclear. It is generally accepted that L2 learners tend to do better in metalinguistic related tasks, such as AJT and cloze tests. Without elicited production data, it is difficult to have a clear picture of the status of these structures in the interlanguage grammar.

More recently, Montrul & Sánchez-Walker (2013) examined the acquisition of DOM among bilingual children and compared the results with adult heritage speakers, long-term immigrants and monolingual speakers. Results from an oral narrative and an elicited production task showed significant difficulties among bilingual children and heritage speakers with animate objects, as predicted. The long-term immigrants, however, showed fewer deficits but still showed signs of L1 attrition, according to the authors.

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4. Morphosyntactic convergence refers to the preference by bilingual speakers for one structure from the dominant language -usually less marked or less ambigious- over the more marked or ambiguous structure in the less dominant language, as is the case the Spanish personal – a.

3.2 Subject-verb inversion in Spanish interrogatives

Subject-verb inversion in Spanish interrogatives has been found to be challenging for bilingual children (Austin et al., 2013; Cuza & Strik, 2012), Spanish heritage speakers (Cuza, 2013) and adult L2 learners (Bruhn de Garavito, 2001; Frank, 2013a; Mandell, 1998). In an earlier study within the Principles and Parameters framework, Mandell (1998) found target inversion patterns with matrix *wh*-questions among English-speaking learners of Spanish. He concludes that resetting of the verb movement parameter (which is argued to include subject-verb inversion with thematic *wh*-questions as one of its properties) is possible among adult L2 learners. However, the author did not examine embedded *wh*-phrases, which are more complex to process and more difficult to acquire.

It is precisely with embedded questions where English and Spanish diverge, as far as interrogative inversion is concerned. Thus, a valid question is whether advanced L2 learners behave target-like with embedded question formation as they do with matrix. In this regard, Frank (2013a) found that English-speaking learners of Spanish frequently produce non-target subject-verb word orders in embedded questions but not in matrix. Interestingly, in the direction of English, Frank (2013b) found that highly proficient second language learners similarly produce statistically more non-target forms (i.e., non inversion) in embedded than in matrix contexts. Frank's results suggest that the complexity associated with embedded constructions is correlated with an increase in the production of non-target word orders. Further support comes from the L1 acquisition literature. Hildebrand (1987), for example, found that the more embedded the *wh*-word was, the more difficult it was for young children to repeat the phrase correctly, most probably due to processing issues. Stromswold (1990) also found that monolingual English-speaking children have inversion errors in embedded questions before the age of 5 or 6 but no difficulties are found with auxiliary inversion in matrix questions or yes/no questions.

Cuza (2013) examined the effects of cross-linguistic influence in the acquisition of obligatory inversion among Spanish heritage speakers. Results from an acceptability judgment task and two production tasks showed low sensitivity to obligatory inversion, especially with embedded questions, which appeared to be more difficult to process. Similar results were found by Cuza and Strik (2012) in a cross-sectional study testing obligatory inversion among Spanish-English bilingual children born and raised in the U.S. Results from an elicited production task showed significantly lower rates of inversion, especially with embedded *wh*-questions, as in previous research. The asymmetries found in the development of matrix and embedded *wh*-questions mirror previous research documenting structural complexity dimensions in the L2 acquisition of *wh*-phrases (Frank, 2013a).

3.3   Research questions and hypotheses

Based on previous research, the existing differences between English and Spanish regarding DOM and interrogative inversion patterns in English and Spanish, and the assumption of cross-linguistic influence from English as L1, we investigate the following research questions:

(1) Do English-speaking learners of Spanish eventually achieve target knowledge of DOM and interrogative subject-verb inversion at advanced stages of development?
(2) If difficulties are found, do the participants have more problems with DOM than with interrogative inversion? And, can cross-linguistic influence from English, structural complexity and input ambiguity account for the results found?

In addition to previous research, we implement an elicited production task and compare the knowledge L2 learners have with that of long-term Spanish immigrants. Moreover, we examine and compare the acquisition of two structures intrinsically different in terms of their feature specifications but also in terms of their statuses in day-to-day input, as previously explained. We pose the following hypotheses:

Hypothesis 1.   L2 learners will show significant omission of personal *a* in animate contexts, where the personal *a* is required. However, they will not show overextension of the personal *a* marker to inanimate contexts since this is where English and Spanish converge.

Hypothesis 2.   L2 learners will show significant patterns of non-target subject-verb inversion in *wh*-questions. Specifically, we expect higher levels of non-target inversion with embedded questions than with matrix questions. Embedded questions are more structurally complex and less frequent than matrix questions, and this is where English and Spanish diverge the most in terms of inversion.

Hypothesis 3.   L2 learners will have more difficulties with the acquisition of DOM than with inversion. DOM is a non-categorical property characterized by a great deal of 'fuzziness' and variability among native speakers, making it more complex to process than interrogative inversion.

In what follows we present the study, the discussion and conclusions.

4.   The study

4.1   The participants

Thirty-three (*n* = 33) participants took part in this study: 16 English-speaking L2 learners of Spanish and 17 long-term Spanish immigrants serving as a control baseline. All participants completed a language history questionnaire, which included a proficiency self-assessment portion for both English and Spanish. In addition, the L2 learners completed a modified version of the DELE proficiency test in Spanish (Cuza, Pérez-Leroux & Sánchez, 2012). The test included a lexical task and a cloze task, and it had a total score of 50 points. The participants were tested in a private room and completed all tasks in one siting of approximately one hour. The testing, data entry and analysis was conducted by the authors.

The L2 learner group consisted of 16 English-speaking learners of Spanish attending a major research university in the American Midwest. They had an average age at testing of 23 years (*SD* = 1.9), and an average age of onset of bilingualism of 14 years (*SD* = 2.21). Their mean score on the DELE test was 44 out of 50 points (range, 40-49 points), meaning that all L2 participants can be considered 'advanced' learners following previous research (Montrul & Slabakova, 2003). Most participants reported using only English or mostly English at home (94%) as well as in social situations (88%). At work and school, some participants reported using slightly more Spanish, but the majority reported using only English or mostly English. 75% of the participants felt more comfortable speaking in English. The rest reported to feel equally comfortable with both languages. These patterns of language use show that despite a high level of Spanish proficiency, this population is English dominant.

The immigrant group consisted of 17 long-term Spanish immigrants from Argentina, El Salvador, Mexico and Ecuador. Their mean age of arrival to the United States was 24 years old (*SD* = 8.8), and their mean length of residence was 19 years (*SD* = 7.2). Their overall proficiency in English (including writing, reading, speaking and listening) was self-reported as almost good/fluent (average rating of 2.8/4), and in Spanish as excellent (3.9/4). Regarding patterns of language use, 70% reported speaking more Spanish at home, while 20% reported speaking more English. At work, 41% of participants indicated that they speak more English, while the rest indicated speaking more Spanish or both. In social situations, 40% reported speaking more Spanish, 29% reported speaking more English and 35% reported speaking both. When asked in which language they currently felt more comfortable, 71% expressed feeling more comfortable in Spanish and 29% expressed feeling more comfortable in both languages. This shows that despite almost 20 years of residence in the U.S., these immigrants still feel much more dominant in Spanish, as it is part of their daily life in their specific community.

Thus, it is unlikely that they would show patterns of L1 attrition, which makes them an appropriate control group.

4.2   Methods

4.2.1   *Direct object marking*

We tested knowledge of DOM in [+animate, +specific] contexts, where production of the *a* marker is required, as well as in [−animate, +specific] contexts, where it is not required. Although there are other syntactic and semantic variables affecting DOM in Spanish, we decided to focus solely on these two dimensions because they constrain differential object marking more categorically. In addition, we were interested in examining the elicited production of these structures, as previous research has focused primarily on metalinguistically constrained tasks (Guijarro-Fuentes, 2012; Montrul & Bowles, 2009).

The elicitation task consisted of a question-and-answer task, which comprised a total of 20 test tokens (10 for each condition), plus two training items. The test sentences were read aloud to the participants with the aid of images presented via PowerPoint. The participants were asked to answer the questions using the verb between parentheses and the information provided in the image when responding. To avoid phonological reduction of the direct object marker, verb conjugations ending in the vowel −a (e.g., *llama a*) were excluded. This procedure represented in (8) and (9) below:

Question-and-answer Task (matrix sentences)

(8)   [+animate, +specific]   −a √
                    (here a photo of a journalist interviewing Piqué)

Preamble: *El periodista está muy ocupado.*
                    "The journalist is very busy."

Prompt: *¿Qué está haciendo?*   *(está entrevistando* "is interviewing")
                    "What is he doing?"

Target: *El periodista <u>está entrevistando **a** Piqué</u>*
                    "The journalist is interviewing Piqué."

(9)   [−animate, +specific]   −a⋆
                    (here a photo of Garfield painting a house)

Preamble: *Garfield está trabajando mucho hoy.*
                    "Garfield is working a lot today."

Prompt: *¿Qué está haciendo?*
                    "What is he doing?"   *(está pintando "is painting")*

Target: *Garfield <u>está pintando (a⋆) su casa</u>*
                    "Garfield is painting his house."

Two randomized versions of the task were developed and counterbalanced across participants. Interviews were conducted by the authors in a private office or public place for a period of one hour, and responses were digitally recorded for later analysis.

4.2.2   Subject-verb inversion

Subject-verb inversion in matrix and embedded *wh*-questions was similarly elicited via an elicited production task (adapted from Cuza, 2013). This task included a question-and-answer task, which aimed to elicit inversion in matrix *wh*-questions, and a sentence-completion task, which was aimed to elicit target inversion in embedded *wh*-questions. In both tasks, the participants were required to provide a response taking into account the preamble provided and the verb between parentheses. This is represented below.

> Question-and-answer Task (matrix questions)

(10) **Preamble:** *Diego y Dora están jugando en la calle. Dora le prestó su bicicleta a Bert pero Diego le prestó su bicicleta a alguien muy importante. Es decir, Diego le prestó su bicicleta a alguien pero no sabes a quién.* "Diego y Dora are playing on the street. Dora lent her bike to Bert but Diego lent his bike to someone very important. That is, Diego lent his bike to someone but you don't know to whom."

    Prompt: *Pregúntame* "Ask me"   *(prestó, "lent")*
    Target: *¿A quién le prestó Diego su bicicleta?*
             "To whom did Diego lend his bike?"

> Sentence-completion Task (embedded questions)

(11) **Preamble:** *Diego y Dora están organizando una fiesta. Yo quiero saber quién vendrá a la fiesta y te pregunto. Tú sabes que Diego invitó a Bert y que Dora invitó a un buen amigo de ella pero no sabes a quién.* "Diego and Dora are organizing a party. I want to know who is coming and I ask you. You know that Diego invited Bert and that Dora invited a good friend of hers but you don't know who."

    Prompt: *Respóndeme* "Answer me"   *(invitó, "invited")*
    Target: *No sé… a quién invitó Dora a su fiesta.*
             "I don't know… who Dora invited to her party."

The task contained a total of 20 test tokens: 10 matrix questions and 10 embedded questions. Following previous research using the similar methodology, we examined subject-verb inversion in different *wh*- extraction sites including animate and inanimate direct objects (*qué* "what"), indirect objects (*a quién* "to who")

and adjuncts (*dónde* "where", *cuándo* "when", *cómo* "how"). We excluded adjunct clauses introduced by *why* since inversion in those cases is optional. All test items included proper names in subject position (Dora, Diego, Bert) rather than personal pronouns. For scoring purposes, target responses (use of personal *a* in animate contexts and omission in inanimate contexts in the case of DOM and placement of the subject after the verb in the case of the inversion task) were scored as 1. Non-target answers (omission errors with animate objects and commission errors with inanimate objects in the case of DOM and placement of the subject before the verb in the inversion task) were scored as 0. In cases when the participant used another form, the response was excluded from the analysis.[5]

5.   Results and discussion

5.1   Differential object marking

As predicted, the L2 learners showed high levels of personal *a* omission in animate contexts, with only 80% target production. However, they showed no difficulties with inanimate contexts (94%), as expected. The long-term immigrants showed ceiling performance in both animate and inanimate contexts (99%). These results are represented in Figure 1 below.
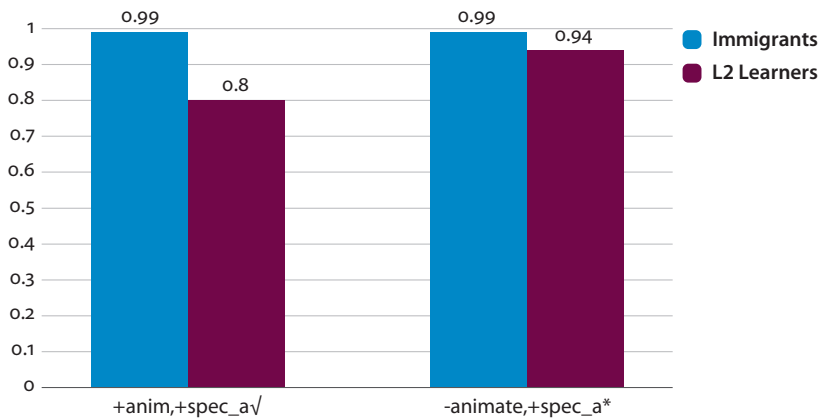

Figure 1. Proportion of target responses for DOM marking in animate and inanimate contexts per group

5. This included cases where the participant used another preposition instead of the preposition a as in Karen está esperando por Francisco instead of Karen está esperando a Francisco ("Karen is waiting for Francisco). These answers were coded as 'other' and excluded from the analysis.

A repeated measures ANOVA with post hoc comparisons with group and condition as independent factors and the proportion correct as the dependent variable showed significant differences between groups ($F(1, 31) = 17.52$, $p < .000$). A Tukey post hoc test examining the differences pairwise showed significant differences among groups with animate contexts ($p < .000$) but not with inanimate contexts ($p = 0.78$). The L2 learners showed significantly higher levels of omission compared to the immigrants, confirming

Hypothesis 1. The data also show that the L2 learners treated animate and inanimate conditions significantly different ($p = .031$). It is important to note that despite the long length of residence in the United States, the immigrants showed ceiling performance. This contrasts with recent research using similar methodology documenting more difficulty among long-term immigrants (Montrul & Sánchez-Walker, 2013).[6]

A closer look at the individual data among the participants confirmed the group results. Only 63% of the participants showed high level of personal *a* production. The rest of the L2 learners showed much lower levels of target use despite their high level of proficiency in Spanish. With inanimate contexts, 94% of the participants showed high level of omission, as predicted. This is represented in Table 1.

Table 1. Individual results: personal *a* use by condition per group

groups	# target items	+anim,+spec_a√	−animate,+spec_a*
L2 Learners	8-10	63% (10/16)	94% (15/16)
	5-7	31% (5/16)	6% (1/16)
	1-4	6% (1/16)	0% (0/16)
	0	0% (0/16)	0% (0/16)
Immigrants	8-10	100% (17/17)	100% (17/17)
	5-7	0% (0/17)	0% (0/17)
	1-4	0% (0/17)	0% (0/17)
	0	0% (0/17)	0% (0/17)

The fact that the L2 learners did not show much variability with inanimate contexts supports a role for crosslinguistic influence from English, a language that does not instantiate differential object marking. These results contradict previous

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6. It is possible that oral production in long-term immigrants is less vulnerable to attrition, in contrast to grammatical intuition or interpretation, which seem to undergo much more variability in language contact situations. Although some of our long-term immigrants were Spanish instructors, there were no differences at the individual level with the other immigrants who were not Spanish teachers.

work arguing for a gradual development of DOM depending on the complexity of the context (Guijarro-Fuentes, 2012). We examined the most commonly used and taught dimension of DOM (+animate, +specific), and, even so, we still found low levels of target use despite the participants high level of L2 proficiency. The high error rate with animate objects and the lower rate of commission errors with inanimate objects are consistent with previous findings (Montrul, 2010).

5.2 Subject-verb inversion

As expected, results from the second task showed low levels of target inversion among the L2 learners with embedded (70%) questions but not with matrix questions (90%). This contrasts with the results of the immigrant group who showed ceiling performance with both types of *wh*-questions. This is represented in Figure 2:
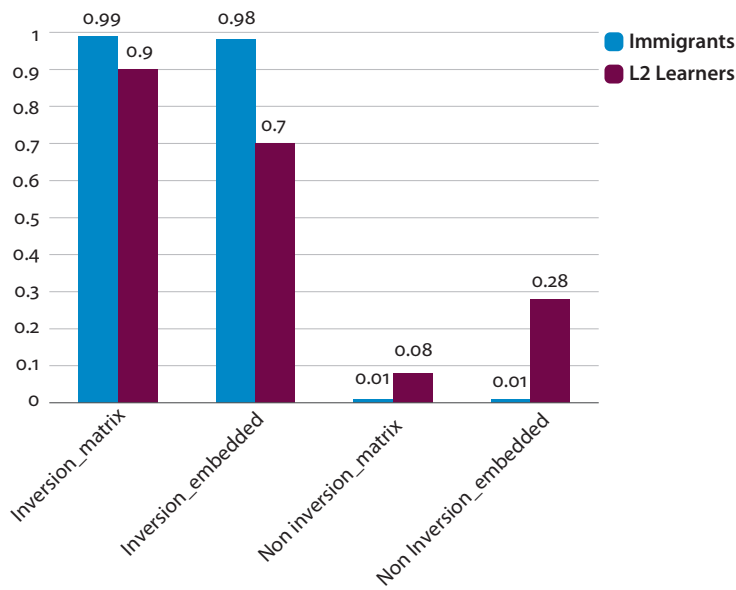
Figure 2. Proportion of inversion and non-inversion in matrix and embedded questions between groups

A repeated measures ANOVA with post-hoc comparison with group and condition as independent variables and the proportion correct as the dependent factor showed significant differences between groups ($F(1, 31) = 14.01$, $p < .000$). Results from a Tukey post hoc test looking at the differences pairwise showed highly significant differences between groups with embedded questions ($p < .000$) but no significant differences with matrix questions ($p = .52$). The L2 learners behaved

significantly different from the controls with embedded questions, confirming Hypothesis 2. As in the case of DOM, the L2 learners also treated both types of *wh*-clauses significantly different ($p < .000$) in regards to obligatory inversion but the immigrants did not ($p = .99$).

In order to examine the differences among individual speakers within the group, we conducted an individual analysis. The results showed much higher level of variability among the L2 learners with embedded questions, confirming the group results. This is represented in Table 2:

Table 2. Individual results: Target proportion of inversion in matrix and embedded questions per group

groups	# target items	Inversion_matrix	Inversion_embedded
L2 Learners	8-10	94% (15/16)	50% (8/16)
	5-7	0% (0/16)	31% (5/16)
	1-4	6% (1/16)	13% (2/16)
	0	0% (0/16)	6% (1/16)
Immigrants	8-10	100% (17/17)	100% (17/17)
	5-7	0% (0/17)	0% (0/17)
	1-4	0% (0/17)	0% (0/17)
	0	0% (0/17)	0% (0/17)

As shown in Table 2, only half of the L2 learners showed high levels of target inversion with embedded questions. The immigrants, however, showed ceiling performance. There were two specific items that caused more difficulty to the L2 learners:

(12)   a.   *No sé dónde compró Dora el regalo.*
            "I don't know where Dora bought the present."
       b.   *No sé cómo gastará Diego su dinero.*
            "I don't know how Diego will spend his money."

The lack of inversion with these adjunct phrases is not surprising as the literature often considers inversion in non-argument *wh*-phrases to be less categorical *vis a vis* inversion with argument questions (Suñer, 1994; Suñer & Lizardi, 1995; Torrego, 1984).[7] However, this cannot be confirmed by our data as the lack of inversion with adjunct clauses occurred primarily with embedded questions, not matrix questions, and only among the L2 learners.

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7. Argument-adjunct asymmetry effects have also been found in the acquisition of interrogative subject-auxiliary inversion among English monolingual children (DeVilliers, 1991; Stromswold, 1990) and adult L2 learners (Lee, 2008). This has been attributed to either the underlying syntactic differences between adjunct and argument wh-phrases or to input frequency effects.

The asymmetry between matrix and embedded questions confirms our claims of a role for structure complexity in the L2 acquisition of interrogative subject-verb inversion in Spanish despite high levels of bilingual ability. As explained earlier, it is precisely in embedded questions where English and Spanish diverge the most since there is no auxiliary or lexical verb movement in English. Embedded questions are also more difficult to process and more computationally costly than matrix questions, which might have influenced the results. Our findings also confirm previous research suggesting that adult L2 acquisition occurs in a piece-meal fashion; some grammatical structures will be completely acquired while other related structures will remain indeterminate.

In contrast with previous research arguing for interface-related constraints in the acquisition of personal *a* (Guijarro-Fuentes & Marinis, 2007; Montrul, 2010), our results show that both DOM and subject-verb inversion can be challenging even among highly advanced L2 learners of Spanish. Therefore, their difficulties cannot stem deterministically from interface-related phenomena. In fact, our results suggest the subject-verb inversion with embedded questions is actually more challenging (lower accuracy levels, more variability across participants) than DOM, disconfirming Hypothesis 3 as well as previous research on interface-related phenomena.

The fact that the L2 learners failed to invert crucially with embedded questions suggests a role for structure complexity, as embedded questions are more computationally costly to process than matrix questions. Furthermore, embedded questions are not as frequent as matrix questions in day-to-day input or in formal classroom input. It is also with embedded questions where English and Spanish diverge the most on how they instantiate subject-verb word order. This structural divergence, together with low input frequency and syntactic complexity factors might cause the structure to remain indeterminate in the interlanguage grammar. Regarding DOM, the omission of personal *a* with animate objects suggests a protracted development influenced by cross-linguistic influence from English. The complete acquisition of this structure is also affected by the fact that DOM is a variable domain in the monolingual norm as discussed earlier (Leonetti, 2004; Tippets, 2011). As a result, the input L2 learners receive is not categorical, leading to indeterminacy in the interlanguage grammar similar to the one found with preterite versus imperfect distinctions or the subjunctive mood in Spanish (Collentine, 2010; Montrul & Slabakova, 2003). Thus, we would like to argue that the deficits L2 learners have shown in these two structures are conditioned by crosslinguistic influence from English, complexity issues and input ambiguity.

6.   Conclusions

This study examined the knowledge that highly advanced L2 learners of Spanish have of differential object marking and obligatory subject-verb inversion in *wh*-questions in Spanish, two structures that diverge in both their featural configurations and statuses in the input. In contrast to previous studies examining L2 learners' interpretation and intuition of these two structures, we investigated patterns of elicited production, and incorporated a group of long-term immigrants as control baseline.

Our results showed significant difficulties with both morphosyntactic structures among the L2 learners. Regarding inversion, deficits were localized with embedded questions only, suggesting complexity effects. Regarding DOM, deficits were localized with animate objects only, as expected following a crosslinguistic influence account. In contrast with recent research arguing for the L1 attrition of personal *a* marking among Spanish immigrants to the U.S. (Montrul & Sánchez-Walker, 2013), our long-term immigrants serving as controls showed ceiling performance with both structures.

We have argued that L2 learners' difficulties in these two domains of the grammar stem from structural complexity issues, input quality and frequency, and crosslinguistic influence effects. Our results corroborate previous research in second language acquisition documenting local non-native-like representations after a certain age (Beck, 1998; Coppieters, 1987; Hawkins & Chan, 1997; Liceras, 1989; 1996). It appears that some grammatical areas within the verbal phrase and the complementizer phrase are destined to perennial optionality despite high levels of L2 proficiency and extensive exposure to the second language. These grammatical areas seem to be characterized by fuzziness/ambiguity in their overt representation and by intrinsic complexity. These characterizations, together with diverging parametric settings in the L1 and maturational effects, easily account for the patterns of non-native-like attainment we have found in the present study.

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