THE INTERPRETATION AND PRODUCTION OF INALIENABLE POSSESSION IN L2 AND HERITAGE SPANISH

by

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Para mi mamá:

Por tu lucha, tu amor y tu apoyo incondicional.

Por darme raíces para crecer, alas para volar y motivos para siempre regresar.

Esta tesis está dedicada a ti.

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ABSTRACT

This study examines the interpretation and production of inalienable possession among heritage speakers and English-speaking L2 learners of Spanish. Inalienable possession lies at the syntax-semantics interface and has previously been found to be challenging among bilingual populations (Giancaspro & Sánchez, 2019; Montrul & Ionin, 2010, 2012; Pérez-Leroux et al., 2002). In particular, this study explores the extent to which Spanish heritage speakers and L2 learners exhibit knowledge of Spanish inalienable possession with pronominal verbs requiring the use of the clitic *se*. Results from an Elicited Production Task and a Contextualized Preference Task administered online showed that the L2 learners followed a distinct pattern of response compared to the native speakers in the production and interpretation of inalienable possession. This pattern was characterized by the preference of possessive determiners over definite determiners. Heritage speakers, on the contrary, were not found to differ from the native speakers of Spanish. They behaved similarly to the control group as they followed the continuum that emerged for inalienable possession. That is, both groups were more accepting of definite determiners, while they showed less preference for structures with possessive determiners. The findings are discussed in terms of current debates on the role of language transfer in bilingual grammars and the effects of language exposure and use.

CHAPTER 1. INTRODUCTION

1.1 Introduction and goals of the study

A perennial challenge on bilingualism and language acquisition research has been to examine the differences and similarities that heritage speakers and second language learners have. These two groups of speakers have been at the center of a comprehensive body of research as they go through different experiences in the language acquisition process. Some researchers have argued that regardless of the mode of acquisition these speakers share common characteristics in their linguistic outcomes (e.g., Lynch, 2003). The aim of this study is to examine the possible differences or similarities among heritage speakers and L2 learners of Spanish in the acquisition of a syntax-semantics interface area. Specifically, the study focuses on the knowledge speakers exhibit to express inalienable possession.

Inalienable possession refers to a relationship of belonging in which an element cannot be interpreted as being apart from the person who possesses it. This relationship is typically marked with body parts, clothes or kinship terms (e.g., Camacho, 2018; Vergnaud & Zubizarreta, 1992; Winters, 2003). The syntax and semantics of the determiners used in inalienable possession vary in Spanish and English. In Spanish, a definite determiner is preferred to express inalienable possession (e.g., *María se lavó* ***la*** *mano "Marie herself washed the hand*" "Marie washed her hand"). However, a possessive determiner is required in English to express the inherent connection between the possessor and the element possessed (e.g., Marie washed **her** hand). The use of a definite determiner in the previous English sentence would indicate that the body part does not belong to Marie but to another person. It would be interpreted as a case of alienable possession.

Inalienable possession has been of particular interest in language acquisition and bilingualism as English and Spanish differ syntactically and semantically to encode it. Previous research has already shown that other syntactic and semantic aspects in which both languages differ can be problematic for heritage speakers and L2 learners. Some of these areas include knowledge of grammatical gender (e.g., Alarcón, 2011; Cuza & Pérez-Tattam, 2016; Montrul et al., 2008), tense, mood and aspect in Spanish (e.g., Cuza & Miller, 2015; Montrul, 2005; Montrul & Perpiñán, 2011; Pérez-Cortes, 2016), Wh-movement (e.g., Montrul, 2008), double-que questions (e.g., Cuza & Frank, 2010, 2011), and definite articles production (e.g., Cuza et al., 2013; Pérez-Leroux et al., 2004; Montrul & Ionin, 2012) among other areas.

Previous work on inalienable possession has mostly explored whether L2 learners acquire the semantics of the Spanish definite determiner in this type of possession. Additionally, it has been investigated whether Spanish speakers who are in contact with English have difficulties to express some types of constructions involving an inalienable relation. However, to my knowledge, no study has explored the existence of different strategies to express inalienable possession in Spanish.

The goal of the present study is to add to the current discussion by analyzing the extent to which heritage speakers and L2 learners exhibit knowledge of inalienable possession. This study is unique as it explores both the production and the interpretation of speakers in more complex structures requiring the use of clitic *se*. An elicited production task and a contextualized preference task will be implemented to elicit data. Moreover, this study aims to explore the effects of patterns of language use and language proficiency in the target production and interpretation of inalienable possession.

Pinpointing areas in which heritage speakers and L2 learners differ or not is a crucial step in current research. It is a key factor to design any pedagogical or linguistic intervention. The findings gained from this research can provide a reliable starting point to develop theories about how heritage languages are acquired, understand how bilingual linguistic systems are built, expose their needs and meet the educational demands of each group. The results of this research can also have effects on language planning and policies in school settings in the United States. It can influence the decision making of people who are less informed or concern about bilingualisms and shape the way languages are taught.

1.2 Outline of the thesis

This thesis is organized as follows. Chapter two provides a definition of inalienable possession and describes the syntax and semantics of inalienable possession in Spanish and English. Chapter three outlines previous research on the acquisition of inalienable possession and presents the research questions and hypothesis of the study. Chapter four describes the participants, the methodology and the results of the current study. Finally, Chapter five discusses the results in relation to the hypothesis proposed and presents the findings of the study.

CHAPTER 2. INALIENABLE POSSESSION

2.1 Introduction

This chapter has two objectives. First, it aims at presenting concepts and syntactic approaches towards inalienable possession. Second, it describes differences between Spanish and English. In section 2.2, definitions for the term inalienable possession are provided. In section 2.3 I describe how inalienable possession is syntactically encoded across languages and how inalienability is analyzed under three hypotheses. Sections 2.4 and 2.5 present the syntactic and semantic properties of inalienable constructions in English and Spanish. Finally, in section 2.6, a discussion about the main differences between Spanish and English is presented.

2.2 What is inalienable possession?

Inalienable possession describes a type of possession denoting a marked relation between a possessor (a person that possesses an entity) and a possessee (an entity which is actually in possession of the possessor). Heiman (1983) claims that it exists two types of possessive relationships that can be distinguished by considering a distance between the possessor and the possessee.

1) I took the hand.

2) I took your hand.

Sentences (1) and (2) have the same verbs and syntactic constructions. However, the relationship between the elements is different. Heiman indicates that in (1), the relationship involves a great distance possessor-possessee. This is known as alienable possession. In (2), the relationship indicates closeness between the possessor and the possessee. It is called inalienable

possession. The existence of two types of possession was also proposed by Chappell & McGregor (1996). For these authors, a possessive relation is stablished based on the connection existing between two entities. An indissoluble, permanent, and inherent connection between a possessor and a possessed object leads to the notion of inalienability, whereas a less permanent and free association between these two referents leads to alienability. In sentences (3a-b), the element *cabeza* "head" cannot be thought as being detached from the speaker that enunciates the sentence. On the contrary, the object *caja* "box" in sentences (4a-b) is not associated with the speaker.

3) a. *Bajé la cabeza.*

b. I lowered my head.

4) a. *Bajé la caja.*

b. I dropped the box.

The term inalienable possession stands for a notion of semantic dependency in which a possessed object is defined in terms of another object to which it belongs (e.g., Camacho, 2018; Heine, 1997; Nichols, 1988; Vergnaud & Zubizarreta, 1992; Winters, 2003). This type of notion evokes an intrinsic relationship between a possessor and an element possessed. The latter is so tight to the possessor that it cannot be separated or conceived of being apart from it. Since inalienability is granted by the close relation of the element possessed with its possessor, nouns that function as inalienables are limited.

Inalienable nouns generally include items that are spatially, socially, or biologically tied to a possessor (e.g., Chappell & McGregor, 1996). However, there are nouns, which despite of being semantically assigned to these categories, do not belong to the group of inalienables. Inalienable nouns include body-part nouns and a group of other nouns called "extended inalienables". Vergnaud and Zubizarreta (1992) argue that the extended category includes nouns for clothing,

kinship, picture and others like computer and car. The extent to which one can predict which nouns are inalienable is scarce. It does not exist a universal set of inalienable nouns and membership to the group of inalienables varies from one language to another (e.g., Nichols, 1988).

2.3 The syntax of inalienable possession

Inalienable possession exists in many languages of the world. However, the relation between the possessor and the possessee is marked differently in the syntax of each language. In some languages, it exists a distinction between the order in whih these two entities appear. In others, it involves the alternation between the use of various grammatical constructions or the incorporation of various syntactic elements within a sentence.

Kyei-Mensah (1998) identifies four ways in which inalienable possession is encoded in different languages. In African languages such as Mandinka, Jula, Kanakuru and Tinrin, the possessee might appear juxtaposed to the possessor. In indigenous languages of North America as creek and Mohawk, it has been attested that the possessor might be incorporated into the possessee or the verb. In other languages (e.g., Paamese), the inherent relationship between possessor and possessee might be manifested through affixation. Inalienable possession is distinguished from alienable possession as the possessee is suffixed. Lastly, the possessor maintains a specific grammatical relation in the construction. This is the case of Bantu in which the possessor has to occur as direct object in order to be interpreted as attached to a possessee.

Similarly, Winters (2003) points at the presence of two types of constructions in which inalienable possession is encoded. The first type uses a dative argument external to the possessed noun phrase (NP) or determiner phrase (DP). The second type uses definite articles, indefinite articles or possessive adjectives internal to the noun phrase (NP) or determiner phrase (DP). The

first type of construction is characteristic of Indo-European languages such as German or Russian, while the second one is mostly common in Romance languages.

The literature suggests that inalienable possession has received various structural representations over time. Generally, the intrinsic relationship that characterizes this type of possession has been represented syntactically under the assumption that possessees (entities in possession) are arguments of the possessor (e.g., Guéron, 1983; Tellier, 1990; Vergnaud & Zubizarreta, 1992). According to Alexiadou (2003), three representations have been proposed to symbolize inalienable possession. In the first representation, a possessee is linked to a possessor that takes the form of a null pronominal. In the second representation, inalienable possession is characterized by a structure of higher and lower nodes. The possessor takes a higher position and the possessee a lower one. However, a close relationship is maintained among them as the possessee is encoded in a determiner phrase (DP) which takes a specifier position inside the projection of the noun. In the third representation, inalienable possession is expressed through a complex predicate formation in which the verb of the clause allows a prepositional phrase (PP) to be associated with a direct object. A review of the literature reveals that the syntax of inalienable possession is challenging as there is not correspondence between a syntactic structure and the notion of inalienability. Inalienable possession can be encoded in different types of constructions and structures in each language.

Some authors have attempted to contribute to the understanding of inalienable possession by studying the structures related to it. The issues and mysteries revolving around this type of possession have motivated scholars to find ways to represent the relation possessor-possessee under one syntactic theory that accounts for inalienable possession in all languages. Three salient

hypotheses explain how inalienable possession must be represented and the constraints that must be met for it to happen.

2.3.1 The binding hypothesis

Guéron (2003) proposes that inalienable possession corresponds to a form of anaphoric binding. Her claim is based on the idea that inalienable possession and anaphora share the same syntactic properties. Both obey antecedent, locality and c-commanding constraints. The author claims that inalienable possession must be analyzed as a case of feature binding. These constructions are explained strictly by a relation among linguistic features. A feature (F) of a constituent is bound by another feature inside or outside its local context.

Under this theory, binding represents agreement between a constituent and its antecedent in person, in number or in gender. It also involves checking for one of these three types of agreement. Guéron attributes the different types of agreement found in inalienable possession to the referential feature [+R] antecedents have. For instance, person and number are found to be [+R] in romance languages, whereas gender is [-R]. This fact accounts for the binding of sole features and explains why a possessor NP does not agree in gender with the possessee DP in sentences like (5) in Spanish. Guéron points out that each feature binding occurs independently. In all languages a constituent can be bound by an antecedent which shares person features, but do not match number features.

5) *Juan levantó la cabeza.*

John raised the head.

"John raised his head".

2.3.2 The predication hypothesis

Vergnaud & Zubizarreta (1992) claim that inalienable possession is similar to predication without the feature component. They propose that the possessee has an empty category constructed as a predicate variable. Inalienable possession takes place when the predicate variable is bound to a possessor and both stablish a c-command relationship in which they mutually command (M-command) each other. Their main argument in this hypothesis is that m-command must be respected.

In order to maintain this constraint, the authors make some assumptions about the maximal projection categories which might intervene between the possessor-possessee. Firstly, dative case markers do not form a lexical category in inalienable possession constructions. They just function as case assigners. Secondly, the determiner of the possessee DP functions as an expletive. It is syntactically inactive and unable to form maximal projections. In other words, it does not project a determiner phrase (DP). Instead, the possessee nominal is a noun phrase (NP). Thirdly, a verb phrase and its direct object forms a complex predicate that does not have internal maximal projections.

Following this hypothesis, in sentence (6), dative *le* c-commands the NP *mano*. The NP *mano* does not c-command *le* as it is part of a maximal projection of the DP *la mano*. The assumption that the definite determiner *la* is an expletive and does not form a maximal projection allows m-commanding between *le* and *mano*.

6) *María le tomó la mano.*

Marie him took the hand.

"Marie took his hand".

2.3.3 The possessor-rising hypothesis

Landau (1999) proposes inalienable possession is a case of genuine movement. He argues that the possessor initially takes the specifier position of the DP denoting a possessee. But later, the possessor raises to Spec VP position so that case can be assigned to it. The possessor receives the theta-roles from the head D it left, and this allows it to be related to the possessee. This hypothesis has become an alternative theory to account for inalienable possession for two reasons. First, it provides a natural explanation for the verb class that always takes a dative argument in inalienable constructions. Second, it obeys locality, antecedent and c-commanding constraints that are typical properties of movement. Sentence (7) exemplifies how the possessor-rising hypothesis occurs. Two representations are expected under this hypothesis. In the underlying representation, the possessor *le* is initially located in the specifier position of the DP *el cabello* "the hair". This corresponds to the structure *Juan tocó le el cabello*. Then, the possessor leaves this position to occupy a host position on the specifier of a VP. This is equivalent to the surface representation *Juan le tocó el cabello*.

7) *Juan le tocó el cabello*.

John her touched the hair.

"John touched her hair."

The following sections provide a description and examples of inalienable possession in Spanish and in English.

2.4 Inalienable possession in Spanish

In Spanish, inalienable possession involves various structures made up of two nominals that do not form a single constituent. One of the nominals is the possessor of an element and the other

nominal indicates the possessed item. As other romance languages, Spanish is generally characterized by the use of definite determiners in inalienable possession constructions. These constructions involve determiner phrases (DPs) headed by definite determiners which are bound to some other determiner phrases (DPs) or noun phrases (NPs) in a clause (e.g., Baauw, 2002; Bosque & Gutiérrez-Rexach, 2009). However, it has been argued that inalienable possession can be marked with the possessive determiner *su* in some varieties of Spanish. These varieties include some dialects from Peru and heritage speakers in contact with English (e.g., Camacho, 2018).

Inalienable possession cannot be associated with a single type of grammatical structure. In Spanish, a relationship of inalienable possession is commonly found in three different types of structures. (e.g., Guéron, 2003; Zagona, 2002). In the first structure, a direct object denotes the possessed object and a noun in subject position works as the possessor. In the second structure, the possessed object is expressed as a direct object and the possessor appears as indirect object. In this structure, the two determiner phrases (DPs) in object position are assigned a single Theta-role by the verb. In the third structure, the possessor is found in direct object position while the possessed object is embedded in a prepositional phrase (PP) adjunct to the verb phrase (VP). This is represented in (8a) - (8c) below:

8) a. *María levantó la mano.*

Marie raised the hand.

"Marie raised her hand".

b. *María le lavó la cara a Juan.*

Marie him washed the face to John.

"Marie washed John's face."

c. *María golpeó a Juan en la mano.*

Matie hit to John in the hand.

"Marie hit John on his hand."

These sentences indicate two common aspects of constructions of inalienable possession in Spanish. First, possessors are DPs that cannot be detached of other entities. However, these possessor DPs can take different positions within a sentence. They can be in subject position, direct object position or indirect object position. Second, possessed objects are DPs which generally are made of a definite determiner and an inalienable noun.

Inalienable possession constructions are ruled by other features and constraints that differentiate them from other types of possessive constructions. It has been argued that structures which have an inalienable interpretation do not function as structures indicating other types of possession in Spanish. Guéron (2003, 2006) notes three syntactic constraints that distinguish inalienable possession from other possessive structures. The first constraint indicates that the possessor cannot be omitted. For a sentence to have an inalienable possession interpretation, it is mandatory to mention the entity to whom an inalienable possessed item belongs. The second constraint shows that the DP containing the possessor has to be part of the same minimal sentential domain as the DP containing the possessee. The third and last syntactic constraint indicates inalienable possession is also subject to a locality restriction. The possessor must be in a position where it c-commands the possessee or its trace.

In addition, Guéron (2003, 2006) identifies three lexical restrictions. First, nouns that can be used in inalienable constructions are limited. In Spanish, the group of nouns that are inalienable include mostly body parts. Nouns such as kinship and personal items might be considered inalienable nouns which belong to a different category called extended inalienables. Membership to this group of nouns depends on the person's idiolect and varies from place to place. Second,

there is not a one-to-one correspondence in number between the possessor and the possessee. The number assigned to the possessee DP does not depend on the plurality or singularity of the possessor DP or vice versa. The DP that contains the inalienable noun can be singular even though it refers to two or more individuals. In a sentence such as (9), the singular noun *la mano* "the hand" is understood as each child hand. It remains singular even though it refers to two hands which were raised.

9) *Juan y María levantaron la mano.*

John and Marie raised the hand.

"John and Marie raised their hand."

Third and last, the verb class is important to determine the possessor to which the possessee is bound in an inalienable sentence. Physical gesture verbs require the possessor to be taken as a dative or benefactive argument, whereas other verbs require the possessor be taken as the clausal subject. In sentence (10), a nominative DP is constructed as the inalienable possessor. However, in sentence (11) a dative DP is constructed as the possessor of an inalienable possessed object. This is marked with the clitic *se* in Spanish. According to Guéron (1985), this happens as the syntax of the sentence has to be reanalyzed when the verb and the direct object describe a natural physical gesture.

10) *Juan levantó el brazo.*

John raised the arm.

"John raised his arm".

11) *Juan se lavó el brazo.*

John himself washed the arm.

"John washed his arm".

2.5 Inalienable possession in English

Inalienable possession in English involves structures of two nominals in which one designates the possessor, and another indicates the possessee. English is characterized by employing two strategies to mark the inalienable relationship between the possessor and the possessee. The first strategy involves the use of prenominal and postnominal genitive constructions as in sentences (12a-b). In (12a), the possessor occurs before the possessee, whereas in (12b) the possessor occurs after the possessee and it is encoded in a prepositional phrase (PP). These possessive forms appear only with the class of relational nouns known as kinship (e.g., Gebregziabher, 2012).

12) a. Marie's brother.

b. The brother of Marie.

The second strategy relates to the use of a possessive determiner within the nominal that functions as the possessee (e.g., Bosque & Gutiérrez-Rexach, 2009; Guéron, 1983, 1985, 2003; Thunes, 2013). In English, the relationship possessor-possessee is obligatory marked within the determiner phrase (DP) that refers to the element possessed. Thus, inalienable possession constructions are said to be represented internally. Examples of this strategy are provided in sentences (13) and (14). In these sentences, the determiner phrase **his hand** is headed by the possessive determiner **his** which is bound to the DP John in the same clause.

13) John raised his hand.

14) John gave his hand to Susi.

2.6 Differences between Spanish and English inalienable possession

There are semantic and syntactic differences between sentences denoting inalienable possession in Spanish and in English. The first difference is that inalienable sentences are ambiguous in these

languages. A sentence that is understood as inalienable in Spanish has an alienable interpretation in English. Consider the following sentences:

15) Juan abrió los ojos.

16) John opened the eyes.

17) John opened his eyes.

Sentence (15) has an inalienable interpretation in Spanish. *Los ojos* "the eyes" are understood as describing a body-part that belongs to the same individual mentioned in the sentence in subject position. Nonetheless, the English translation of this sentence does not have a similar interpretation. In English, a sentence as (16) has an alienable interpretation. The eyes are understood as items disjoined of a person's body. The interpretation that it has is that the eyes John opened do not belong to his own body, but they belong to somebody else. This English sentence not only lacks the notion of semantic dependency that the Spanish counterpart has, but also it is found to be ungrammatical. In order for it to be grammatically correct, the determiner must be replaced by a possessive determiner. Example (17) is acceptable in English as it has the appropriate syntactic elements and communicates the intended message.

A second difference between English and Spanish is the form the determiner takes in each language and the properties each determiner has. Spanish usually takes a definite determiner, whereas English always takes a possessive determiner (e.g., Bosque & Gutiérrez-Rexach, 2009). The determiner becomes crucial for the syntax of inalienable constructions. Vergnaud & Zubizarreta (1992) claim that there are asymmetries on the status of the definite determiner in English and Spanish that change the interpretation of the sentences. The definite determiner in Spanish can function as an expletive determiner. It denotes types (abstract descriptive categories) that can be associated with a possessor in other positions within a sentence. The English definite

determiner cannot work as an expletive. When it is used, it denotes tokens (particular objects). As the definite determiner is not an expletive in English, it cannot be bound to a possessor. Thus, the English sentence cannot be taken as an inalienable construction.

This claim is confirmed by the fact that sentences with other determiners can have an inalienable interpretation in English. Structures that have a possessive determiner in direct object position are naturally inalienable constructions. Similarly, sentences that have an indefinite determiner as head of the possessee DP are understood as having an inalienable reading. In sentences (18) and (19), the body parts are understood as belonging to the people mentioned in subject position.

18) Marie raised an arm.

19) John opened an eye.

Additionally, Spanish differs from English by having more constructions in inalienable contexts. Sentences with clitics such as (20) and (21) are typically found in Spanish as inalienable constructions. In English they do not have the same interpretation and are considered ungrammatical. On one hand these sentences lack the possessive determiner that characterizes inalienable constructions. On the other hand, the English language does not have clitics. Guéron (2003) attributes this difference to the distribution of theta-roles of double objects in each language.

(20) *Juan le lavó la cara.*

John her washed the face.

"John washed her face."

(21) *Juan le lavó la cara a la niña.*

John her washed the face to the girl.

"John washed the girl's face."

Finally, both languages exhibit asymmetries on the restrictions inalienable constructions have. In dative Spanish constructions, there must be agreement in person between a clitic pronoun and the determiner phrase (DP) in subject position depending on the type of verb that is being used. If the verb denotes a physical gesture, the use of a clitic pronoun that shares the same person features than the DP subject is crucial for the grammaticality of the sentence. In English, inalienable possession constructions require agreement between the determiner phrase (DP) in subject position and the possessive determiner that heads the determiner phrase (DP) in direct object position. English verb class and structure type do not influence the choice of the determiner and grammaticality as it is the case of Spanish.

2.7 Conclusion

This chapter has defined the term inalienable possession. For the purpose of the present study, inalienable possession is a notion of dependency represented in the grammar of the languages in which a possessee cannot be conceived of being apart from its possessor. It was explained that languages vary semantically and syntactically in the way they express inalienability. Due to this unpredictability, three hypotheses have been proposed to explain inalienable possession in a universal way. Furthermore, it was indicated that the group of nouns which work as inalienables vary from language to language. It has been identified that they mainly include body-part nouns, clothing, kinship, picture, and others nouns like computer and car.

This chapter also reviewed the way inalienable possession was expressed in English and Spanish. The table below summarizes the main differences found between these two languages.

Table 1: Differences between Spanish and English for Inalienable possession

Spanish	English
• Sentences can be ambiguous. e.g., El movió el brazo. Inalienable and alienable interpretación.	• Sentences cannot be ambiguous. e.g., He moved the arm. Alienable interpretation.
• Preferred use of definite determiner. e.g., María levantó **la** mano.	• Required use of possessive determiner. e.g., Marie raised **her** hand.
• Agreement between DPs in subject position and clitic pronoun. **e.g., Juan se** rompió el brazo.	• Agreement between the DPs in subject position and possessive determiner of the inalienable noun. e.g., **John** broke **his** arm.

Three salient asymmetries must be highlighted. First of all, it was explained that both languages differ on the interpretation of inalienable possession. In Spanish, a sentence with a definite determiner is understood as having an inalienable interpretation. One talks about his or her own body parts. In English, the most predictable interpretation is alienable. The body part one talks belongs to somebody else. Second, inalienability is determined differently by the head of the determiner phrase (DP) containing the possessee. Spanish generally favors a definite determiner, while English requires a possessive determiner. Third and last, each language imposes different lexical restrictions to sentences in inalienable possession. In Spanish, inalienable possession constructions require agreement in person between a clitic pronoun, a subject and a verb. In English, inalienable possessions constructions require agreement between a subject and a possessive pronoun in the DP.

In the following chapter, I will present a review of the literature that has explored the acquisition of inalienable possession in monolinguals, L2 learners and heritage speakers.

CHAPTER 3. ACQUISITION OF THIS POSSESSION

3.1 Introduction

This chapter reviews previous work regarding the acquisition of inalienable possession in Spanish among different populations of speakers. Section 3.2 presents research on the acquisition of inalienable possession with monolinguals. Sections 3.3 and 3.4 describe previous work on inalienable possession among second language learners of Spanish and heritage speakers. This is followed by a discussion on current approaches to bilingual language acquisition in section 3.5. The chapter ends with the research questions and hypotheses that will guide the current study.

3.2 L1 Acquisition

Previous research has examined the interpretation of inalienable possession with monolingual speakers (e.g., Baauw, 2002; Pérez-Leroux et al., 2004; Ramos, 1999). These experimental works have provided evidence to support the claim that the patterns of acquisition of inalienable possession vary across languages. For Spanish monolinguals, inalienable possession does not seem to be problematic. Children appear to acquire the syntactic and semantic knowledge of the definite determiner to express this type of possession from early on (e.g., Baauw, 2002). However, English monolinguals go through a short phase in which they produce non-target forms (e.g., Pérez-Leroux et al., 2004).

Ramos (1999) found that English speaking children from three to five years old overextended the definite determiner with inalienable nouns referring to body parts. She implemented an act-out task in which a toy called “Ms. Potato Head” checked a box filled with personal items and interchangeable body parts. Children listened to stimuli sentences that differed in the use of a

definite or a possessive determiner and were asked to act them out. The sentences used in the task are similar to (23) and (24) below.

23) She touched the nose.

24) She touched her nose.

Young children aged 3;8-4;5 and old children aged 4;7-5;7 exhibited a high rate of acceptance of non-target sentences with definite determiners. The recognition of a definite determiner during the task indicated children assigned an inalienable reading. These sentences were understood as if Ms. Potato Head touched her own body rather than a toy body part from the box. Her findings indicated that children allow definite determiners to refer to inalienable possession in contexts where English does not permit it.

Similar findings were reported by Baauw (2002) in a study testing the interpretation of inalienable possession with body-part nouns in Dutch and in Spanish. A group of Dutch and Spanish speaking children (whose ages ranged from 4 to 10) as well as a group of Dutch and Spanish speaking adults completed a truth-value judgment task. The task consisted of looking at pictures, listening to a story and judging whether sentences like (25 a-b) and (26 a-b) were or were not correct.

25) a. De twee jongetjes raakten de neus aan.

The two boys touched the nose.

"The two boys touched their noses."

b. De twee jongetjes draaiden het hoofd om.

The two boys turned the head.

"The two boys turned their heads."

26) a. Los niños tocaron la oreja.

The two boys touched the ear.

"The two boys touched their ears."

b. Los dos niños volvieron la cabeza.

The two boys turned the head.

"The two boys turned their heads."

In this story, the characters either touched parts of their own bodies (to provide an inalienable interpretation) or touched parts of the body of another character (to provide an alienable interpretation). If Dutch speakers had full mastery of inalienable possession, they were expected to indicate that sentences (25 a-b) with the definite determiner were unacceptable for an inalienable interpretation, but acceptable for an alienable interpretation. Spanish speaking children were expected to accept both interpretations depending on the lexical class of the verb that was in the construction. Sentence (26a) was only acceptable for an alienable reading as a dative clitic was missing. However, the verb on sentence (26b) could take an alienable or an inalienable reading.

Baauw found that young Dutch-speaking children behaved differently than adults. Young children incorrectly expressed that sentences with a definite determiner had an inalienable interpretation. Dutch-speaking children were found to stop this tendency around age six. The results showed that adults and older children scored significantly higher as they did not accept an inalienable reading with definite determiners. Nonetheless, a minor rate of errors was found in these groups. Regarding Spanish speaking children, the results showed that they distinguished the two types of interpretation across all age groups. Like adult speakers, Spanish children showed sensitivity to possession constructions since they accepted the reading of definite articles had an inalienable interpretation and rejected the alienable interpretation.

Pérez-Leroux, Schmitt and Munn (2004) corroborated these findings in a study with English and Spanish monolingual children. By means of an act-out task in which a frog brought toy body parts to some friends, participants were asked to act-out a sentence with a subject, a verb and a direct object structure: definite determiner + body part. The results indicated that English speaking children accepted inalienable interpretations in sentences with definite determiners. On the contrary, Spanish-speaking children were accurate with the interpretation of inalienable possession and were capable of distinguishing between three inalienable possession constructions. These were definite articles, definite possessives, and definite demonstratives. Pérez-Leroux et al. found that the number of the item affected the behavior of the participants. English speaking children used more sentences in inalienable possession when the noun was plural. On the contrary, Spanish children produced more inalienable sentences when the noun was singular.

These studies have revealed that the acquisition of inalienable possession is not problematic for Spanish speakers. They are able to make syntactically and semantically target-like constructions from early childhood. However, the findings suggest that the acquisition of inalienable possession constructions in English and Dutch is progressive. This construction seems to be developed in two stages. The first stage encompasses a period when the definite determiner has a semantic interpretation of inalienable possession. The second phase is a period in which the interpretation of inalienable possession in definite determine is more restricted and possessive determiners obtains a semantic interpretation of inalienability.

3.3 L2 Acquisition

Inalienable possession has also been examined in second language acquisition. Studies have demonstrated that second language learners (L2 learners) of Spanish are able to acquire and use

the appropriate semantic and syntactic elements to express inalienable possession. However, research has also suggested that L2 learners perform in non-target ways in certain environments and at some stages of their language learning. Influence of the first language over the second one has been the argument that explains why learners perform poorly on certain aspects of inalienable possession.

Pérez-Leroux et al. (2002) explored the perception that three groups of adult English learners of Spanish had about structures encoding inalienable possession. Using a grammaticality judgment task, the authors tested whether beginning, intermediate, and advanced learners preferred the use of definite or possessive determiners in a set of inalienable possession constructions. The authors found that L2 learners were able to acquire the target grammar to express inalienable possession. Nonetheless, they argued that the grammar was acquired gradually and with difficulty. Beginning learners transferred the semantics of definite determiners from the stronger language (English) as they did not differentiate overt possessors. Participants used both definite and possessive determiners in inalienable contexts. Transfer effects were not found as the level of exposure increased. The results indicated that intermediate and advanced learners accepted constructions containing definite determiners and rejected the ones with possessive determiners.

In addition, this study examined the role of proficiency on acquiring number and adjective restrictions in inalienable constructions. Beginning learners did not differentiate sentences with a mismatch between number and adjective. They rated sentences with ungrammatical plurals higher than sentences underspecified for number. Advanced and intermediate learners, on the other hand, performed better differentiating the ungrammatical use of adjectives and number. One interesting finding of the study was the role of clitics in inalienable constructions. The results indicated that L2 learners were more successful using target-like structures in constructions like (27) with a clitic.

Pérez-Leroux et al. claimed that dative clitics seemed to play a triggering role in the acquisition of inalienable possession.

27) Juan se rasca la nariz.

John himself scratches the nose.

"John scratches his nose".

Comparable results were found by Montrul & Ionin (2012) in a study testing the interpretation of definite articles in inalienable possession constructions. Similar to previous research, the authors found that L2 learners' knowledge of inalienable possession was not uniform. The L2 Learners interpretation was affected by determiner type and task type. L2 learners were found to differ on the acceptance and interpretation of inalienable possession constructions. Results of an acceptability judgement task indicated that L2 learners had knowledge of the semantic properties of definite determiners to express inalienable possession. They assigned higher rates to sentences with definite determiners than to sentences with possessive determiners. However, some transfer effects from English were observed on the interpretation of possessive determiners in a picture-sentence matching task. L2 learners were found to follow English preferences when assigning inalienable interpretation to possessives determiners. They indicated sentences with possessive determiners represented pictures in which a person was doing actions to his own body parts.

To sum up, findings of the previous research suggest that second language learners are able to acquire inalienable possession with sufficient language experience (more opportunities to be exposed to and use the language). As learners have more exposure to the language, they exhibit a better knowledge of the constraints of inalienable possession. They accept the most common

determiner and respect adjective and number agreement. Additionally, they give inalienable interpretation to sentences based on the context and type of construction.

3.4 Heritage Language Acquisition

Research on heritage language has shown that heritage speakers of Spanish are able to acquire and master inalienable possession. However, like L2 learners, heritage speakers' knowledge of this type of possession has been found to vary according to the language proficiency of the speaker. Studies on inalienable possession with this group of speakers have revealed that they give inalienable interpretation to the appropriate determiner (Montrul & Ionin, 2010, 2012). However, they also tend to incorporate elements of the majority language (English) to the minority language (Spanish) in inalienable possession constructions (Giancaspro & Sánchez, 2019).

Findings about heritage speakers' knowledge of inalienable possession were found in Montrul and Ionin (2010, 2012) studies. In both studies, the authors explored the interpretation of definite determiners in contexts of inalienable possession and general reference. Their goal was to determine whether heritage speakers exhibited dominant language transfer from English to Spanish in constructions in which verbs do not impose lexical restrictions such as clitics. That is, if the group of participants preferred the use of a possessive determiner instead of definite determiner when a person (in subject position) refers to his or her own body (in object position).

The authors implemented two tasks to test inalienable possession with thirty adult heritage speakers of Spanish whose proficiency level ranged from intermediate to advanced. The first task was a picture-sentence matching task in which participants read two sentences with a possessive and definite determiner and based on two pictures they determined if the sentence represented picture A, picture B or both of them. The second task was a Sentence-Picture Acceptability

Judgment. Participants used a 1-5 scale to rate how well or poor a sentence with a definite or a possessive determiner described a picture.

Montrul & Ionin (2012) found there were no transfer effects from English to Spanish in the interpretation and acceptance of definite determiners in inalienable possession contexts. The authors argued that even though inalienability could be expressed with both definite determiners and possessive determiners in the constructions investigated, heritage speakers followed the same tendencies of native speakers. They recognized both determiners could express inalienable possession in Spanish, but each determiner expressed a different possession in English. Additionally, they rated Spanish sentences with definite articles slightly higher than sentences with possessive determiners. Although heritage speakers did not exhibit transfer effects in this study, the authors pointed out the need of further studies to test more complex inalienable possession constructions.

Inalienable possession with heritage speakers was recently studied by Giancaspro & Sánchez (2019). The authors explored whether inalienable possession constructions varied across heritage speakers who exhibit different proficiency levels of Spanish. The goal of the study was to describe the syntactic elements heritage speakers use and accept in inalienable contexts. Following the activation hypothesis, Giancaspro & Sánchez (2019) expected to find a strong correlation between language proficiency and target constructions as well as the type of task use and responses.

A production task and an acceptability judgment task were utilized to collect data with three groups of speakers: monolinguals, intermediate and advanced heritage speakers. In the production task, participants were shown a picture and two words. They were a verb in the preterit and an object. Researchers asked the participants to construct a sentence about the picture using the words given and any other words they needed. In the acceptability judgment task, the

participants of the study used a scale from 1 to 4 to rate target and non-target sentences in contexts of alienable and inalienable possession.

Results of the production task indicated that heritage speakers differentiate inalienable and alienable possession contexts. They used clitic pronouns in sentences that had an inalienable noun and exclude it in sentences that had other types of nouns. Although this fact was generalized to the three groups, researchers reported a difference in the way each group of heritage speakers assembled person features in inalienable possession constructions. A correlation was found between proficiency and use of clitics. The overall results suggested that Spanish monolinguals relied more on clitics than heritage speakers did.

By means of the acceptability judgment task, the authors found that heritage speakers recognized and accepted target and innovative structures to express inalienable possession when these were produced by other speakers. All groups accepted target-like constructions of inalienable possession that contained a clitic pronoun and a definite determiner. Similarly, all groups gave credit to the constructions made up of a clitic pronoun and a possessive determiner. The results indicated that advanced and intermediate heritage speakers were considerably more likely to accept an innovative construction than Spanish monolinguals. This innovative construction lacked a clitic but maintained a possessive determiner.

Giancaspro & Sánchez concluded that these findings were evidence to support the growing concept of variability in heritage speakers as expected under the activation hypothesis. Giancaspro & Sánchez (2019) suggested that rather than considering heritage speakers expression of inalienable possession as non-target or divergent, it must be considered that these individuals use a variety of ways to express this kind of possession in Spanish. The authors expectations were confirmed. The results showed that the degree of variability of heritage speakers exhibit some

directionality across the tasks. As the proficiency level of heritage speakers of Spanish decreased, there was a tendency to exhibit more variability in the production of inalienable possession constructions. However, reduced variability was found in the acceptability judgment task.

The previous evidence suggests that heritage speakers of Spanish can have full mastery of inalienable possession. However, a tendency is observed in this group. Instead of rejecting structures that are common in the majority language (English), these speakers tend to incorporate them to express inalienability in the minority language (Spanish). Additionally, a correlation was found between language proficiency and production. Target forms to express inalienable possession were found in speakers with higher proficiency of Spanish, whereas innovative forms were associated with the production of lower proficiency speakers.

3.5 Theoretical approaches to heritage language acquisition

Research on heritage language learners has shown that heritage speakers' linguistic performance varies (e.g., Cuza et al., 2020; Cuza et al., 2018; Montrul, 2006; Montrul & Bowles, 2009). Heritage speakers have been found to exhibit variability in production or comprehension when compared to other heritage groups, second language learners or monolingual groups. The divergences in heritage grammar are a matter of discussion in the field of bilingualism. The sources where they stem from have been the focus of previous research. As a result, different proposals have been made.

One of the major proposals has attributed heritage speakers' divergence to incomplete acquisition. Under this approach, heritage speakers fail to develop or maintain aspects of their first language due to a lack of exposure or input during childhood (e.g., Montrul, 2002; Montrul, 2008; Montrul & Bowles, 2009; Montrul & Perpiñan, 2011). The claim is that certain properties of the

language remain partially or totally absent from the heritage speaker linguistic resources. In other words, specific areas of the grammar remain underdeveloped as the input received hinders their activation. Montrul (2008) indicates that incomplete acquisition of the heritage language can be attested in two ways. On one side, it is possible that X property was present in the input the speaker received, emerged in the language, but it was never mastered. On the other side, X property is simply not developed as the speaker was not exposed to it in the input he received.

Another approach has suggested that heritage speakers divergencies are the results of attrition of the first language (e.g., Polinsky, 2008, 2011). Attrition can be defined as the loss of developed aspects of the language due to influence from a dominant language. Researchers have argued that attrition occurs when heritage speakers acquire the structures of the language at an early age, but then they start to lose them or restructure them over their lifespan. This lost or restructuration is the result of the limited use of the L1 or the intense contact with the dominant language.

Putnam & Sánchez (2013) proposed the feature reassembly approach to explain heritage speakers divergencies. The authors argued that the divergencies emerge from a process of reconfiguration of the language features caused by low patterns of language activation and use. This model suggests the linguistic knowledge of a speaker consists of functional, phonological, and semantic features that are activated in the mind of the speaker during the process of language production and comprehension. It is the different levels of activation, processing, and accessibility to such features what determine the restructuring of the linguistic system that is interpreted as development, variation, or loss of the heritage language.

More recently, Sánchez (2019) has put forward the Bilingual Alignment Approach to explain the variability found on heritage speakers research. According to this approach, new associations between the different linguistic components of the L1 or the L2 may emerge as the result of the process of reorganization of the linguistics features in the bilingual mind. Sánchez proposes that these new associations are stored in the mind of the speaker as alignments. The alignments work as linking mechanisms between language features as well as storage units for future production and comprehension retrieval. They are formed by grouping different sets of features from different language components. The alignments allow features from language A to blend into features of language B. Thus, alignments do not usually share the same feature values for each language the speaker acquires.

The main characteristic of this proposal is that the alignments are not necessarily stable linguistic representations. The way features of the L2 are linked and stored in memory trigger the retrieval of features of the L1. If an alignment with X features becomes part of the bilingual internal representation, high levels of acceptance and production of the features are expected to be found. On the contrary, if low levels of acceptance and production of the alignment are found, this is interpreted as a temporary form that emerges during language production. Sánchez claims that it is possible to find a mismatch between alignments in production and comprehension. These divergences are interpreted as not being part of the speaker internal representation.

The Bilingual Alignment Approach represents a shift on the way traditional approaches to heritage language acquisition explain language variation. The acquisition of a language is not interpreted as being incomplete, insufficient, or imperfect. The acquisition is seen as a non-stop process that relies on many factors that affect multiple features of the language throughout the life of the speaker. The access to these alignments is subject to the patterns of language activation and

use. More exposure to lexical items in an L2 results in higher levels of activation of some functional features of the L2 and lower levels of activation of functional features of the L1. Thus, the language a heritage speaker produces and comprehends is the result of the levels of activation of the lexicon and the strength of the association between functional, semantic and phonological features.

3.6 Conclusions, research questions and hypotheses

In this chapter, the literature related to monolinguals, second language learners and heritage speakers' acquisition of inalienable possession has been reviewed. Studies with monolinguals reveal that inalienable possession is acquired from early ages and its acquisition follows a regular pattern. On the other hand, research on second language learners and heritage speakers shows that the acquisition of this type of possession takes longer time and fluctuates among these speakers. L2 learners and heritage speakers differ from monolinguals as they allow inalienable interpretations in sentences with possessives that Spanish speakers do not preferred. Furthermore, the performance of both groups has been shown to be affected by proficiency level as more variation is found when speakers proficiency decreases.

The review of the literature points at some methodological issues that need to be improved in further research. Most of the studies have only tested the intuition or the interpretation speakers have about inalienable possession. Claims about the acquisition of this kind of possession must not only be based on speakers' interpretations. The performance of the speakers needs to be assessed. Therefore, tasks that assess competence and performance must be implemented. Results can be more conclusive and provide an account of the different psycholinguistic processes involved in language acquisition.

Additionally, one single type of construction has been used to test inalienable possession in studies comparing L2 learners and heritage speakers. This construction involves a subject, a verb which does not impose any kind of restriction and a complement. This construction is morphologically and syntactically simple as it does not include clitic pronouns or reflexive verbs. The fact that transfer effects were not found in these studies might rely on the constructions used for investigation. More complex structures need to be tested to provide a complete account of the expression of inalienable possession in bilingual populations.

The review of the literature indicated that proficiency had been considered the only factor that would lead to potential differences in the acquisition of this type of possession. Recent approaches to bilingual language acquisition suggest that many other sociolinguistic factors can shape the way speakers use the language. It is relevant to explore the effects of other factors such as patterns the language use, exposure and use of Spanish in other contexts in the expression of inalienable possession.

The present study adds to the current discussion by studying L2 learners and heritage speakers' knowledge of inalienable possession in Spanish constructions involving the clitic *se*. An elicited production task and a contextualized preference task will be used to test both the production and the interpretation of heritage speakers and L2 learners. Bearing in mind the findings of previous research on inalienable possession, the following research questions and hypothesis will be investigated:

RQ1: To what extent do Spanish heritage speakers and English-speaking L2 learners exhibit knowledge of inalienable possession with pronominal verbs requiring the use of clitic *se*?

RQ2: What is the role of language proficiency in the production and the interpretation of inalienable possession constructions?

RQ3: What is the role of patterns of language use and exposure in the production and the interpretation of inalienable possession constructions?

Taking into consideration previous research reporting variability among heritage speakers and L2 learners (e.g., Cuza & Frank, 2015; Montrul, 2011; Montrul & Ionin, 2012), I expect both groups of participants to follow different patterns in their expression of inalienable possession due to the lexical items used in the task, cross-linguistic influence from English, and low patterns of language use and exposure. Relying on the insights of Montrul (2016), it is predicted that the heritage speakers and the L2 learners will exhibit different strategies to express inalienable possession in both production and interpretation. Thus, the heritage speakers and the L2 learners will behave differently from the control group.

Following Giancaspro and Sánchez (2019), I hypothesize that the heritage speakers and the L2 learners will exhibit high production and preference of sentences with possessive determiners. This might be found in the data if the heritage speakers and the L2 learners transfer the semantic and syntactic properties of English to produce sentences such as (27a-b). Moreover, the participants may lack syntactic knowledge of Spanish clitics and omit the clitic "*se*" in structures such as (28a-b) where it is required. If this type of possession is constrained by cross-linguistic influence, it can be predicted that the heritage speakers and the L2 learners will show less variability in alienable contexts. This difference is expected due to the lower complexity and similar semantic and syntactic properties of English and Spanish to express alienable possession.

27) a. *Juan se tapó su nariz.*

"*John himself covered his nose*".

"John covered his nose".

b. *María se lavó su pie.*

"*Marie herself washed her foot*".

"Marie washed her foot".

28) a. *Juan quemó la mano.*

"John burned the hand".

b. *María cortó el dedo.*

"Marie cut the finger".

In line with Sánchez (2019), strong correlations between proficiency, language experience and one preferred response are expected to be found. It is predicted that the participants with more proficiency in the language as well as more language experience in Spanish will display less variability than those with less proficiency and language experience. Concretely, the hypotheses of the current study are the following:

H1: Spanish heritage speakers and English-speaking L2 learners will exhibit different patterns of response than the native speakers in the production and the interpretation of inalienable possession. Specifically, they will show preference for structures characterized by:

H1a: Omission of the clitic "*se*", and usage of a definite determiner before the inalienable noun (e.g., *Juan rompió el brazo* "John broke the arm").

H1b: Omission of the clitic "s*e*", and usage of a possessive pronoun before the inalienable noun (e.g., *Juan rompió su brazo* "John broke his arm").

H1c: Usage of the clitic "*se*" and a possessive pronoun before the inalienable noun (e.g., *Juan se rompió su brazo* "*John himself broke his arm"*).

H2: Language proficiency will be associated with L2 learners and heritage speakers strategies to express inalienable possession. Speakers with high proficiency level will follow native speakers preferences in context of inalienable possession. Less proficient speakers will show different patterns than native speakers.

H3: Patters of language use and exposure will be associated with strategies to express inalienable possession. Speakers who have limited Spanish usage and exposure will follow different preferences in inalienable contexts than those who have more exposure and usage.

To investigate these research questions and hypotheses a group of heritage speakers, L2 learners and native speakers of Spanish were tested on their production and interpretation of sentences in inalienable and alienable contexts. The following chapter explains the methodology used and presents the results.

CHAPTER 4. THE STUDY

4.1 Participants

Fifty-four (*n*=54) participants took part in the study: Twenty-two Spanish heritage speakers (age range, 18-27; *M* = 20), sixteen English-speaking L2 learners (age range, 18-22; *M* = 18), and sixteen native speakers of Spanish serving as baseline group (age range, 18-27; *M* = 20). The heritage speakers and the L2 learners were invited to participate through a brief online announcement in their Spanish classes. The native speakers were recruited through local contacts in the community. All participants decided to participate voluntarily in the study and no monetary compensation was given to them.

All of the participants completed an online language background questionnaire (adapted from Cuza, 2013). This questionnaire gathered information about the participants' demographic information, linguistic background, patterns of language use and language experience. Additionally, the participants completed an online modified version of the *Diploma de Español como Lengua Extranjera* (DELE) as an independent language proficiency measure (Cuza, Pérez-Leroux & Sánchez, 2013). This proficiency test was made up of two sections. The first section consisted of a vocabulary test in which participants chose a word or an expression to complete a sentence given. The second section was a cloze test. The cloze test was a passage about a political character in which participants chose one of three multiple-choice options to fill a blank. Following previous research, participants whose scores ranged between 40 to 50 points were considered advanced learners. Participants who obtained 30 to 39 points were considered intermediate learners and participants who scored between 0 to 29 were considered beginner learners (Montrul & Slabakova, 2003).

The heritage speaker group consisted of twenty-two (*n* =22) young adult Spanish heritage speakers born and raised in the United States. Expect two participants who were born in Peru or the Dominican Republic but came to the United States before the age of five. Participants average age at the time of testing was 20 years old. The parents of the heritage speakers were from various Spanish-speaking countries including Argentina, Mexico, Guatemala, Peru, Dominican Republic and some parents were born in the United States, specifically in Chicago. All participants were undergraduate university students in the American Midwest, and they were taking a Spanish class for heritage speakers. The majority 60% (13/22) of the heritage speakers were considered advanced speakers, and 40% (9/22) of the heritage speakers were considered intermediate speakers based on their DELE scores. The mean score of the group in the DELE test was 40/50 points. Their reported self-proficiency was almost good/ fluent (3.9/5) in Spanish and native-like (4.9/5) in English.

In terms of the patterns of language use, the participants were asked to report how frequently they used Spanish daily, over the phone, for chatting and for texting. The average response was almost frequently (3.5/5). Participants also reported their patterns of language exposure. They indicated how often they listened to music, watched T.V or read in Spanish. The average group response was almost frequently (3.4/5). Participants were asked which language they used the most in different contexts. At school, 96% of the heritage speakers indicated speaking English only or mostly English, and 4% reported speaking equal Spanish and English. At home, 59% reported speaking Spanish only or mostly Spanish, whereas 32% reported speaking equal Spanish and English and 9% reported speaking mostly English. In social situations, 55% indicated speaking English only or mostly English, and 45% indicated speaking equal Spanish and English.

Finally, 64% of the participants reported feeling more comfortable speaking in English, 4% in Spanish, and 32% reported feeling comfortable in both languages equally.

The L2 learner group consisted of sixteen (*n* = 16) English-speaking L2 learners of Spanish born and raised in the United States. Their mean age at the time of testing was 18 years old. The majority of the participants were born in English-speaking families in which both parents were born in the U.S. Expect three participants who had a parent from the U.S and a parent from another country (South Korea, India or Pakistan). The participants were undergraduate students at a major research university in the American Midwest and they were enrolled in a variety of Spanish language classes. At the time of testing, the participants of the study had received two years of instruction in Spanish. During that period, participants were explicitly taught the use of reflexive verbs and articles in Spanish.

According to the results of the DELE test, 88% (14/16) of the L2 learners were considered intermediate speakers and 12% (2/16) were considered advanced speakers. The mean score of this group in the DELE test was 34/50 points. Their reported self-proficiency in Spanish was adequate/good (3/5) and native-like (5/5) in English. Similar to the group of heritage speakers, this group of participants reported their frequency of Spanish usage and exposure. They indicated having both a low use of Spanish (1.5/5) for talking in Spanish daily, using the phone, chatting and texting, and low exposure (2.3/5) from music, T.V and written texts. Regarding use of Spanish in different contexts, the majority of the participants (95%) indicated speaking English only or mostly English at school, and 5% reported speaking equal Spanish and English. At home and in social situations, 100% indicated speaking English only or mostly English. Similarly, 100% of the participants reported feeling more comfortable speaking in English.

The control group was made up of sixteen (*n* = 16) native speakers born and raised in three Spanish-speaking countries. Their mean age at the time of testing was 20 years old. 56% (9/16) of the participants were from Colombia, 38% (6/16) from Mexico and 6% (1/16) from Costa Rica. All of the participants were undergraduate students in a variety of universities in their countries. They had been exposed to Spanish from birth and both of their parents were native speakers of Spanish. Their mean self-reported proficiency in Spanish was native-like (4.8/5) and novice (2.3/5) in English. All of the participants reported having high patterns of language usage (4.9/5) and exposure (4.5/5). In terms of language use in different contexts, 75% of the participants reported speaking Spanish only or mostly Spanish, 19% reported speaking equal Spanish and English and 6% reported speaking mostly English at school. At home, 94% of the participants reported using Spanish only and 6% reported using both English and Spanish. In social situations, 88% of the participants indicated using Spanish only or mostly Spanish, and 12% indicated equal use of Spanish and English. 15 participants in this group indicated feeling more comfortable using Spanish, and 1 participant reported feeling comfortable in both languages.

The table below summarizes the most relevant information of the participants of the study in terms of characteristics of each population, language use in different contexts and language usage and exposure. It is worth mentioning the self-reported proficiency scores in both Spanish and English are compound scores for listening, speaking, reading, and writing. Similarly, the language usage and exposure scores is a composite that comprises a set of daily activities participants do such as talking over the phone, chatting, texting, listening to music, watching TV and reading.

Table 2. Participants' demographic information, language dominance and proficiency

	Spanish heritage speakers (*n*=22)		**English-speaking L2 learners of Spanish (*n*=16)**		**Control group (*n*=16)**	
Mean age	20 (18-27)		18 (18-22)		20 (18-27)	
Place of birth	USA, Peru and Dominican Republic-born		USA-born		Colombia Mexico Costa Rica	
DELE Scores	40		34		N/A	
Self-reported proficiency in Spanish	3.9/5		3.0/5		4.8/5	
Self-reported proficiency in English	4.9/5		5/5		2.3/5	
Language usage	3.5/5		1.5/5		4.9/5	
Language exposure	3.4/5		2.3/5		4.5/5	
Language Use and Expose Composite	3.5/5		1.9/5		4.7/5	
Language use at school	English Spanish Both	96% 0% 4%	English Spanish Both	95% 0% 5%	English Spanish Both	6% 75% 19%
Language use at home	English Spanish Both	9% 59% 32%	English Spanish Both	100% 0% 0%	English Spanish Both	0% 94% 6%
Language use in social situations	English Spanish Both	55% 0% 45%	English Spanish Both	100% 0% 0%	English Spanish Both	0% 88% 12%
Language they feel comfortable with	English Spanish Both	64% 4% 32%	English Spanish Both	100% 0% 0%	English Spanish Both	0% 94% 6%

4.2 Structures under analysis

This study has looked at two conditions in order to analyze the extent to which Spanish heritage speakers and English-speaking L2 learners of Spanish exhibit knowledge of inalienable possession. The production and interpretation of inalienable possession was tested in the following two contexts:

29) Inalienable possession context:

Andrés se cortó el dedo.

"*Andrew himself cut his finger*".

"Andrew cut his finger".

30) Alienable possession context:

María cortó la flor.

"Marie cut the flower."

Sentences such as (29) involved reflexive verbs and body part nouns in object position. In this type of contexts, a preverbal clitic with second person features (*se*) was required and a definite determiner was preferred as the head of the determiner phrase of the body part noun. Sentences like (30) included transitive verbs and everyday objects nouns which did not require the insertion of a clitic. From a contrastive perspective, sentences in the first context are meant to be more challenging for bilingual speakers as their dominant language does not have a similar structure to express the type of possessive relationship implied in sentence (29). Previous research with heritage and L2 learners has reported effects of structure complexity in the form of transfer in the production and interpretation of certain morphological and syntactic properties of Spanish (e.g., Cuza, 2016; Cuza et al., 2018; Montrul, 2004). With this in mind, contexts of inalienable possession are meant to place more challenges than contexts of alienable possession.

4.3 Methods

The participants completed two experimental tasks: an elicited production task and a contextualized preference task (e.g., Cuza & Frank, 2015; Cuza & López-Otero, 2016; Cuza et al., 2018; Cuza et al., 2020; Geeslin & Guijarro-Fuentes, 2006; Giancaspro & Sánchez, 2019; López-Otero; 2016). In addition, they were asked to complete a language background questionnaire and a proficiency test adapted from a version of the *Diploma de Español como Lengua Extranjera* (DELE). All these tasks were administered online, and the responses were recorded for further analysis. The elicited production task was implemented first in the form of a synchronous online interview via zoom. The contextualized preference task was conducted second as an online questionnaire via Qualtrics. This task was done at the end in order to avoid priming effects on the first task. Test items in both tasks were randomized and counterbalanced to prevent any potential presentation order effect. As a result, two batteries were created and administered equally across participants.

4.3.1 Elicited production task

An elicited production task (henceforth EPT) is a controlled task in which the researcher arranges a context that leads the participant to produce a series of target structures. The EPT used in this study was a Question-After-Story task adapted from Giancaspro & Sánchez (2019). This task has been used in previous studies to test the production of different grammatical structures in Spanish with good results (e.g., Cuza & López-Otero, 2016; Cuza et al., 2018; Cuza et al., 2020; Giancaspro & Sánchez, 2019). The elicited production task was meant to elicit the oral production of sentences in inalienable and alienable possession contexts.

The EPT contained a total of 44 items. There were 20 test items, 20 distracters and four training items. Out of the 20 test items, 10 were used in inalienable possession contexts and the remaining 10 items were used in alienable possession contexts. The test items in inalienable contexts included five masculine nouns (*brazo* "arm", *dedo* "finger", *pelo* "hair", *pie* "foot", *ojo* "eye") and five feminine nouns (*cabeza* "head", *nariz* "nose", *mano* "hand", *boca* "mouth", *cara* "face"). All of the nouns in the inalienable possession contexts referred to body part nouns as these nouns denote inalienability. Similarly, the test items in alienable contexts included five masculine nouns (*espejo* "mirror", *carro* "car", *timbre* "bell", *piso* "floor", *edificio* "building") and five feminine nouns (*camara* "camera", *ropa* "clothes", *flor* "flower", *mesa* "table", *casa* "house"). The verbs used in the tasks were transitive verbs that could take a reflexive form. The ten verbs included in both contexts were *tocar* "touch", *secar* "dry", *limpiar* "clean", *tapar* "plug", *pintar* "paint", *lavar* "wash", *romper* "break", *cubrir* "cover", *quemar* "burn" and *cortar* "cut". All nouns and verbs were highly frequent words of Spanish according to the website *el corpus del español* created by Mark Davies and funded by the US National Endowment for the Humanities. The twenty distracters included in the task tested the use of gerunds as NPs in subject position and after prepositions.

The participants completed the elicited production task in a synchronous zoom call with the main researcher. They completed a training phase first. Instructions were given and two practice exercises were completed. When the participants manifested, they had understood what to do, the experimental phase began. In the experimental phase, each context was presented orally and visually with the aid of a PowerPoint presentation. The participants were presented with a preamble and prompt. The preamble was a sentence that introduced a person and a background story about this person. The prompt was a question that asked what the person in the preamble did

(*¿Qué hizo Juan?* "What did John do?") or what had happened to the person (*¿Qué le pasó a Juan?* "what happened to John"). Then, they were shown an image with a verb in the infinitive form and a noun under it. The participants were instructed to use the two words and any other word to describe what the person in the picture did. The expected response was a sentence indicating inalienable or alienable possession based on the item shown in the picture. Examples of the task are shown in (31) and (32).

31) Inalienable possession context

Preamble: *Juan subió a un árbol y se cayó.*

"John climbed a tree and he fell down".

Prompt: *¿Qué le pasó a Juan?*

"What happened to John?"

Expected response: *Juan se rompió el brazo.*

"*John himself broke his arm*".

"John broke his arm".

In 31, the situation had an inalienable possession interpretation as the arm was an integral part of the boy's body. In this context, the expected response required the use of both the clitic *se* before the verb and a definite determiner before the body part noun. Sentences that incorporated both

elements were label as the expected response, whereas sentences that lacked one or both of these elements were considered to be not expected.

32) Alienable possession context

Preamble: *Juan estaba jugando con una pelota en la sala.*

"John was playing with a ball in the living room".

Prompt: *¿Qué hizo Juan?*

"What did John do?"

Expected response: *Juan rompió el espejo.*

"John broke the mirror".

In 32, the situation had an alienable possession interpretation as the mirror is not an integral part of the boy's body. It is an external object. In alienable possession contexts, the expected response required the omission of the clitic *se* before the verb and the use of a definite determiner before the noun. Sentences that followed this structure were considered expected, whereas sentences that incorporated the clitic se or the possessive determiner were not expected.

4.3.2 Contextualized preference task

A contextualized preference task (henceforward CPT) is aimed at assessing the internal representation speakers have about a particular structure. This type of task is successfully completed when the participants implicitly choose one of the options given. Therefore, the main goal is to show personal preferences to certain features of the language in a given context. Preference tasks have been widely used in previous studies with heritage speakers and L2 learners to test the acquisition of multiple grammatical structures (e.g., Cuza & Frank, 2015; Cuza & López-Otero, 2016; Geeslin & Guijarro-Fuentes, 2006).

Similar to the previous task, the CPT comprised 44 test items. Four items were part of the training that the participants completed at the beginning of the task. Twenty items were distracters of another study that tested the use of gerunds, and the 20 items left were actual test items. The test items were further divided in two contexts (inalienable and alienable) and they included the same kind and number of nouns and verbs than the elicited production task.

The participants completed the task asynchronously online via Qualtrics. They received a link to have access to the task via email and were instructed to complete it without any time constraint. In this task, participants were asked to read a preamble which represented an activity that a person was doing; the participants were shown an image, a prompt in the form of a question and four possible responses. Participants were asked to choose the response that best represented the event. The responses varied only in the syntactic elements they contained. Two of the responses included a clitic *se* before the verb and a definite or a possessive determiner with the noun in direct object position. The remaining two responses omitted the clitic *se* and included a definite or a possessive determiner with the noun in direct object position. This task is exemplified in (33) and (34).

33) Inalienable possession context

Preamble: *Anoche Sandra hizo algo antes de acostarse.*

"Last night Sandra did something before going to bed".

Prompt: *¿Qué hizo Sandra anoche?*

"What did Sandra do last night?"

Responses: *a) Sandra limpió el ojo.* [less preferred]

"Sandra cleaned the eye".

b) Sandra limpió su ojo. [less preferred]

"Sandra cleaned her eye".

c) Sandra se limpió el ojo. [more preferred]

"Sandra herself cleaned the eye".

d) Sandra se limpió su ojo. [less preferred]

"Sandra herself cleaned her eye".

In (33), the expected response was example C. The test item *ojo* (eye) cannot be interpreted as being apart from Sandra. The most preferred response required the use of the clitic pronoun *se* before the verb and a definite determiner before the body part noun.

34) Alienable possession context

Preamble: *Sarita siempre ayuda a su mamá después de la cena.*

"Sarita always helps her mom out after dinner".

Prompt: *¿Qué hizo Sarita ayer?*

"What did Sarita do yesterday?"

Responses: *a) Sarita limpió la mesa.* [more preferred]

"Sarita cleaned the table".

b) Sarita limpió su mesa. [less preferred]

"Sarita cleaned her table".

c) Sarita se limpió la mesa. [less preferred]

"Sarita cleaned the table herself".

d) Sarita se limpió su mesa. [less preferred]

"Sarita cleaned her table herself".

In (34), the expected response was example A as this was an alienable context. The item *mesa* "table" can be conceived as an independent element that does not necessarily need to be attached to Sarita. The expected response required the omission of the clitic *se* before the verb and the use of a definite determiner before the noun. A sentence with this structure was expected to be preferred.

4.3.3 Coding

The responses of the participants were coded based on the syntactic elements used. Use of clitic *se* and definite determiner was coded as one. Omission of *se* and use of a definite determiner was

coded as two. Incorporation of a clitic *se* and a possessive determiner was coded as three. Finally, the omission of *se* and usage of a possessive determiner was marked as four.

In the elicited production task, responses with other structures were coded as 5 and they were tagged as "other". The more used or preferred response varied depending on the context. For inalienable contexts, the expected response was one. For alienable contexts, the expected response was two. The coding criteria, along with additional examples, is described in Table 2. The proportion of responses was calculated for each participant and the proportion of responses for each code was averaged for each group (Spanish heritage speakers, L2 learners and Controls) and for each of the two contexts (inalienable and alienable).

Table 3. Coding criteria

Code	Structure	Example	
1	Se+DefDet	se rompió el brazo	Expected response for inalienable contexts
2	Null Se+DefDet	∅ rompió el brazo	Expected response for alienable contexts
3	Se+PossDet	se rompió su brazo	Less used or preferred
4	Null Se+PossDet	∅ rompió su brazo	Less used or preferred
5	Other	romper brazo	Not used or preferred

In what follows, the results of the current study are discussed.

4.4 Results

4.4.1 Elicited production task

4.4.1.1 Group results for inalienable contexts

The results of the elicited production task showed high use of *Se+DefDet* structures among the heritage speakers and the control group in inalienable contexts. The control group reached a 72%

range of response and the heritage speakers 67%. Other responses were found among both groups of participants. The heritage speakers exhibited 13% of *Null Se+PossDet* structures, 10% of *Se+PossDet* structures and 10% of *Null Se+DefDet* structures. The control group showed 21% use of *Null Se+PossDet* structures and 7% use of *Se+PossDet* structures. The L2 learners, on the contrary, showed the lowest rate of *Se+DefDet* for inalienable contexts with only 8% response. Use of *Null Se+PossDet* (75%) and *Null Se+DefDet* (14%) were found with the L2 learners. This is shown in Figure 1 below:

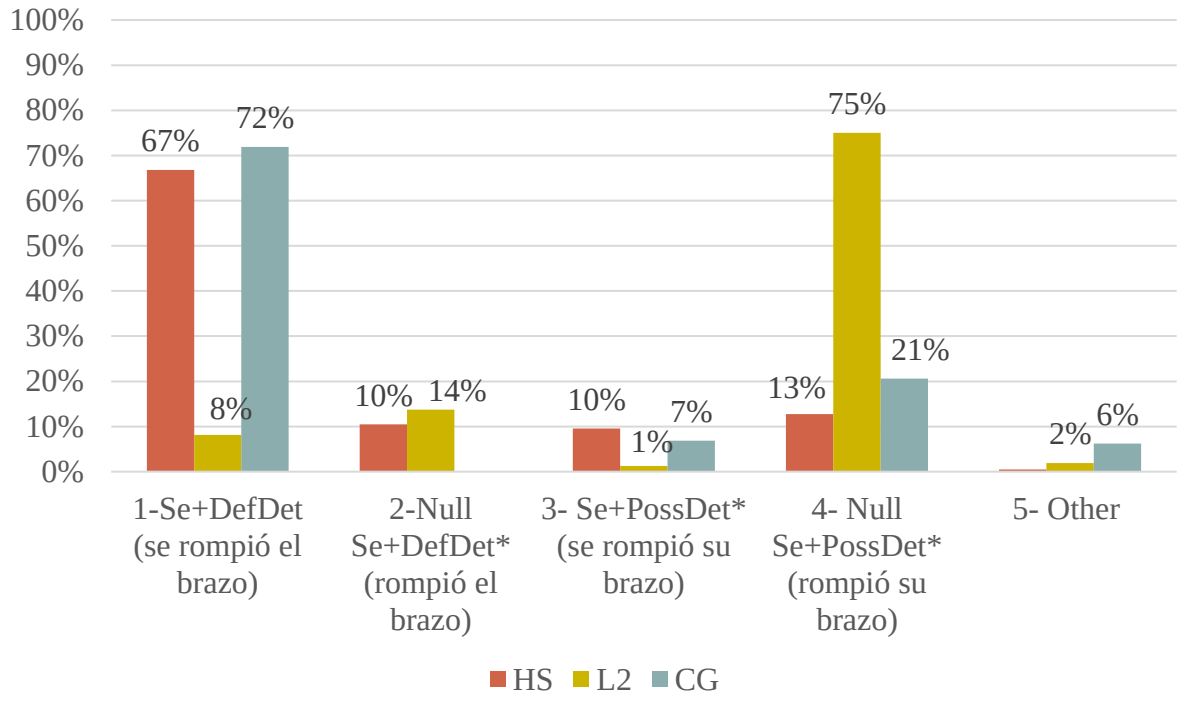

Figure 1. EPT: Total proportion of responses by group in inalienable contexts**.**

Results of a generalized lineal model analysis (henceforth GLM) showed significant differences in the percentage of response of all groups, χ^2 (188.7), $p < .001$. A Kruskal-Wallis test was implemented to examine whether there were significant differences between groups and significant group differences were found, $\chi^2_k = 167.3$, $p < .001$. A post hoc analysis, looking at the differences between the groups in the probability of producing the expected response, showed

significant differences between the control group and the L2 learners ($p < .001$) and between the heritage speakers and the L2 leaners ($p < .001$). However, the heritage speakers did not behave significantly different from the control group in this context ($p = .68$). These results are summarized in Table 4.

Table 4. EPT: Results of the GLM model analysis for inalienable contexts.

	Estimate	Std. Error	z value	Pr(>|z|)
Control group	0.9383	0.1758	5.3361	0.0000
Heritage Speakers	0.7000	0.1432	4.8887	0.0000
L2 Learners	-2.4255	0.2894	-8.3824	0.0000

Comparison groups	statistic	p.value
Control group = Heritage Speakers	1.1911	0.6800
Control group = L2 Learners	13.9540	0.0000
Heritage Speakers = L2 Learners	13.8242	0.0000

In order to determine if the results obtained at the group level were consistent with what the participants did at the individual level, an individual analysis was conducted.

4.4.1.2 Individual results for inalienable contexts

Following previous research in heritage language bilingualism (e.g., Cuza, 2016; Cuza et al., 2020), participants were grouped depending on whether or not they selected the expected response (*Se+DefDet)* out of 10 trials. Participants who produced the expected response 7-10 times were considered to be in the *mostly used* range, those who produced 4-6 *Se+DefDet* responses were placed in the *somewhat used* range, those with 1-3 *Se+DefDet* responses were in the *least used* range, and those who did not use the response were considered to be in the *zero usage* range.

As shown in Table 5, 15/22 heritage speakers mostly produced *Se+DefDet*, 2/22 used it somewhat, just 1/22 used it the least, and 4/22 did not use it at all. The data revealed that the two participants in the *somewhat* range produced a mixture of *Se+DefDet* structures and possessive

structures (either *Se+PossDet* or *Null Se+PossDet*) in inalienable contexts. The only participant in the *least used* range used possessive structures in most of the contexts except one. Two of the participants in the *zero usage* range produced possessive structures in all inalienable contexts, and the remaining two used structures with a null clitic and a determiner.

Regarding the L2 learners, only 1/16 was in the *mostly used* range, 0/16 were in the *somewhat used* range, 2/16 were in the *least used* range, and 13/16 were in the *zero usage* range. The data showed that the only L2 learner in the *mostly used* range produced *Se+DefDet* structures 90% of the time. Participants who were part of the *least or zero usage* range made use of *Null Se+PossDet*, *Null Se+DefDet* or other structures. When other structures were used, they typically included an indefinite determiner (e.g., *rompió un brazo* "he broke an arm") or lacked any type of determiner (e.g., *rompe brazo* "he breaks arm").

In the case of the control group, 11/16 participants were in the *mostly used* range, 2/16 were in the *somewhat used* range, 2/16 were least users and 1/16 was a zero user. The data revealed that controls in the *somewhat and least used* range used a mixture of *Se+DefDet* structures and possessive structures (either *Se+PossDet* or *Null Se+PossDet*) across all the contexts. The participant in the *zero usage* range was the only one from the control group who used structures with possessive determiners. The individual results were consistent with the group data. The majority of the heritage speakers and the controls mostly used *Se+DefDet* structures in inalienable context, whereas the majority of L2 learners did not use this structure.

Table 5. EPT: Individual analysis inalienable contexts.

Group	Inalienable contexts Production		
		Number of target responses	Number of participants
Heritage Speakers (*n* = 22)	Mostly used	7-10	15/22 (68%)
	Somewhat used	4-6	2/22 (9%)
	Least used	1-3	1/22 (4%)
	Zero usage	0	4/22 (18%)
L2 learners (*n* = 16)	Mostly used	7-10	1/16 (6%)
	Somewhat used	4-6	0/16 (0%)
	Least used	1-3	2/16 (12%)
	Zero usage	0	13/16 (81%)
Controls (*n* = 16)	Mostly used	7-10	11/16 (69%)
	Somewhat used	4-6	2/16 (12%)
	Least used	1-3	2/16 (12%)
	Zero usage	0	1/16 (6%)

In order to examine whether the items used in inalienable contexts had an effect in the percentage of response, an individual item analysis was conducted using a generalized linear model analysis.

4.4.1.3 Item analysis for inalienable contexts

Results of the GLM analysis showed there was no significant difference between items in inalienable possession contexts, χ^2 (2.8936), p = .98. A Kruskal-Wallis test was conducted to test whether one of the items used in the task was different from the others. The results indicated there was not a significant difference in any item, χ^2 (1.4792), p = .83. The results of the item analysis are presented in Table 6 and Figure 2.

Table 6. EPT: Results of the Item analysis for inalienable contexts.

	Estimate	Std. Error	z value	Pr(>|z|)
ItemG1FEM cabeza (head)	-0.0741	0.2724	-0.2721	0.7855
ItemG1MASC brazo (arm)	0.0741	0.2724	0.2721	0.7855
ItemG2FEM nariz (nose)	0.1484	0.2729	0.5438	0.5866
ItemG2MASC dedo (finger)	0.1484	0.2729	0.5438	0.5866
ItemG3FEM mano (hand)	0.2231	0.2739	0.8148	0.4152
ItemG3MASC pelo (hair)	-0.0741	0.2724	-0.2721	0.7855
ItemG4FEM boca (mouth)	0.2231	0.2739	0.8148	0.4152
ItemG4MASC pie (foot)	0.0000	0.2722	0.0000	1.0000
ItemG5FEM cara (face)	-0.2231	0.2739	-0.8148	0.4152
ItemG5MASC ojo (eye)	-0.0741	0.2724	-0.2721	0.7855

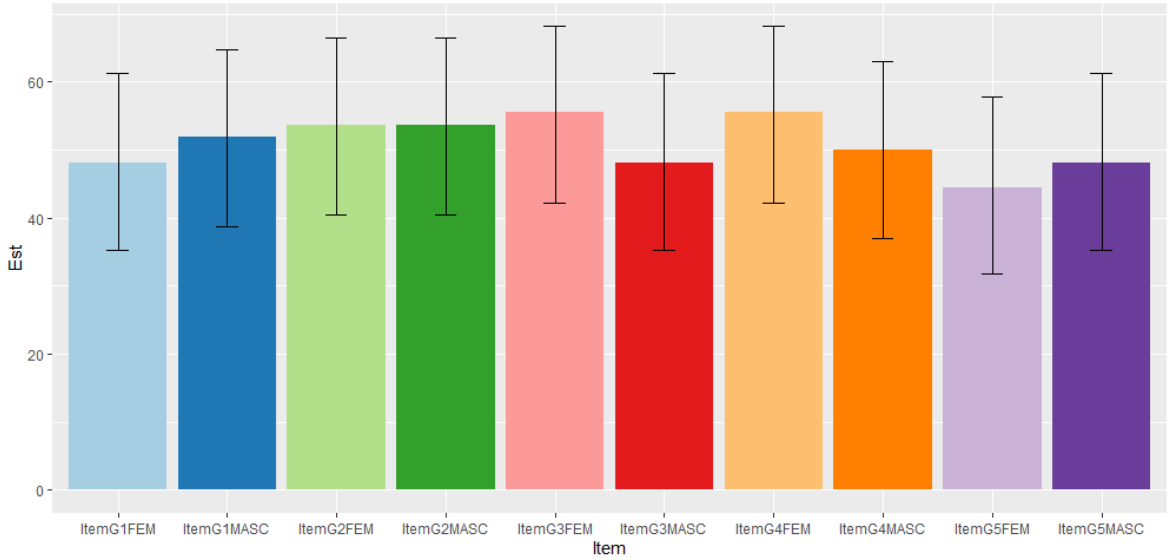

Figure 2. EPT: Item analysis inalienable contexts.

Even though there was not a significant difference in the items used at the statistical level, a closer look at the data indicated that some items obtained lower percentages of *Se+DefDet* response. In order to explore what the patterns of response were and which structures were used, and item analysis was conducted per group. As shown in Table 7, most of the L2 learners favored the use of *Null Se+PossDet* structures across all items. Very few L2 learners used *Se+DefDet* structures. The heritage speakers and the control group produced *Se+DefDet* structures with most

of the items. However, with some items they produced one of the other structures mentioned. In particular, items such as *pelo* “hair”, *ojo* “eye”, and *cara* “face” seem to constrain the use of *Se+DefDet.*

Table 7. EPT: Results of the Item analysis per group for inalienable contexts.

Verbs and nouns used in the task	Elicited Production Task								
	Number of L2 learners			Number of Heritage speakers			Number of control participants		
	Se+def	**null se+poss**	**se+poss**	**Se+def**	**null se+poss**	**se+poss**	**Se+def**	**null se+poss**	**se+poss**
Romper, brazo (break, arm)	2	12	0	**13**	**2**	**4**	13	0	2
Cortar, dedo (cut, finger)	2	10	1	14	4	1	13	0	3
Secar, pelo (dry, hair)	1	10	1	15	3	2	**10**	**6**	**0**
Lavar, pie (wash, foot)	2	11	0	14	4	2	11	4	1
Limpiar, ojo (clean, eye)	1	11	0	16	4	0	**9**	**5**	**2**
Tocar, cabeza (touch, head)	1	12	0	**13**	**6**	**0**	12	4	0
Tapar, nariz (cover, nose)	1	11	0	17	1	2	11	4	1
Quemar, mano (burn, hand)	1	13	0	15	4	1	14	0	2
Pintar, boca (paint, mouth)	1	12	0	16	3	1	13	2	1
Cubrir, cara (cover, face)	1	14	0	**14**	**5**	**0**	**9**	**7**	**0**

To summarize so far, the heritage speakers and the control group exhibited a similar behavior in the production of *Se+DefDet* structures for inalienable contexts. However, both groups produced other types of sentences. The control group mainly used a single set of sentences. These were sentences that lacked a clitic and had a possessive determiner such as *Lavó su pie* “He washed his foot” and *Cubrió su cara* “He covered his face”. The heritage speakers, on the contrary,

produced three sets of other structures: sentences in which the clitic was omitted and a definite determiner was used (*Cortó el dedo* "He cut the finger"), sentences with a clitic and a possessive determiner (*Se cortó su dedo* "He himself cut his finger"), and sentences with an omitted clitic and a possessive determiner (*Cortó su dedo* "He cut his finger"). The L2 learners showed low levels of *Se+DefDet* structures in inalienable contexts compared to the other two groups. These results partially confirm Hypothesis 1 as only one of the groups (the L2 learners) showed significant differences in the production of inalienable possession compared to the other groups. Although the heritage speakers produced sentences with other structures, they outperformed the L2 learners in the production of *Se+DefDet* structures and behaved similarly to the control group in inalienable contexts.

4.4.1.4. Language proficiency and patterns of language usage and exposure

In relation to the potential association between proficiency and a *more used* response (Hypothesis 2), a GLM analysis showed no significant association in the case of the heritage speakers ($\chi^2 =$ 0.5289, *p* .46) or the L2 learners ($\chi^2 =$ 1.1573, *p* .28). This was confirmed by the individual results as speakers of all proficiency levels were found in the *mostly used* range as well as in the somewhat *used* and *least used* range. Therefore, hypothesis 2 which predicted a connection between language proficiency and patterns of response in inalienable possession was not confirmed.

In order to examine Hypothesis 3, which predicted a strong association between the patterns of language usage and exposure and the *more used* response, I followed Cuza, Shin & Sánchez (2020) in measuring the participants' levels of Spanish language exposure and usage. The language usage measures included how frequently the participants a) spoke Spanish daily, b) spoke Spanish over the phone, and c) used the language for chatting and for texting. The language

exposure measures included how frequently the participants a) listened to music in Spanish, b) watched TV in Spanish, and c) read in Spanish. Participants answered using a Likert scale with the following descriptors and values: *very frequently* (5), *frequently* (4), *not much* (3), *rarely* (2), and *never* (1). In addition, information on other measures for language use (other experience) was extracted. This information included use of Spanish at school, at home and in social situations. Participants rated their use of Spanish based in following scale : *Spanish only* (5), *mostly Spanish* (4), *equal Spanish and English* (3), *mostly English* (2) and *English only* (1) (Cuza, 2016; Cuza, Shin & Sánchez, 2020).

The average group score for language usage was 3.5 (not much) for heritage speakers and 1.5 (never) for L2 learners. The average score for language exposure was 3.4 (not much) for heritage speakers and 2.3 (rarely) for L2 learners. The average score for other experience was 2.6 (mostly English) for heritage speakers and 1.3 (English only) for L2 learners. The control group was excluded from this analysis since they were all monolingual speakers of Spanish.

Results from a GLM analysis showed that in the case of heritage speakers, the patterns of language usage (χ^2 =5.506; $p < .001$) and other experience (χ^2 =24.993; $p < .001$) were associated with the expected response. However, language exposure (χ^2 =1.0719; p =.30) was not significantly associated with any response. Regarding the L2 learners, patterns of language usage and language exposure did not show a significant effect for the use of *Se+DefDet* structures. Use of Spanish in other contexts was the only covariable associated with the expected response in this group, χ^2 =24.313, $p < .001$. A look at the individual analysis did not confirm these results. The individual analysis showed participants who used *Se+DefDet* structures were found across all groups of heritage speakers and L2 learners. However, the individual analysis also showed that the majority of the heritage speakers had higher rates of patterns of language use, exposure and use in other

context than the L2 learners. Therefore, more heritage speakers were found in the *mostly used* range while most of the L2 learners were in the *zero usage* range. This partially confirms hypothesis 3.

4.4.1.5 Group results for alienable contexts

As expected, results of the elicited production task in alienable contexts showed high proportion of *Null Se+DefDet* structures among all groups. The heritage speakers and the controls behaved similarly choosing the response *Null Se+DefDet* around 81% of the time. This contrasts with the results of the L2 learners who showed much lower use of this structure (61%) given the use of *Null Se+PossDet* (28%) and other responses (11%). Heritage speakers and controls also showed rates of *Null Se+PossDet* in alienable contexts (16% for heritage speakers and 18% for controls) due to an item effect. This can be seen in Figure 3.

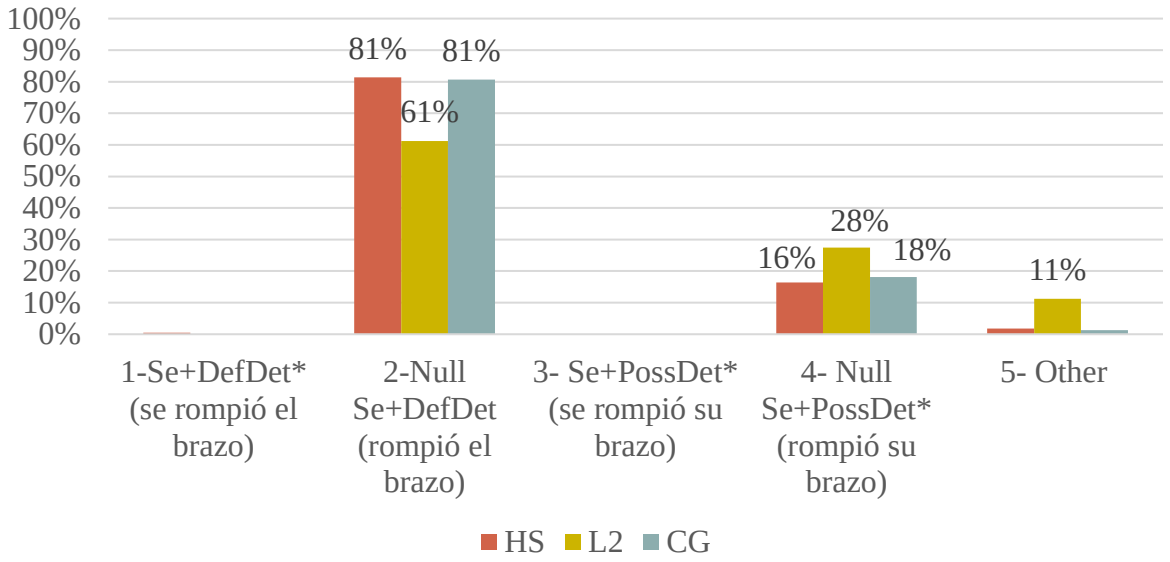

Figure 3. EPT: Total proportion of responses by group in alienable contexts.

Results of a GLM analysis showed significant differences between all groups in their percentages of response, χ^2 (166.05), $p < .001$. A Kruskal-Wallis test showed that there were

significant differences between one of the groups when it was compared to others. A post hoc analysis indicated significant differences between the control group and the L2 learners ($p < .001$) and the heritage speakers and the L2 learners ($p < .001$). In this context, the heritage speakers and the controls did not exhibit any significant differences ($p = .99$). These results can be found on Table 8.

Table 8. EPT: Results of the GLM model analysis for alienable contexts.

	Estimate	Std. Error	z value	Pr(>|z|)
Control group	1.4258	0.2000	7.1282	0.0000
Heritage Speakers	1.4738	0.1731	8.5124	0.0000
GroupL2 Learners	0.4578	0.1623	2.8213	0.0048

Comparison groups	statistic	p.value
Control group = Heritage Speakers	0.1740	0.9917
Control group = L2 Learners	4.2409	0.0076
Heritage Speakers = L2 Learners	4.7374	0.0023

In order to determine whether these results are confirmed at the individual level, an individual analysis was conducted in the alienable contexts.

4.4.1.6 Individual results for alienable contexts

The individual analysis was done with 9 items instead of 10 as an item effect was found in the second masculine token *carro* "car" so such item was discarded[1]. Participants producing *Null Se+DefDet* structures 7-9 times were classified in the mostly used range, those using it 4-6 times were in the somewhat used range, those producing the response 1-3 times were placed in the least used range, and those who never used it were in the zero usage users. Most of the heritage speakers (18/22) and the controls (12/16) were in the *mostly used* range or somewhat *used* range (4/22 heritage speakers and 4/16 controls). Half of the L2 learners (8/16) were mostly used users, 6 were

[1] Constructions with the item *carro* "car" incorporated the possessive adjective "*su*" which is available in the Spanish grammar to express possession of objects.

somewhat used users and 2 were least used users. There were not any participants in the *zero usage* range. The individual analysis confirms the group results as the majority of the heritage speakers used high proportions of the expected *Null Se+DefDet* response in alienable contexts. This provides support to Hypothesis 1 as participants exhibited less variation in production for alienable contexts than for inalienable contexts. This is summarized in Table 9.

Table 9.EPT: Individual analysis alienable contexts.

Group		**Alienable contexts Production**	
		Number of target responses	Number of participants
Heritage Speakers (*n* = 22)	Mostly used	7-10	18/22 (82%)
	Somewhat used	4-6	4/22 (18%)
	Least used	1-3	0/22 (0%)
	Zero usage	0	0/22 (0%)
L2 learners (*n* = 16)	Mostly used	7-10	8/16 (50%)
	Somewhat used	4-6	6/16 (37%)
	Least used	1-3	2/16 (12%)
	Zero usage	0	0/16 (0%)
Controls (*n* = 16)	Mostly used	7-10	12/16 (75%)
	Somewhat used	4-6	4/16 (25%)
	Least used	1-3	0/16 (0%)
	Zero usage	0	0/16 (0%)

An item analysis was conducted to determine whether there was an association between expected response and the task tokens used in alienable contexts.

4.4.1.7 Item analysis for alienable contexts

Results of a GLM analysis showed the percentage of response was significantly different in all items except in *ropa* “clothes” and *casa* “house”, χ^2 (279.26), p <0.001. In addition, a Kruskal-Wallis test indicated that just one of the items was significantly different compared to the others. A post hoc test showed that the masculine item *carro* “car” was different (p <0.001) and had the

lowest percentage of response in the data (27% for heritage speakers, 12% for L2 learners and 50% for controls). The results of the quantitative data were confirmed in the individual analysis. The majority of the participants (16/22 heritage speakers, 13/16 L2 learners and 8/16 controls) used *Null Se+PossDet* structures with the item *carro* "car" and produced a sentence like Juan *lavó su carro* "John washed his car". Two other items were found to cause difficulty in the heritage and the L2 data. The first one was the item *ropa* "clothes" which was produced as *María lavó su ropa* "Marie washed her clothes" (*Null Se+PossDet)* by 10/22 of the heritage speakers and 11/16 of the L2 learners. The second one was the item *casa* "house" which was produced as *Jose pinto su casa* "Joseph painted his house" by 4/22 heritage speakers, 6/16 L2 learners and 7/16 controls. Results from the item analysis can be seen in Table 10 and Figure 4.

Table 10. EPT: Results of the item analysis alienable contexts.

	Estimate	**Std. Error**	**z value**	**Pr(>|z|)**
ItemG1FEM camara (camera)	2.5257	0.5196	4.8608	0.0000
ItemG1MASC espejo (mirror)	2.8332	0.5941	4.7691	0.0000
ItemG2FEM ropa (clothes)	0.1484	0.2729	0.5438	0.5866
ItemG2MASC carro (car)	-0.8650	0.2980	-2.9025	0.0037
ItemG3FEM flor (flower)	2.0794	0.4330	4.8023	0.0000
ItemG3MASC timbre (bell)	3.2581	0.7203	4.5235	0.0000
ItemG4FEM mesa (table)	3.2581	0.7203	4.5235	0.0000
ItemG4MASC piso (floor)	0.6931	0.2887	2.4011	0.0163
ItemG5FEM casa (house)	0.5306	0.2818	1.8830	0.0597
ItemG5MASC edificio (building)	0.8650	0.2980	2.9025	0.0037

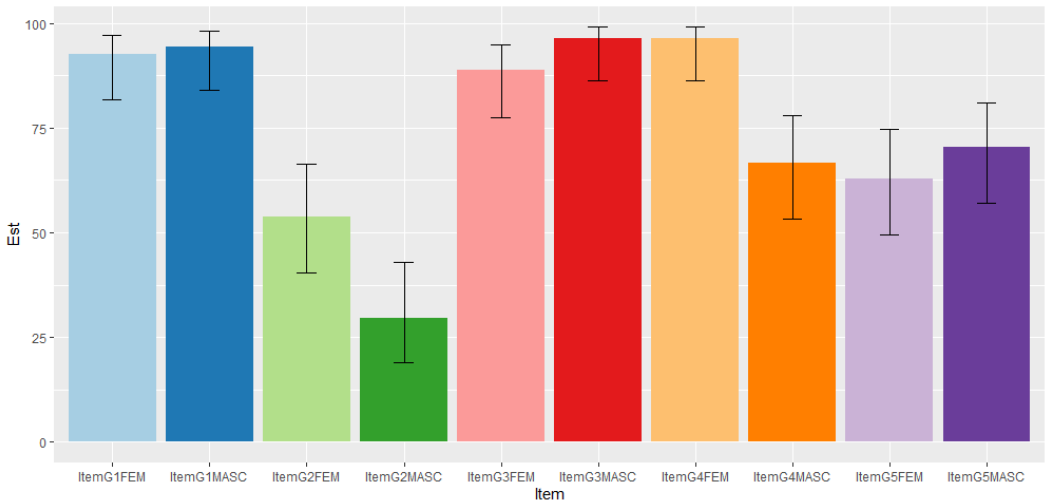

Figure 4. EPT: Item analysis alienable contexts

4.4.1.8 Language proficiency and patterns of language usage and exposure

The association between language proficiency and the *more used* response was measured by implementing a generalized linear model analysis. Results of the GLM analysis showed that there was a significant association between language proficiency and expected response with the group of heritage speakers ($\chi^{2\,=}$ 5.1005, *p* .23). No significant association was found with the group of L2 learners ($\chi^{2\,=}$ 0.2669, *p* .60). These quantitative results were not confirmed in the individual data. Speakers of all proficiency levels were found in the different groups of the individual analysis. A speaker with high proficiency could be in the mostly used range, and a speaker with an equal proficiency could be in the least used range. Hypothesis 2 was not confirmed in this context either.

Similar to what was done in the inalienable contexts, a GLM analysis was implemented to explore the relationship between language usage, language exposure and use of Spanish in other contexts as covariables and the more used response as independent variable. The results showed no significant association between any of the covariables and the expected response. However, in the case of the L2 learners, only the use of Spanish in other contexts was significantly associated with the expected *Null Se+DefDet* response, χ^2 (9.3775), *p* <0.001. This statistical result was not

confirmed in the individual data for two reasons. First, the group of L2 learners exhibited low use of Spanish in other contexts in general. The scores of the participants in this group do not differ from one another. Second, learners with higher and lower scores were found among the speakers who produced *Null Se+DefDet* responses. Therefore, Hypothesis 3 was not confirmed.

To sum up, the heritage speakers and the control group showed an expected behavior in alienable contexts. Both groups were consistent in the use of *Null Se+DefDet* structures in this context. The L2 learners showed lower use of the expected response compared to the heritage speakers and the controls. However, all groups showed low levels of other structure (specifically, *Null Se+PossDet*) due to an item effect with the token *carro* "car". As Vergnaud and Zubizarreta (1992) claimed, the word *car* belongs to the extended category of nouns which usually receives an inalienable interpretation.

4.4.2 Contextualized preference task

4.4.2.1 Group results for inalienable contexts

The contextualized preference task explored the interpretation participants had in contexts of inalienable possession given four different responses (*Se+DefDet*, *Null Se+DefDet*, *Se+PossDet*, *Null Se+PossDet*). Overall, the results of the preference task showed high predilection for *Se+DefDet* structures among all groups of speakers. The heritage speakers showed the highest preference of *Se+DefDet* (76%) in all the groups. Nonetheless, they exhibited preference for other structures such as *Se+PossDet* (15%) and *Null Se+PossDet* (9%). The control participants followed a similar pattern as the heritage speakers. They showed higher rates of the *Se+DefDet* (64%) followed by 19% of *Se+PossDet* and 16% *Null Se+PossDet*. The L2 learners preferred more instances of *Se+DefDet* (48%) along with *Se+PossDet* (37%). The data showed a low

preference for *Null Se+PossDet* structures (13%) among the L2 learners. This is shown in Figure 5.

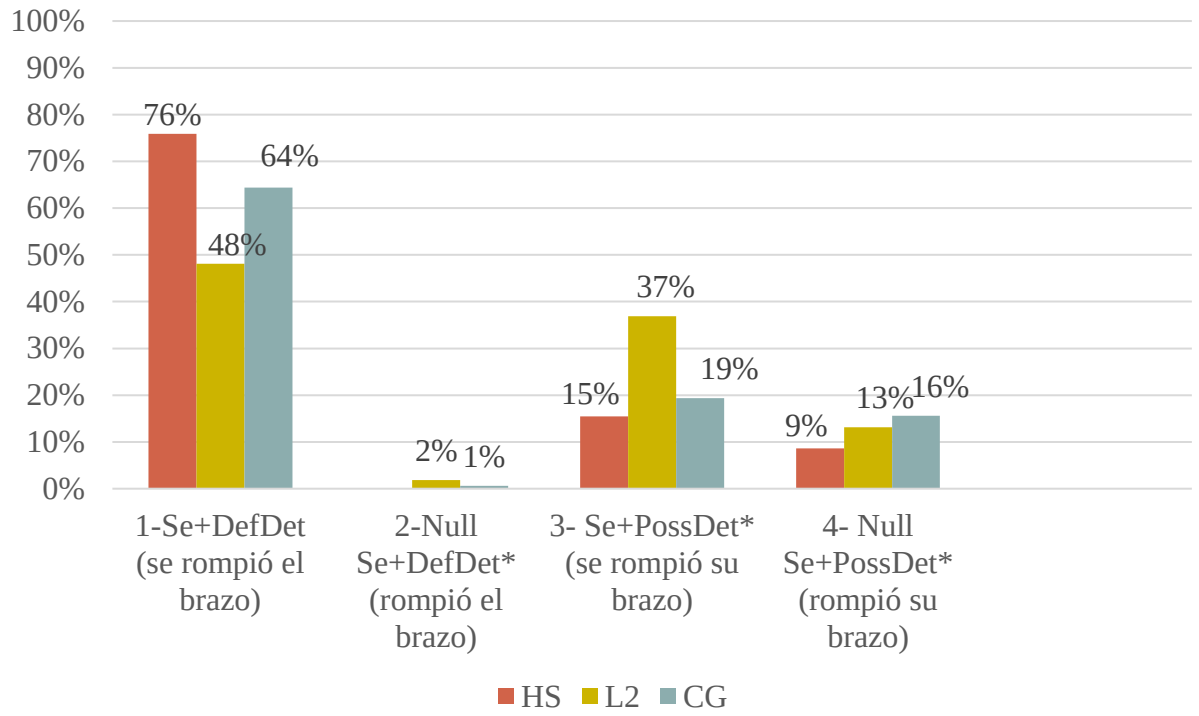

Figure 5. CPT: Total proportion of responses by group in inalienable contexts.

Results of the GLM analysis showed significant differences between groups in the percentage of preferred response, χ^2 (166.05), $p < .001$. As in the case of the elicited production task, a Kruskal-Wallis test was implemented to determine whether a group was different in comparison to the others. The results of this test showed that one of the groups was different. A post hoc analysis showed significant differences between the control group and the L2 learners ($p < .001$) and between the heritage speakers and the L2 learners ($p < .001$). These results are presented in Table 11.

Table 11. CPT: Results of the GLM model analysis for inalienable contexts.

	Estimate	Std. Error	z value	Pr(>|z|)
Control group	0.5917	0.1651	3.5841	0.0003
Heritage Speakers	1.1477	0.1577	7.2797	0.0000
L2 Learners	-0.0750	0.1582	-0.4742	0.6353

Comparison groups	statistic	p.value
Control group = Heritage Speakers	2.7167	0.1330
Control group = L2 Learners	3.5569	0.0320
Heritage Speakers = L2 Learners	6.5441	0.0000

In order to confirm the group results, an individual analysis was conducted following the same criteria described before in the production task.

4.4.2.2 Individual results for inalienable contexts

As shown in Table 12, the majority of the heritage speakers mostly preferred (15/22) or somewhat preferred (5/22) *Se+DefDet* structures. Only few heritage speakers (2/22) showed less preference towards *Se+DefDet* in this context. Regarding the control group, 9/16 mostly preferred *Se+DefDet* for inalienable contexts followed by 4/16 who somewhat preferred it and 3/16 who preferred it the least. A closer look at the control data revealed that the seven participants in the *least used* range were inclined to choose some sort of possessive structure (either *Se+PossDet* or *Null Se+PossDet*) as in *Juan tocó su cabeza* "John touched his head" or *Juan se tocó su cabeza* "John himself touched his head". However, these least used users showed preference for *Se+DefDet* structures twice. The data showed that the controls were not categorical choosing one possessive structure over another. The participants could prefer *Se+PossDet* with two items and *Null Se+PossDet* with other two items. This pattern was found with 6/7 participants in the *least used* range. This suggests that these participants preferred both types of structures in the same environments without a change in meaning or without being considered incorrect. In the case of the L2 learners, 7/16 were in the mostly used range, 3/16 in the somewhat used range and 7/16 were in the *zero usage* range. The

data revealed that all the participants in the *zero usage* range chose 80% of the time the *Se+PossDet* structure and the remaining 20% were instances of *Null Se+PossDet*.

Table 12. CPT: Individual analysis inalienable contexts

Group		**Inalienable contexts Preference**	
		Number of target responses	Number of participants
Heritage Speakers (*n* = 22)	Mostly used	7-10	15/22 (68%)
	Somewhat used	4-6	5/22 (23%)
	Least used	1-3	2/22 (9%)
	Zero usage	0	0/22 (0%)
L2 learners (*n* = 16)	Mostly used	7-10	7/16 (44%)
	Somewhat used	4-6	3/16 (19%)
	Least used	1-3	0/16 (0%)
	Zero usage	0	6/16 (37%)
Controls (*n* = 16)	Mostly used	7-10	9/16 (56%)
	Somewhat used	4-6	3/16 (19%)
	Least used	1-3	4/16 (25%)
	Zero usage	0	0/16 (0%)

An item analysis was implemented to explore an association between the type of responses and the items used in the task.

4.4.2.3 Item analysis for inalienable contexts

Results of the GLM analysis showed significant differences in the percentage of expected response in all items except in two, χ^2 (56.689), p <0.001. The items *pelo* “hair” (*p* = .58) and *cara* “face” (*p*= .78) reached similar percentages of more and less preferred response across all groups. A Kruskal-Wallis test exploring variations among all items showed no significant differences, χ^2 (12.08), *p* .20. These results are summarized in Table 13 and Figure 6.

Table 13. CPT: Item analysis inalienable contexts.

	Estimate	Std. Error	z value	Pr(>|z|)
ItemG1FEM cabeza (head)	0.1484	0.2729	0.5438	0.5866
ItemG1MASC brazo (arm)	0.5306	0.2818	1.8830	0.0597
ItemG2FEM nariz (nose)	0.9555	0.3038	3.1450	0.0017
ItemG2MASC dedo (finger)	0.6109	0.2850	2.1438	0.0320
ItemG3FEM mano (hand)	0.5306	0.2818	1.8830	0.0597
ItemG3MASC pelo (hair)	0.7777	0.2930	2.6543	0.0079
ItemG4FEM boca (mouth)	1.1486	0.3183	3.6086	0.0003
ItemG4MASC pie (foot)	0.4520	0.2791	1.6192	0.1054
ItemG5FEM cara (face)	0.7777	0.2930	2.6543	0.0079
ItemG5MASC ojo (eye)	0.0741	0.2724	0.2721	0.7855

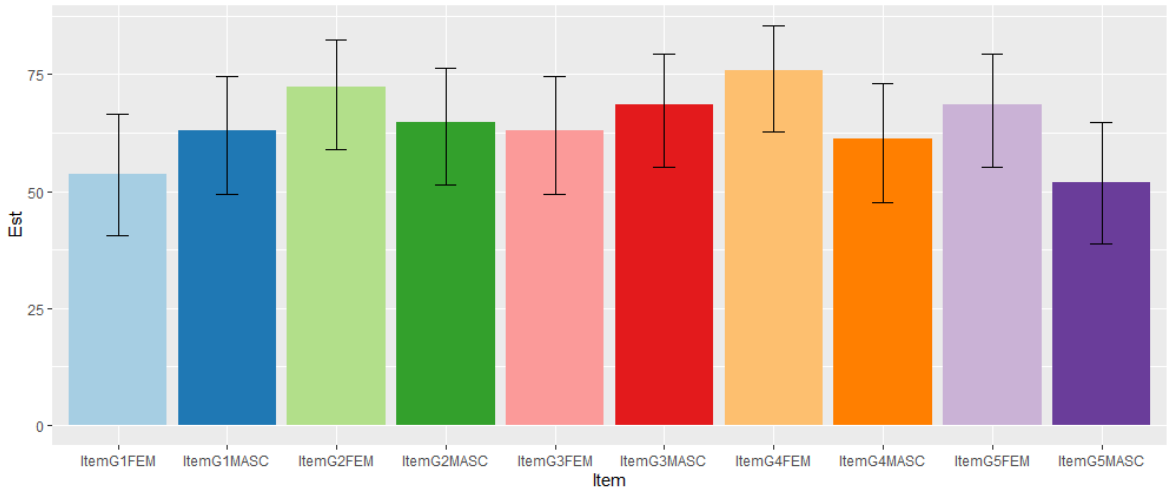

Figure 6. CPT: Item analysis inalienable contexts.

An item analysis at the group level was conducted in order to explore which structures and groups used each item. The results of this analysis are presented in Table 14. The results showed that the majority of the L2 learners preferred *Se+DefDet* and *Se+PossDet* structures with all items. Few L2 learners chose *Null Se+PossDet* structures with all items, except *pie* "foot" and *boca* "mouth". In general, the majority of the heritage speakers as well as the majority of the control group preferred more *Se+DefDet* structures. Some participants from both groups showed

preference for *Null Se+PossDet* and *Se+PossDet* structures. Lower *Se+DefDet* response can be seen with the items *pie* "foot", *ojo* "eye" and *cabeza* "head" in this task.

Table 14. CPT: Results of the Item analysis per group for inalienable contexts.

Verbs and nouns used in the task	Contextualized Preference Task								
	Number of L2 learners			Number of heritage speakers			Number of control participants		
	Se+def	**null se+poss**	**se+poss**	**Se+def**	**null se+poss**	**se+poss**	**Se+def**	**null se+poss**	**se+poss**
Romper, brazo (break, arm)	6	4	6	16	2	4	12	0	4
Cortar, dedo (cut, finger)	8	1	7	15	2	5	12	1	3
Secar, pelo (dry, hair)	9	1	6	16	3	3	12	3	1
Lavar, pie (wash, foot)	10	0	5	14	0	**8**	9	0	**6**
Limpiar, ojo (clean, eye)	6	4	6	14	**5**	3	8	**3**	**5**
Tocar, cabeza (touch, head)	7	3	5	14	**5**	3	8	**6**	**2**
Tapar, nariz (cover, nose)	9	2	5	20	1	1	10	3	3
Quemar, mano (burn, hand)	5	4	7	19	0	3	10	2	4
Pintar, boca (paint, mouth)	10	0	5	19	0	3	12	4	0
Cubrir, cara (cover, face)	7	2	7	20	1	1	10	4	2

To summarize, the heritage speakers and the controls showed more preference for *Se+DefDet* structures followed by *Se+PossDet* structures and *Null Se+PossDet* structures. These results suggest that the heritage speakers and the controls groups preferred a variety of structures to express inalienable possession. From this variety, *Se+DefDet* is the most preferred response and the use of other structures seems to be common depending on the lexical item. The L2 learners followed a different trend for inalienable possession. The L2 learners exhibited more preference

towards *Se+DefDet* structures and *Se+PossDet* structures followed by least preference for *Null Se+PossDet* structures. This partially confirms hypothesis 1 as the L2 learners exhibited a different pattern of response than the other two groups.

4.4.2.4. Language proficiency and patterns of language usage and exposure

As in the case of the previous task, an analysis to explore the relationship between language proficiency and preferred response was conducted. In this context, language proficiency and preferred response were found to correlate significantly with the group of heritage speakers, χ^2 (4.683), *p* .03. A GLM analysis showed no significant correlation with the L2 learners, χ^2 (2.518), *p* .11. However, the individual analysis did not confirm the statistical analysis. The heritage speakers with high proficiency were not always in the *mostly used* range. For instance, 7/13 heritage speakers in the *mostly used* range had an intermediate proficiency and 2/3 low users had advanced proficiency. This does not confirm the expectations set at the beginning of the study.

Same as in the previous task and contexts, I conducted a GLM analysis to explore the effect of language usage, exposure and use in other contexts in the proportion of preferred response. Results from the GLM analysis showed a significant association between each of these three covariables with a preferred response with the L2 learner group. In particular, patterns of language exposure were found to significantly contribute to the model, $z = 2.90105$, $p < 0.001$. However, these statistical results are not totally confirmed by the behavior observed in the individual analysis. In general, the L2 learners in the *mostly used* range had slightly higher patterns of usage and exposure than some of the participants in the *zero usage* range. But two of the participants in the *zero usage* range had equal or higher scores than the participants in the *mostly used* range. No

significant associations were found for the group of heritage speakers. These results do not confirm hypothesis 3.

4.4.2.5 Group results for alienable contexts

In alienable contexts, results showed high preference for *Null Se+DefDet* structures among the heritage speakers, the L2 learners and the controls (around 80% range of response). All groups showed nearly 20% of preference of *Null Se+PossDet* structures in this context attributable to an item effect. These results are shown in Figure 7.

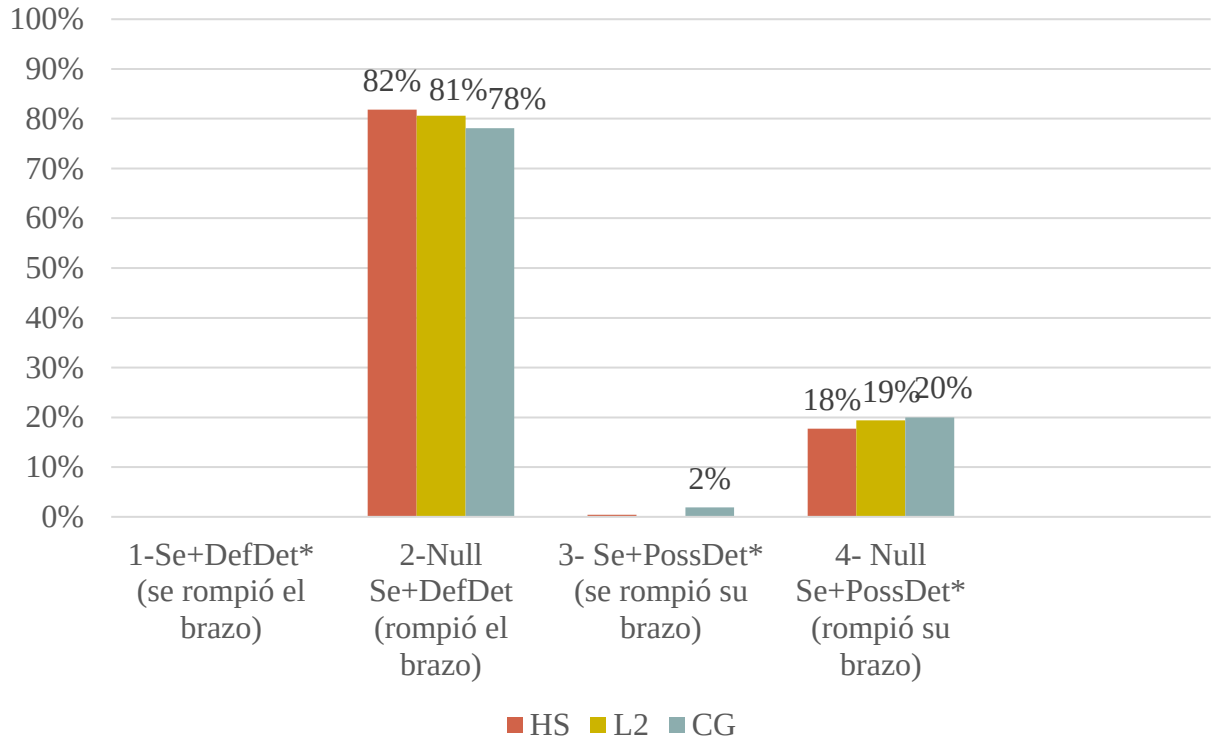

Figure 7. CPT: Total proportion of responses by group in alienable contexts.

Results from the GLM analysis showed that there was a significant difference in the percentage of responses in all groups, χ^2 (211.75), $p < .001$. However, a Kruskal-Wallis test showed no significant differences between groups when they were compared against each other, χ^2 (0.798),

p .67. A post hoc analysis examining the group probability of choosing *Null Se+DefDet* in this context did not show any significant differences. Thus, all groups behaved similarly when choosing the expected response. This is summarized in Table 15.

Table 15. CPT: Results of the GLM model analysis for alienable contexts.

	Estimate	Std. Error	z value	Pr(>|z|)
Control group	1.2730	0.1912	6.6565	0.0000
Heritage Speakers	1.5041	0.1748	8.6045	0.0000
L2 Learners	1.3863	0.1976	7.0142	0.0000

Comparison groups	statistic	p.value
Control group = Heritage Speakers	0.8699	0.8100
Control group = L2 Learners	0.4104	0.9500
Heritage Speakers = L2 Learners	0.4282	0.9500

4.4.2.6 Individual results for alienable contexts

The individual analysis implemented for alienable contexts confirmed the group results. As shown in Table 16, the majority of the heritage speakers (20/22) were in the *mostly used* range and 2/22 were in the *somewhat used* range. In the case of the L2 learners, 15/16 were in the *mostly used* range and 1/16 was in the *least used* range. Regarding the controls, 10/16 were *mostly users* of *Null Se+DefDet* and 6/16 were *somewhat* users of the structure. A closer look at the data indicated the participants who were in the *least used* range or *somewhat used* range chose *Null Se+PossDet* structures for the items *carro* “car”, *ropa* “clothes”, *casa* “house”.

Table 16. CPT: Individual analysis alienable contexts.

Group	**Alienable contexts Preference**		
		Number of target responses	Number of participants
Heritage Speakers (*n* = 22)	Mostly used	7-10	20/22 (91%)
	Somewhat used	4-6	2/22 (9%)
	Least used	1-3	0/22 (0%)
	Zero usage	0	0/22 (0%)
L2 learners (*n* = 16)	Mostly used	7-10	15/16 (94%)
	Somewhat used	4-6	0/16 (0%)
	Least used	1-3	1/16 (6%)
	Zero usage	0	0/16 (0%)
Controls (*n* = 16)	Mostly used	7-10	10/16 (63%)
	Somewhat used	4-6	6/16 (37%)
	Least used	1-3	0/16 (6%)
	Zero usage	0	0/16 (0%)

To sum up, all groups of speakers showed more preference for *Null Se+DefDet* structures in alienable contexts. However, the participants also showed small preference for *Null Se+PossDet* structures due to the incorporation of some items in the task. In order to verify the effect of the items on the participants response, an item analysis was conducted as in the production task.

4.4.2.7 Item analysis for alienable contexts

Results from the GLM analysis showed a significant difference in the percentage of responses for all items except for two items (*ropa* "clothes" and *casa* "house"), χ^2 (340.77), p <0.001. A Kruskal-Wallis test indicated that one of the items was significantly different from the rest. A post hoc test showed the masculine item *carro* "car" was different (p <0.001) and had the lowest percentage of target response (22% for heritage speakers, 31% for L2 learners and 50% for controls). The same pattern was found in the individual analysis. The majority of the participants (17/22 heritage speakers, 11/16 L2 learners and 8/16 control) preferred *Null Se+PossDet* structures with the item *carro* "car". The items *ropa* "*clothes*" and *casa* "*house*" followed a similar pattern. The item *ropa*

"clothes" was preferred with a *null se+poss* structure by 7/22 heritage speakers, 10/16 L2 learners, and 5/16 controls. Similarly, *casa* "house" was preferred with the same structure by 8/22 heritage speakers, 2/16 L2 learners and 7/16 controls. Results of the item analysis are presented on Table 17 and Figure 8.

Table 17. CPT: Item analysis alienable contexts.

	Estimate	Std. Error	z value	Pr(>|z|)
ItemG1FEM camara (camera)	2.8332	0.5941	4.7690	0.0000
ItemG1MASC espejo (mirror)	3.9703	1.0093	3.9338	0.0001
ItemG2FEM ropa (clothes)	0.3747	0.2770	1.3529	0.1761
ItemG2MASC carro (car)	-0.6931	0.2887	-2.4011	0.0163
ItemG3FEM flor (flower)	1.9042	0.4051	4.7003	0.0000
ItemG3MASC timbre (bell)	3.9703	1.0093	3.9338	0.0001
ItemG4FEM mesa (table)	2.8332	0.5941	4.7690	0.0000
ItemG4MASC piso (floor)	1.4816	0.3503	4.2292	0.0000
ItemG5FEM casa (house)	0.6931	0.2887	2.4011	0.0163
ItemG5MASC edificio (building)	2.0794	0.4330	4.8023	0.0000

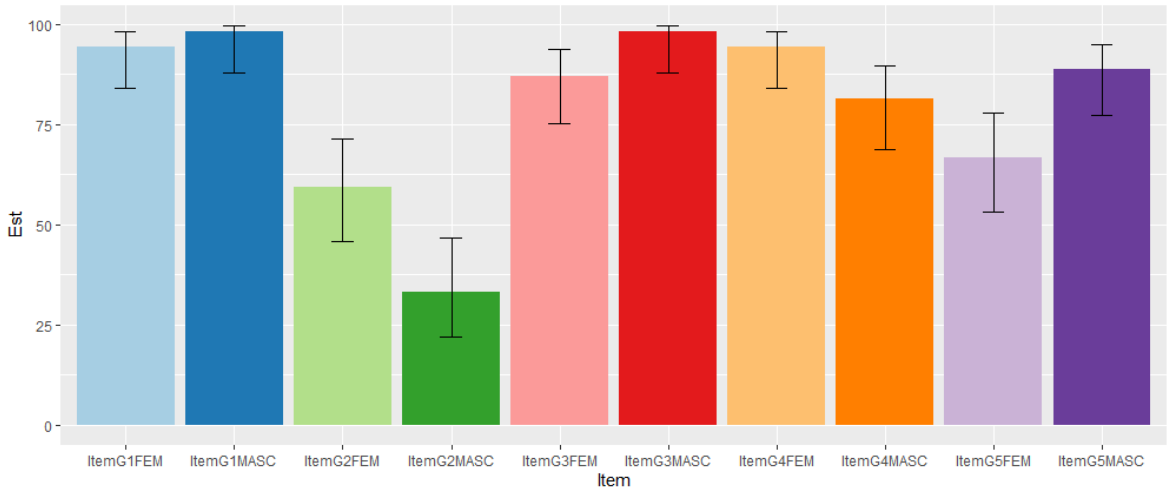

Figure 8. CPT: Item analysis alienable contexts

4.4.2.8 Language proficiency and patterns of language usage and exposure

Regarding proficiency, the GLM analysis showed that there was a significant association between language proficiency and *Null Se+DefDet* response only with the group of L2 learners ($\chi^{2\,=}$ 6.2017, *p* .012), but not with the group of heritage speakers ($\chi^{2\,=}$ 0.0072, *p* .93). These results could not be

confirmed in the individual analysis. The L2 data showed speakers with low and high proficiency were part of all the groups. Thus, hypothesis 2 is not confirmed. Language usage, exposure and use in other contexts was not associated with *Null Se+DefDet* response among the heritage speakers. In the case of the L2 learners, results of the GLM analysis revealed that language usage and exposure did not correlate with the use of a preferred response; However, use of Spanish in other contexts did, χ^2 (4.2159), p <0.001.

CHAPTER 5. DISCUSSION AND CONCLUSIONS

5.1 Introduction

The goal of the present study was to examine the extent to which Spanish heritage speakers and English-speaking L2 learners of Spanish exhibited knowledge of inalienable possession with pronominal verbs requiring the use of clitic *se*. Following previous work, I expected both groups to follow different patterns of response in the production and in the interpretation of sentences in inalienable possession contexts when compared with native speakers of Spanish (e.g., Giancaspro & Sánchez, 2019; Montrul & Ionin, 2012; Pérez-Leroux et al., 2002).

5.2 Discussion

The first research question of the study asked the extent to which heritage speakers and L2 learners exhibited knowledge of inalienable possession. The results showed that both groups had a clear understanding of the notion of inalienability as well as the different syntactic constructions that could be used to encode it. The results suggested that the heritage speakers as well as the L2 learners were sensitive to the distinction between alienable and inalienable contexts. This distinction was evident in the patterns of response used or preferred for each context. In the context of alienable possession, all groups produced or preferred one type of structure *Null Se +DefDet*. There was an exception with items such as *carro* "car" or *ropa* "clothes" which were found to be express with a possessive determiner by the majority of the speakers. In the context of inalienable possession, all groups diverged in the production and preference of three types of structures *Se+DefDet*, *Null Se+PossDet* and *Se+PossDet*. These results confirm previous research on

inalienable possession in which speakers have been found to distinguish alienable from inalienable contexts (e.g., Giancaspro & Sánchez, 2019).

Regarding inalienable possession, which was the focus of this study, I hypothesized that the heritage speakers and the L2 learners would exhibit different patterns of response than the native speakers in the production and the interpretation of inalienable possession. In the production task, the results showed that only the L2 learners were significantly different compared to the heritage speakers and the control group. The L2 learners used few instances of *Se+DefDet* (e.g., *Juan se rompió el brazo* "*John himself broke the arm*" "John broke his arm", the expected response) and favored the use of *Null Se+PossDet* structures (e.g., *Juan rompió su brazo* "John broke his arm"). On the contrary, the heritage speakers behaved similarly to the control group. The heritage speakers and the control group mainly produced *Se+DefDet* sentences (e.g., *María se cubrió la cara* "Marie herself covered the face") followed by fewer instances of other structures. Both groups produced to a less extent *Null Se+PossDet* structures (e.g., *María cubrió su cara* "Marie covered her face" and to a least extent *Se+PossDet* structures (e.g., *María se cubrió su cara* "Marie herself covered her face").

In the preference task, the L2 learners responses were noticeably different from the heritage speakers and the control group in inalienable contexts. In contrast with the production task, the L2 learners showed similar preferences for *Se+DefDet* structures and *Se+PossDet* structures (e.g., *Juan se rompió el brazo* "John himself broke the arm" vs *Juan se rompió su brazo* "John himself broke his arm"). The structure that the L2 learners preferred the least was *Null Se+PossDet* (e.g., *Juan rompió su brazo* "John broke his arm"). The heritage speakers resembled the control group showing high preference for *Se+DefDet* structures followed by low preference for *Null Se+PossDet* and *Se+PossDet* structures.

Hypothesis 1 was partially confirmed as only the group of L2 learners was found to follow a distinct pattern of response for inalienable possession. The heritage speakers did not appear to have difficulties in inalienable possession as they favored the same structures the control group did. These results showed that the heritage speakers clearly outperformed the L2 learners. That is, the heritage speakers behaved closer to the native baseline in the two tasks, while the L2 learners were different from the heritage speakers.

The different behavior of the L2 learners can be explained in terms of cross-linguistic influence and negative transfer from English (e.g., Gass & Selinker,1992; Montrul & Ionin, 2012; Platzak, 1999,2001). As explained before, Spanish and English differ in the expression of inalienable possession. English speakers always use a possessive determiner while Spanish speakers generally prefer a definite determiner. If transfer operated from English to Spanish, the L2 learners were expected to produce and preferred more structures with a possessive determiner in inalienable contexts. The data demonstrated that, in fact, this was the trend manifested by the L2 learners in this study. The L2 learners produced and preferred significantly more structures with possessive determiners in inalienable contexts than the heritage speakers and the control group. The results of this study suggest a role of transfer in the acquisition of this structure as well as previous research on the acquisition of inalienable possession with L2 learners (e.g., Montrul & Ionin, 2012; Pérez-Leroux et al., 2002).

In the case of the heritage speakers, there were no significant effects of cross-linguistic influence or transfer from English into Spanish. The heritage speakers, who also had exposure to English, followed Spanish-like patterns to express inalienable possession. These results suggest that age of acquisition seems to play a significant role in the transfer effects observed with this structure. Previous research has highlighted the advantages of early acquisition for speakers

ultimate attainment (e.g., Bley-Vroman, 2009; Gleitman & Newport, 1995; Montrul, 2008). The fact that the heritage speakers acquired Spanish during childhood and not after adolescence gave them more opportunities to have exposure to the language and develop intuitive knowledge of some aspects of the grammar. For the heritage speakers of this study, early exposure leads to a native-like behavior in their acquisition of the syntax and semantics of inalienable possession.

Another factor that accounts for the differences between the L2 learners and the heritage speakers is the learning experience participants brought to complete the tasks of the study. Each task had different goals and required the use of different psycholinguistic processes. The elicited production task (EPT) was designed to assess production, while the contextualized preference task (CPT) aimed at testing the interpretation of the participants in inalienable contexts. The heritage speakers behaved similarly to the controls in both the EPT and the CPT. The L2 learners behaved totally different to the controls in the EPT, but improved in the CPT. These results indicated that there was a task effect. In the contextualized preference task, the participants had to choose the option they preferred the most. In this task, the context was clearly set up to indicate inalienable possession and the form was given in different sentences. The L2 learners have had exposure to these type of exercises through classroom experience. Therefore, they had an opportunity to recognize the structures that they have learned, and they did so as more sentences with *Se+DefDet* were chosen. In the production task, participants had more processing demands as the completion of the task required the association of meaning and form. Due to processing issues, L2 learners produced the structure they have internalized. Heritage speakers benefited from the design of the task as their intuitive knowledge of the grammar allows them to produce and recognize the structures that they are implicitly familiar with. These results are consistent with previous research arguing on the effect of tasks testing more implicit or explicit knowledge (e.g., Ellis et al., 2009).

The heritage speakers as well as the native speakers of Spanish showed an interesting trend for inalienable possession. According to the L1 literature, Spanish speakers are categorical in the structures used to express inalienable possession (e.g., Baauw, 2002; Bosque & Gutiérrez-Rexach, 2009; Pérez-Leroux et al., 2004). The literature reviewed indicated that the determiner phrase (DP) containing the possessed element is headed by a definite determiner. Nonetheless, the data of the present study suggests that the distribution and use of determiners is more complex in constructions requiring the clitic *se*. Based on the results of my study, it appears as if there exists a continuum in the extent of usage and preference of determiners which allows for an inalienable reading. This can be better understood as a continuum of four levels in which each level is characterized by a different syntactic structure and frequency of use. This continuum can be found in production and interpretation as represented in Figures 9 and 10.

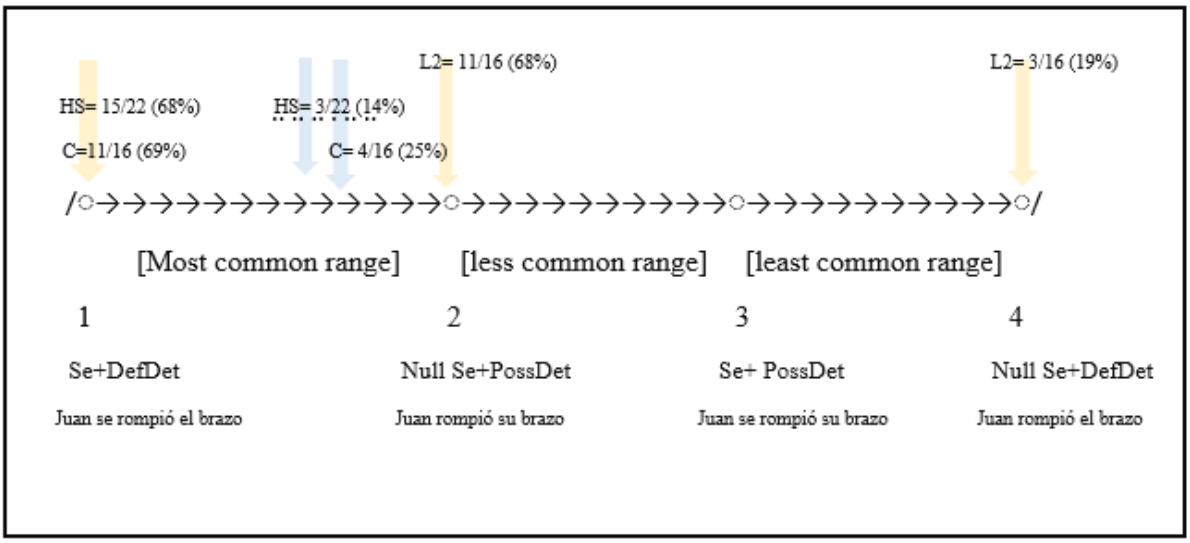

Figure 9. Continuum for inalienable possession in the elicited production task.

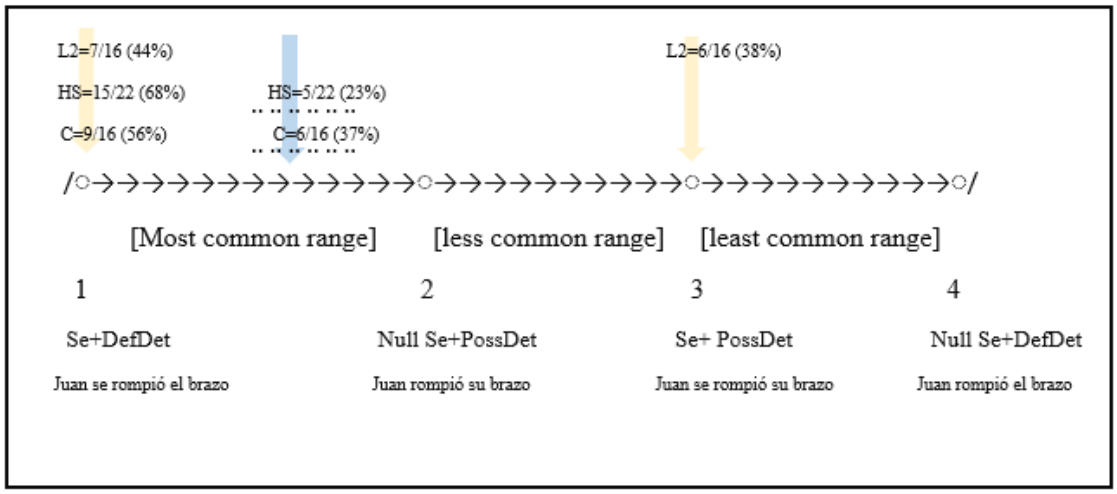

Figure 10. Continuum for inalienable possession in the contextualized preference task**.**

The first level includes structures with a clitic *se* and a definite determiner (e.g., *Juan se tocó la cabeza* "*John himself touched the head*" "John touched his head"). This level seems to be the most preferred or used option in Spanish as it was highly frequent in the production and preference tasks. All types of nouns and verbs seem to be used in this level. The second level constitutes structures with a null clitic *se* and a possessive determiner (e.g., *Juan tocó su cabeza* "John touched his head"). This level is the second most common option to express inalienability among Spanish monolinguals. The third level comprises structures with a clitic *se* and a possessive determiner (e.g., *Juan se tocó su cabeza* "John himself touched his head"). Even though its use is less common, it was found in the data as sentences speakers might produce and understand in inalienable possession contexts. The fourth level includes structures with a null clitic *se* and a definite determiner e.g., *Juan tocó la cabeza* "John touched the head"). This structure was not produced by the heritage speakers or the controls. However, it appeared in the L2 data as a way to express inalienable possession.

Levels one through three appear to have the same semantic interpretation of inalienable possession, and the use of one level or another relies mainly on the will of the speaker, the lexical

item and the verb used. In particular, levels two and three are used to a lesser extent and their use depends on the verb and the lexical item of the sentence. Sentences with body parts such as *pelo* "hair", *cara* "face", *cabeza* "head" and *pie* "foot" were commonly found in levels two and three with the verbs *secarse* "dry", *cubrise* "cover", *tocarse* "touch" and *lavarse* "wash". Level fours is the least favored for inalienable possession and does not appear to have the same semantic representation.

The similar behavior of the heritage speakers and the control group can be explained following my proposal of a continuum for inalienable possession. If the varied distribution of determiners is frequent and salient in the native speaker speech, this indicates that the continuum is part of the input the heritage speakers receive (e.g., Rothman & Guijarro-Fuentes, 2010). Thus, if heritage speakers are not affected by cross-linguistic influence and transfer, they would be expected to follow the trend that I propose for inalienable possession. This was confirmed in the study as the data suggested that heritage speakers were sensitive to the fundamental preferences with the determiners. The heritage speakers and the controls were more likely to produce and prefer *Se+DefDet* structures. This pattern was followed by less production and preference of *Null Se+PossDet* and least production and preference of *Se+PossDet.*

The second research question inquired the role that language proficiency played in the strategies employed for production and interpretation in inalienable contexts. As stated in the Hypothesis 2, I expected to find a correlation between high proficiency scores and patterns of response. The statistical analysis pointed to a significant association between proficiency and response with the group of heritage speakers in the preference task. However, this association was not confirmed by the individual analysis. The data showed that heritage speakers and the L2 learners of high proficiency produced and preferred *Se+DefDet* structures. Similarly, the speakers

with intermediate scores produced a high proportion of *Se+DefDet*. Thus, Hypothesis 2 was not supported by the data. There was not a proficiency distinction between the participants who produced and preferred more *Se+DefDet* structures than those who preferred *Null Se+PossDet* or *Se+PossDet*.

The third and last research question asked whether language usage and exposure played a role in the strategies used to express inalienable possession. Hypothesis 3 predicted that heritage speakers and L2 learners with low patterns of language use and exposure would follow different preferences than speakers with higher patterns of language usage and exposure. In the statistical analysis, language usage was significantly correlated with *Se+DefDet* structures among the heritage speakers in the production task. The covariable *other contexts* was found to correlate with *Se+DefDet* responses among the L2 learners in the production and interpretation task. However, these results were not confirmed at the individual level. Participants with various patterns of language usage and exposure were found to follow different patterns of response for inalienable contexts. For instance, some participants with high patterns of use and exposure preferred more *Se+PossDet* structures, while others who had similar scores preferred *Se+DefDet.*

The implications of this research are threefold. In the field of bilingualism and language acquisition, this study suggests that L2 learners differ from heritage speakers in their knowledge of inalienable possession. This finding shows that inalienable possession is an area of the Spanish language that is affected by maturational factors (age) and language experience. The comparison of heritage speakers and L2 learners shed lights on the role of factors such as time of acquisition, setting and modality of the input for language acquisition and development on specific language structures that have been considered to be challenging.

Additionally, I contribute to previous theoretical research in relation to inalienable possession by showing that this structure is more complex than what has been argued. This is an area of the grammar that is triggered by variability in the use of the determiners that encode inalienability. Thus, there is a continuum for the way native and bilingual Spanish speakers express inalienable possession. The continuum ranges from more used structures *Se+DefDet* to less used structures *Null Se+PossDet* and *Se+PossDet* structures.

Finally, in relation to heritage language acquisition theory, the results of the current study show that the acquisition of inalienable possession is not subject to cross-linguistic influence despite being a structure at the syntax-semantics interface. This area does not appear to be challenging for heritage speakers. The results obtained in this study are not supported by theoretical approaches of incomplete acquisition, language attrition, feature reassembly or bilingual alignments. The results indicate that all areas of heritage speakers linguistic knowledge are not equally affected by contact with a dominant language. These findings call into question previous research arguing for permeability in structures at the syntax-semantics interface. Moreover, this study highlights the need for a theoretical approach in heritage language acquisition that accounts for the similarities among heritage and native speakers and standardizes heritage speakers target behavior.

5.3 Conclusion and future directions

In conclusion, this study has found that the L2 learners and the heritage speakers exhibited knowledge of inalienable possession. The L2 learners followed a distinct pattern of response than the native speakers of Spanish in the production and interpretation of inalienable possession. This pattern was characterized for the preference of possessive determiners over definite determiners. I

have claimed that this trend stems from cross-linguistic influence and transfer effects from English as the L2 learners exhibited a tendency to follow an English-like structure for contexts of inalienable possession. The heritage speakers, on the contrary, were not found to differ from the native speakers of Spanish. They behaved similarly to the control group as they followed the continuing trends that emerged in inalienable possession. That is, both groups are more accepting of definite determiners for inalienable possession, while they acknowledge a less preference for structures with possessive determiners.

Future research exploring inalienable possession might follow different paths. For instance, the study of inalienable possession among native speakers of Spanish of different ages might provide insights on the use of the determiners for inalienable possession. Additionally, more research is needed with heritage speakers. Future studies would also benefit from exploring the effects of proficiency by examining advanced L2 learners and near-natives of Spanish.

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