DIRECT OBJECT CLITIC PLACEMENT PREFERENCES
IN ARGENTINE CHILD SPANISH

A Dissertation in
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by
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This dissertation examines Spanish Direct Object clitic pronouns in Argentine spoken Spanish of adults and children (ages 4;0-7;0). It concentrates on (Finite verb + Nonfinite verb) constructions that allow both pre-verbal (Proclisis) and a postverbal (Enclisis) clitic placement. Previous corpus studies have shown that lexical (finite verb), semantic (animacy of the referent), and discourse (topicality) factors constrain variable clitic placement. A corpus study of Argentine Spanish shows that, in agreement with previous research, clitic placement is lexically conditioned in the first place (whereas some finite verbs favor Enclisis, other disfavor it). Additionally, inanimate and low-topicality referents favor Enclisis. This corpus study is used to test the grammaticalization accounts which hypothesize that more grammaticalized and frequent finite verbs should disfavor Enclisis. A construction which meets the two requirements but which still favors Enclisis (tener que ‘have to’) is identified. Drawing on measures of relative frequency and assuming cumulative knowledge of contexts of use, a tentative proposal to account for the distribution of Enclisis in tener que is put forward and tested with the most frequent verbs. The results suggest that speakers’ knowledge of relative frequencies of use of verbs could inform clitic placement in variable contexts. In the second section, two versions of an Elicited Imitation (EI) task and two Elicited Production (EP) tasks test children’s use of clitics in variable structures with three frequent verbs in order to explore if children displayed evidence of the strongest constraints reported for the adults (i.e. lexical and semantic). The results of the EI tasks show that accuracy increases in Proclisis compared to Enclisis. Crucially, finite verb and animacy of the referent have a significant effect on inaccurate imitations consisting of repositioning clitics. The results of the EP tasks also show evidence for finite verb and animacy of the referent impacting participants’ responses. Taken all together, the findings are seem to indicate that at least the lexical and semantic constraints which operate on adult speakers are also operative in the children tested. The results are interpreted in terms of item-by-item learning, consistent with Usage-based accounts.
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Chapter 1 Introduction

1.1 General Introductory Comments

How do children get to know whether to use one or another alternative expression in their language? Do they first use the syntactically simpler form? And, at what age do they have complex knowledge of the preferences/constraints/probabilities that influence adult use? These are some key empirical questions in the study of the acquisition of language variation. This dissertation attempts to address the third question by examining first language acquisition of one instance of structured variation in Spanish. The phenomenon under investigation is Spanish DO clitics, which (even though they take categorical positions in utterances containing a simple verb phrase) can variably appear before or after certain complex verb phrases (periphrases) such as *ir a ‘go to’, tener que ‘have to’, deber ‘must’, necesitar ‘need to’, poder ‘can/may’, querer ‘want to’ + Infinitive; as well as estar ‘be’, ir ‘go’ + Gerund (among many other instances). For example, in order to say ‘The girl wants to buy it’, Spanish allows the clitic to appear either in Proclitic position (1.1) or in Enclitic position (1.2). Throughout this dissertation I will refer to such phenomenon as variable clitic placement.

(1.1) *La niña lo quiere comprar.*  
the girl it-ACC-M3SG want-PRS.3SG to buy  
‘The girl wants to buy it.’

(1.2) *La niña quiere comprar=lo.*  
the girl want-PRS.1SG to buy=it-ACC-M3SG  
‘The girl wants to buy it.’

Specifically, I investigate the language-internal factors (constraints) that characterize such variation in adult Spanish and explore child linguistic performance (via experimental designs) in order to see whether some of those factors also constrain clitic placement in child language. By studying whether children 4;0 to 7;0 years of age have acquired this variation
present in the target grammar, this dissertation hopes to provide a better understanding of how children deal with variation in language and extract patterns from the input.

As it has been indirectly mentioned, in order to investigate whether children display adult-like mastery of a particular language feature one must first at least describe what is to be acquired. In the case of structured variation, the mention of the two variants (as in 1.1 and 1.2) does not suffice, as speakers do not randomly choose between variants. In consequence, the first part of this dissertation provides a corpus study of variable clitic placement in spoken Argentine Spanish. This study replicates previous findings from other dialects and serves the purpose of laying the foundation for what has to be learned in order to master this variation. The results from the corpus study also bring to light the need to revisit previous accounts of variable clitic placement which resort to grammaticalization to make sense of the use of particular constructions favoring or disfavoring proclisis. Clitic placement with one construction (tener que ‘have to’) is hard to be accounted for by assuming Proclisis to be closely connected with more grammaticalized meaning and increased frequency. This is so because tener que favors Enclisis despite being in Modern Spanish a highly frequent expression of obligation derived from a verb of possession. It follows from this that an account of clitic placement has to be able to motivate not only the constructions which display the predicted effects, but also idiosyncratic ones, such as tener que, which does not.

In this dissertation, thus I address the following research questions:

1. How can a Usage-based model of grammar account for Spanish variable clitic placement?

2. Do children show sensitivity to lexical and semantic constraints on clitic placement in experimental tasks?

The answer to these questions bears importance on our understanding of how the language system is organized. This is crucial in order to make hypotheses of how language is processed in real time, as well as acquired and used. Knowledge about the extent to which child language matches the complexity found in adult language can inform models of language acquisition and provide an estimate of how much is to be accounted for the input to which children are exposed. Thus answers to the questions posed before may lead to a better description of the nature of language and the process of acquisition.
The text will is organized as follows: In the rest of this chapter I attempt to define what clitics are, which leads me in a discussion of the many features of these elements which, coupled with varied theoretical perspectives, pose a long standing challenge to clitic categorization. In the end I arrive at a general working definition. In response to the tension between using a new category *clitic*, or assimilating clitics to existing categories, for practical purposes, I will follow some linguists who use the term *clitic* as a “rough-and-ready label for an item which is problematic for canonical approaches to defining a word or an affix” (Halpern, 1995, p. 1) and others use it as an umbrella or “descriptive cover” (Spencer, 1991, p. 350) term rather than a grammatical category (Zwicky, 1994, p. xiii). For instrumental purposes, while exploring clitic usage and acquisition, in this dissertation I will use the terms “clitic pronoun”, “clitic” and “DO clitic” interchangeably to refer to the Spanish forms *lo/la/los/las*. The first chapter ends with an overview of the factors which Variationist studies have shown to constrain clitic placement and acknowledging the lack of research on L1 acquisition of these variable constraints.

Chapter 2 addresses research question (1) and presents a small-scale corpus study of variable clitic placement in adult spoken Spanish from Argentina which identifies variable constraints and motivates a Usage-based proposal of variable clitic placement, which is able to account for at least the most frequent constructions. Chapter 3 addresses research question (2) by first reviewing models of L1 acquisition and outlining the learner’s task in the development of variable clitic placement. Then it presents four experimental studies conducted in Argentina which show children’s command of lexical and semantic factors to constrain the placement of the clitic. Chapter 4 discusses two methodological issues I came across in the development of the current research. One is the challenge of determining frequency thresholds within Usage-based research, and the other is the challenge of eliciting analyzeable syntactic data from young children. Chapter 5 concludes with an overall discussion of the results and an outline of future directions.

This introductory chapter then characterizes clitics by reviewing the major traditions in the study of clitics and clitic placement and concentrating on the Usage-based study of this phenomenon. It also briefly introduces the reader into the main variables shown to constrain this variation. It concludes by outlining the plan of procedure of the two main chapters (2 and 3).
1.2 What is a clitic?

The main reason for the existence of the term clitic has been the acknowledgement that there are certain features and/or behavior of these elements which defy a straightforward categorization by analogy to existing linguistic categories. Most researchers would agree with a general definition of clitics as “phonologically reduced forms with a special paradigmatic and/or syntactic distribution compared to other parts of speech (e.g. free pronouns)” (Guijarro-Fuentes & Larrañaga, 2012, p. 3). In other terms, this means that clitics are phonologically deficient (e.g. they are generally unstressed) and syntactically deficient (e.g. they cannot be coordinated) (See Cardinaletti & Starke, 1999). Disagreement arises, however, around whether clitics should be considered affixes or words since they behave like words in some respects but like affixes in others (see Cardinaletti & Starke, 1999; Kayne, 1975; Zwicky, 1977; Zwicky & Pullum, 1983 for attempts to disentangle one from the other). Cross-linguistically, for example, clitics could be identified on the surface as types of adverbs (such as French y ‘there’ or en ‘of it/them’, and Italian ci ‘there’), articles (such as Rumanian -l/-ul/-le NOM/ACC definite articles), conjunctions (such as Latin que ‘and’), or pronouns (such as Spanish lo/la/los/las – 3P ACC clitic pronouns), to give some examples of Romance languages. However, unlike free words, clitics fail to meet certain minimal prosodic conditions (e.g. in proclisis Spanish clitics are always unstressed, among others). In order to attempt to answer what clitics are (words or affixes), linguists have looked at their phonology and at the morpho-syntactic distribution in order to characterize clitic behavior. Any morphological categorization of clitics will be intimately connected to a phonological one. This is particularly important because “If it can be shown that the phonology of clitics is entirely distinct from the phonology of affixes and words, it is more likely that the morphology of clitics is also distinct from the morphology of affixes and words” (Gerlach, 2002, p. 19). In what follows, I will briefly introduce some attempts at describing clitic behavior from the perspective of their phonology and morpho-syntaxis in the hope of illustrating why it is difficult to define what clitics are. Given that the purpose of this dissertation is not to solve this

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1 I am leaving behind the tradition that argue that clitics do not exist as a category/class, but that analyzes them from the view of the syntactic features involved (Bermúdez-Otero & Payne, 2011) as bundles of morphosyntactic features (Anderson, 1992). In the same line, Everett (2000) and Everett and Mayers (1996) argue that the lexicon contains features to compose pronominals, clitics and affixes, so that these are only labels for syntactic configurations. Thus calling particular phenomena ‘clitics’ “can only obscure the empirical issues underlying this label” (Everett, 2000, p. 91). (cf. Monachesi, 2005; Julien, 2007; Embick & Noyer, 2001).

2 See (Gerlach, 2002: 1.2.1) for other examples of the variety of other clitic paradigms within Romance languages.
categorization puzzle, I will end this section with one Usage-based definition of clitics which takes into consideration not only their referential nature, but also discourse considerations.

1.2.1 The phonology of clitics

Etymologically, the term *clitic* (which comes from the Greek *kli:no* ‘lean’) refers to their dependence on adjacent words to form prosodic units. Zwicky (1977) identified this feature as the main characteristic of *Simple clitics*, which he defines as “free morpheme[s] that, when unaccented, may be phonologically reduced, the resultant form[s] being phonologically subordinated to a neighboring word” (op cit p. 5). Early descriptions of the order of elements in Spanish sentences (Gili Gaya, 1961, Ch. IV) note how in simple sentences it is very unusual for the verb to come after the main stress accent without sounding marked in speech (e.g. literary). This is so due to the importance of the verb producing syntactic liaison. In this way, it is to be expected that Spanish speakers would place the verb as much to the left as possible. Gili Gaya (op cit) motivates this tendency of Spanish by alluding to reader’s/listener’s discourse expectations.

...el lector y el oyente comparten un sentimiento de espera, que hace acelerar el tempo de la lectura, si la intensidad máxima de la frase se produce sin que aparezca el verbo a dar unidad a los elementos sueltos que se van sucediendo sin enlace visible. ...the reader and the listener share a feeling of expectation that produces the reading time to accelerate if the maximum intensity of the phrase is produced without the appearance of the verb, which comes to bring unity to the loose elements that are being introduced without a visible connection. (§75)

These considerations of order of syntactic elements refer only, however, to elements which bear their own stress. When it comes to clitics and other words which can appear in preverbal position, Gili Gaya notes that it is possible to find the verb after the second position in the linear order of constituents (e.g. Nada | me | *Dijo* | aquel día ‘Nothing | to me | [s/he] said | that day*4), and he adjudicates it to “*una proclisis rítmica*” ‘a rhythmic proclisis’ (§74). This

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3 Stylistic conditions are suggested to trigger, for example, the cliticization of English object pronouns when used in connected speech (‘Give them to me’ /gɪv mɪ θ mi:/).
4 This example has been adapted from Gili Gaya (1961, §74). I added the separation between the elements and changed highlighting.
could explain why proclisis is never stressed and does not modify the stress pattern of the group, unlike enclisis (as it will be discussed below).

One approach to the phonological deficiency of clitics considers how clitics behave prosodically. Starting with Kahn (1976 in Anderson, 2005, p. 34), syllables (σ) have been treated as structural units (rather than sequences of elements) with a hierarchical organization which forms larger and larger constituents (Liberman & Prince 1977 in Anderson, 2005, p. 34) until reaching the level of the utterance (e.g. Syllables (σ) > feet (Ft) > phonological (or prosodic) words (PW(or)d) > phonological phrases (PPh) > intonational phrases (IPh) > whole utterances). The issue for phonologists has been to find the place of clitics in this hierarchical structure given that clitics, by definition, require a host in order to form a prosodic unit. Whereas some phonologists would propose a separate prosodic unit called ‘clitic group’ in the prosodic hierarchical structure of the utterance (Nespor & Vogel (1986) and Hayes (1989) in Gerlach (2002, pp. 19ff)), others find this problematic and propose assimilating/adjoining/incorporating clitics into existing prosodic units (such as the PWd or PPh) instead (see Anderson, 2005, Ch. 3; Gerlach 2002, p. 25).

Anderson (2005, Ch. 3), among the latter group of linguists, describes various modes of cliticization based on dialects of Italian reported in the literature. Taking the Standard Italian dialect, and given its similarity with Spanish in that enclitics do not affect stress alignment, Anderson (op cit) proposes a structure of the type displayed in Figure (1) which follows an attachment of the clitics as Free clitics attached directly to the PPh. In Anderson’s terms, the Phonalogical Clitic he describes is an element “whose phonological form is deficient in that it lacks prosodic structure at the level of the (Prosodic) Word.” (p. 19). This definition of what looks like Zwicky’s Simple clitic not only stresses the importance of prosodic deficiency, but also aligns clitics with affixes.

Figure 1 Attachment of clitics to the PPh in Standard Italian (Taken from Anderson 2005, p. 48)
The atonic character of clitics, which makes them borderline elements between words and affixes, has also been identified as manifesting differently in enclisis than in proclisis (cf. Colantoni & Cuervo, 2013) in Rioplatense Spanish. Whereas proclitics are consistently atonic in this dialect, Di Tullio and Zdrojewski (2013, p. 24) show that enclitics are mostly tonic and can modify the stress configuration of the verb (Gerlach 2002, p. 21). For example, 2p singular vos imperatives, which are always oxytones (stressed in the last syllable), become paroxytones, or even proparoxytones such as tra.é ‘bring’ > tra.é.me.lo\textsuperscript{5} ‘bring=to me=it’. Whenever these imperatives take two clitics, Rioplatense Spanish also allows that the last one be tonic.

Di Tullio and Zdrojewski, in turn, suggest that enclitics seem like affixes (they can modify the stress of the word) whereas proclitics seem more like free morphemes (can only receive stress in the case of metalinguistic correction). In a somewhat similar way, Gerlach (2002) finds it “…reasonable to assume that proclitics resemble prefixes while enclitics resemble suffixes” (p. 24). If cliticization mirrors affixation, implications for morphology require explanation for the fact that unlike affixes, clitics may show variable placement and appear detached from their host resembling a free word.

In this brief discussion of the phonology of clitics, I have attempted to portray the impact that a phonological characterization of clitics has for determining their morphological status. The prosodic deficiency of clitics demands a host and poses the question of the best way to integrate them into the prosodic structure. I have also touched upon how this deficiency has different effects in enclitics vs proclitics, which would motivate the assumption that the two might be different types of elements.

1.2.2 The morpho-syntax of clitics

As I mentioned before, one question that has caught linguists’ attention for years (especially in the Romance languages) is “whether clitics constitute an autonomous morphological category, or whether they can be described as one of the independently motivated categories ‘affix’ or ‘word’” (Gerlach, 2002, p. 17). This issue has generated much disagreement among scholars.

The idea of clitics as an autonomous morphological category has been captured by studies supporting Clitic Idiosyncrasy, which states that:

\textsuperscript{5} Stops “.” indicate separation into syllables.
“Certain clitics are neither words nor affixes, but constitute a separate type of object whose behavior is partly governed by dedicated (i.e. clitic specific) grammatical mechanisms.” (Bermúdez-Otero & Payne, 2011, p. 3)

This idiosyncratic view of clitics is evident in early typological studies such as Zwicky (1977), which differentiates simple clitics, special clitics, and bound words6 and Kayne’s (1975) influential work which distinguishes clitic pronouns from strong pronouns as well as in later accounts, such as the one by Cardinaletti and Starke (1999) who propose a contrast between strong pronouns (Spanish él, ella), weak pronouns (French je) and clitics (Spanish lo, la). Of all three classes, clitics are the most distributionally, morphologically, semantically, and prosodically deficient (they cannot appear in typical NP positions or in isolation, cannot be modified, coordinated, contrastively stressed, Kayne, 1975).

The idea of clitics being analogous to other existing linguistic categories confronts linguists with challenges having to do with the degree of ‘alignment’ between a member of one of such existing categories and a clitic. Besides, if clitic behavior is proposed to be analogous to the behavior of pronouns, for example, this will have important implications for theories of placement (as clitics would then be subject to similar positions and changes). In the next section, I will explore two theories to morpho-syntactic characterization, namely Formal and Functional in order to outline the ways they categorize clitics and the implications of this for accounts of clitic placement. Within each theory there are myriad categorization proposals. However I will only focus on selected ones. The purpose is to show from a morpho-syntactic perspective the challenges of characterizing clitics and the consequences that characterization has for clitic placement. I will conclude this section by ascribing to proposals which characterize clitics as transitional elements between categories and which define clitics based on their use in discourse.

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6 The first two are of particular interest to our discussion. According to Zwicky, simple clitics are free morphemes that, when unaccented, may be phonologically reduced and also subordinated to a neighboring word. Special clitics are unaccented bound form[s] that act as variant[s] of stressed free form[s] with the same meaning and phonological makeup. They have special syntax (e.g. in declarative sentences, object pronouns come before the verb whereas object lexical NPs come after it) and opaque phonology (e.g. not straightforward relationship between the weak form and its corresponding strong form). Standard examples of special clitics are clitic pronouns in Romance languages.
1.2.2.1 Formal approach to categorization

Taking the different instantiations of Generative Grammar, it is possible to see that the early models (Chomsky, 1957, 1965) insert items to positions in the structure provided that they meet the categorical specifications for such position. Rauh (2010), whose work I will refer to in this section, exemplifies how the earliest version of the Chomskian models do not succeed when faced with the contention that every lexical item in a language should be assigned to one of the categories identified. The author explains how, for example, “…the items of English traditionally assigned to the category of Adverb, such as so, very, lately, personally, fast, or there, […] neither exhibit the syntactic properties of any of the categories identified nor form a single syntactic category…” (p. 78). This would be true of clitics as well, if one attends to their morpho-syntactic properties. Without entering in much detail about later theoretical developments that look at feature-based descriptions of syntactic categories, I would like to mention two major traditions within the Generative paradigm which have dealt with clitic placement. One assumes clitics to be verbal predicates in overt syntax (which means that they would be considered arguments of the verb because they make explicit some kind of relation with a Theme, and thus they have been assumed to bear Thematic (Jackendoff, 1972) or θ (Theta) (Chomsky, 1981) roles, such as Patient, Theme, Goal, etc.) This view also assumes clitics to be generated in the canonical positions that verb arguments, such as DOs, occupy and to climb up the structure in order to obtain preverbal word order.7 The second tradition assumes clitics to be heads of their own functional projection, which means that they are not generated as complements (predicates) of the verb in the lower part of the syntactic underlying structure (where the event is described). Instead, this tradition assumes that clitics generate in projections that host inflectional information (agreement, for example), i.e. in the functional part of the syntactic structure.8

(A) Clitics as arguments

This proposal views clitics as heads of a determiner phrase (DP). In a sentence with a transitive verb, the DO DP is a requisite of the predicate of that verb. This means that such a verb

7 Some challenges this proposal faces have to do with how to allow an element of the embedded clause to move to the matrix clause and how to account for cases in which the verb argument position is already occupied with a DO noun phrase and a clitic accompanies the verb at the same time (phenomenon called clitic doubling).
8 However, the proposals under this tradition still assume clitics to be linked to some argument (either explicit or null) in the canonical argument position. In this way, this tradition can account for cases of clitic doubling (González López, 2008).
requires the argument position of DO (which in Spanish is canonically a postverbal position) to be filled with a DP which would make explicit the relationship with the event being described. In other words, Spanish transitive verbs require a postverbal argument that would bear crucial thematic (or θ-role) information with respect to the main predicate, such as that of Theme (as in *Pedro pateó la pelota* ‘Peter kicked the ball’). The proposal of clitics as arguments assumes that clitics can perform that function because they are argument DPs bearing θ-roles. As such, clitics not only generate in canonical argumental position (in Spanish, postverbally), but they also behave like typical verb arguments (Kayne 1969, 1975) (See Figure 2).

![Figure 2 Structure of the verb phrase headed by a transitive verb and containing a DP (headed by a clitic) in argument position.](image)

This view accounts for the similar structure of (1.3) and (1.4) below, where the clitic *lo* in (1.4) appears in the canonical position for DO arguments, such as *el pollo* ‘the chicken’.

(1.3)  \begin{align*}
    Yo & \text{ quiero } \text{ comer el } \text{ pollo}. \\
    \text{I} & \text{ want } \text{ to eat the } \text{ chicken} \\
    \text{‘I want to eat the chicken.’}
\end{align*}

(1.4)  \begin{align*}
    Yo & \text{ quiero } \text{ comer=}lo. \\
    \text{I} & \text{ want } \text{ to eat=}it \\
    \text{‘I want to eat it.’}
\end{align*}

This view also needs to account for cases where clitics can be found in non-argumental positions, such as Spanish preverbal clitics, as in (1.5).
(1.5)  
\[ \text{Yo} \quad \text{lo} \quad \text{quiero} \quad \text{comer}. \]
I it want to eat

‘I want to eat it.’

Kayne's (1969, 1975) work within the framework of Transformational Grammar describes exactly this in French, where pronominal DOs (le ‘it.ACC’) precede the finite verb, but full noun phrases (le poulet ‘the chicken’) follow it. First, his work distinguishes between strong pronouns (those that can occur in the same position as NPs) and weak or clitic pronouns (which can only appear in positions where NPs cannot) (see also Cardinaletti, 1994; Cardinaletti & Starke, 1999). This view of clitics as pronominal arguments assumes that in sentences like (1.5), clitics originate in argument positions and move to INFL (henceforth I) in what has become known as Clitic Climbing\(^9\) (CC) or Clitic Promotion (Kayne, 1975, 1991).

One question for these ‘movement’ proposals is determining what triggers such movement. Initially, Spanish was proposed to contain a CC rule that would optionally move the clitic pronoun in complex VPs introduced by a finite modal (poder ‘be able to’), aspectual (comenzar ‘begin’), or movement (ir ‘go’) verb\(^10\) and followed by a non-finite form (gerund or infinitive) (Aissen & Perlmutter 1976, p. 5)\(^11\). One example of these proposals is Kayne (1975, 1977) which assumes that there is a movement transformation called clitic-placement (CL-PL) which moves the clitic (Pro) to preverbal (I) position.

CL-PL Rule:

\[ \text{NP V Pro } \rightarrow \text{NP Pro V} \]
(Adapted from Kayne, 1977, p. 194)

For example, whereas full NP arguments occur postverbally (as Paul in 1.6), CL-PL moves clitic arguments to a preverbal position (as le in 1.7 -taken from Kayne, 1977, p. 76).

(1.6)  
\[ \text{Marie connait} \quad \text{Paul} \]
Marie knows Paul

‘Marie knows Paul.’

\(^9\) Despite its origin within the movement approach, the term Clitic Climbing (or CC) is often times used loosely to refer to the phenomenon of preverbal clitics with complex VPs.
\(^10\) Called triggering verbs in Aissen & Perlmutter (1976).
\(^11\) In his dissertation, Rivas (1977, p. 124) also mentions earlier studies which basically propose a CL Climbing rule.
(1.7) Marie le connait

Marie him knows

‘Marie knows him.’

A key aspect of Kayne’s proposal is that clitics are heads (not phrases), which distinguishes clitics from Wh-phrases and quantifiers. As such, they have some restrictions on movement. Chomsky (1986) developed a theory in which maximal projections (i.e. phrases) work as barriers that constrain not only government, but also movement. In formal terms the principle states that:

X is a Blocking Category (or a barrier) for Y iff:

- X is not L-marked by W (which means that W would assign X’s θ-role), and
- X dominates Y (See Figure 3)

![Figure 3 Graphic representation of a barrier](image)

According to Chomsky (1986), INFL (IP) does not L-mark the VP, which means that then VP is a blocking category and a barrier (See Kosmeijer, 1993, p. 69). So, unless a lexical verb moves to VP, VP remains a barrier (see Figure 4).

![Figure 4 Graphic representation of a barrier for CC](image)
But in null subject languages (i.e. Spanish), strong INFL (IP) can L-mark VP (even if the verb does not raise up to it, Kayne, 1989, pp. 240-1). Kayne (1989) argues that CC is only possible in null-subject languages because the presence of a strong INFL feature would allow the clitic to go past the barrier imposed by the infinitival VP. This would be the case of Spanish. In Kayne (1991) clitic pronouns left-adjoin to functional heads (such as I) and, in Spanish, the verb moves past such functional head, rendering the order ‘infinitive+C1’. The basic idea behind this proposal is that word order reflects different combinations of movement (Kayne, 1994). Kayne’s work fundamentally shaped the movement tradition to clitic placement, giving way to countless proposals that assume clitics to generate in argument position and undergo some kind of movement to render preverbal clitics (for a review, refer to González López, 2008).

(B) Clitics as functional heads merged in surface position

In some languages, such as Spanish, Italian, Catalan, and French within the Romance family (Strozer, 1976; Borer, 1984) clitics have can appear in clauses that already contain a full DP in the argument position of canonical DOs (as in 1.8 below). This phenomenon, called clitic doubling, has been widely attested in Rioplatense Spanish (Rivas 1977, p. 30), for example, as restricted to animate DPs (but see also Suñer, 1988, p. 399) for examples of doubling of inanimate DOs preceded by the preposition a).

(1.8) La invitó a Mabel (Adapted from Belloro 2007, p. xiv)

her.ACC.3.S.F invite.PST.1.S ANIM Mabel

‘I invited Mabel.’

Structure preserving rules\(^\text{12}\) do not allow the presence of two elements (or, technically, the same element) in two places sharing the same grammatical function (\(\theta\)-theory stipulates there cannot be two arguments with the same \(\theta\)-role). So, whereas in the movement approach clitic pronouns are assumed to be in complementary distribution with argument DPs, clitic doubling proves this cannot, at least for some dialects, be the case and also that clitics may not be arguments. This finding fostered alternative proposals for what clitics really are (e.g. the most

\(^{12}\) i.e. rules which, if they move an element, for example, such element should be able to be independently motivated in that new position (without the need of the transformational rule) (Emonds, 1972, p. 22).
influential for Spanish being that they are agreement markers\textsuperscript{13} as well as about where they generate (e.g. in functional projections as opposed to argument projections).

Regarding their position in the structure, a radical approach is proposed by Emonds (1999) in which clitics are generated \textit{in situ} and attached to their surface structure host\textsuperscript{14}. This implies that a sentence with CC and a sentence without CC would have different underlying structures. Other supporters of base-generation (i.e. generation directly from the lexicon as opposed to a movement approach) in non-argument positions assume that clitics may generate in more than one position by means of phrase structure rules (Cardinaletti & Shlonsky, 2004; Manzini & Savoia, 2004; Tortora, 2007) and then move from that functional projection to a higher functional head (in CC).

One proposal that exemplifies the base-generation tradition is González López' (2008) proposal, which not only assumes clitic pronouns to be generated in two different functional positions in the structure, but also that verb subcategorization properties are responsible for clitic movement to a higher designated clitic position (as last resort in order to find a suitable host). She proposes two Clitic Phrases (ClitiPs) within the functional domain. For CC structures such as \textit{Lo quiero ver} ‘I want to see him’ (Figure 5), the verb (querer ‘want’ in this case) subcategorizes an embedded clause headed by a CliticP (hence the lower CliticP). Since the infinitive (ver ‘see’) only rises up to T, the clitic has to move as last resort in order to find a host higher in the structure. In CC, the clitic can only move to another ‘designated’ clitic position (in the matrix clause) which has a [+clitic] feature. In this way, CC results from base-generation in two non-argument positions and movement.

In contrast, in non-CC structures, such as \textit{Quiero ver=lo} ‘I want to see him’ (Figure 6), the finite verb subcategorizes for an embedded clause which is headed by an Infinitival phrase

\textsuperscript{13} The analysis of clitics as instances of agreement emerged partly from the fact that some clitic pronouns are marked for number, person, gender, and case (D'Introno, 1983). In this respect, the relationship of clitics with their coreferential NP would be “…analogous to the co-occurrence of lexical subjects and the obligatory subject-agreement suffix on finite verbs” (Belloro, 2007, p. 13). This view is also present in Suñer (1988) when she argues that clitics do not have θ-role and that “…Spanish CLs are manifestations of object agreement […] parallel subject-verb agreement phenomena.” (p. 393). Further evidence of clitics as agreement markers include the finding that cliticization does not apply to phrases (D'Introno, 1983), that predicative DPs cannot be doubled (Sánchez, 2010, p. 10), and that diachronically “…verb agreement paradigms always rise from anaphoric paradigms” (Givón, 1976, p. 180). It has also been suggested that clitics display feature erosion typical of agreement systems (Franco 2000) and that a clitic can be “…a grammatical reflex on the verb, indicating verbal agreement with the true argument” (Deen, 2012, p. 241).

\textsuperscript{14} In his dissertation, Kayne (1969, p. 31) had already considered the alternative of clitics being generated in their surface position, even though it was not considered appropriate in his study and thus argued in favor of movement.
(as opposed to a CliticP). The clitic is also base-generated in a lower CliticP, where cliticization takes place as the infinitive raises to T and takes the clitic along.

Figure 5 Representation of proclisis with modal verbs adapted from González López (2008). The rectangle shows where cliticization takes place.

Figure 6 Representation of enclisis with modal verbs adapted from González López (2008). The rectangle shows where cliticization takes place.
As it has become clear, Generative approaches to clitic characterization have shown enough flexibility so as to allow for clitics to be categorized very differently depending on the assumptions and the specific clitic phenomena examined in each case. In this dissertation, however, I will not follow a Generative approach, given that some of the factors impacting clitic placement in the present dissertation are hard to be incorporated within such a framework. In the next section, I consider Functional approaches to categorization.

1.2.2.2 Functional approach to categorization

The use of the term “functional” here is very loose and describes approaches which link syntactic structures to semantics and cognition, and which also pay special attention to the use of structures in language. Here I will very briefly summarize some of the proposals described in Rauh (2010, Ch. 7) before arriving at a working definition of clitics which takes into account their referential and discourse functions.

Table (1) shows some proposals of syntactic categorization which originate from semantic or cognitive considerations. It is not clear how clitics would be categorized in semantic terms, though. The cognitive perspective represented by Langacker (1986) on Table (1) shows promise as it could be relatively easier to come up with a unit-like configuration of semantic-phonological components for clitics (if we specified discourse function under the semantics). Nevertheless, within Functional approaches like these, syntactic categorization is not necessarily easier. This point is relevant for the discussion of Givón's (1984) take on syntactic categories below.
<table>
<thead>
<tr>
<th>Author</th>
<th>Method of categorization</th>
<th>Categories</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyons (1977)</td>
<td>Finding links between ontological and syntactic categories</td>
<td>‘noun’ = entities</td>
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<tr>
<td></td>
<td></td>
<td>‘verb’ = actions</td>
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<tr>
<td></td>
<td></td>
<td>‘adjective’ = properties</td>
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<td>Jackendoff (1983)</td>
<td>Human beings link a conceptual structure (based on a projected reality/world) on the real world through language, by creating categories that only exist in language.</td>
<td>[THING]</td>
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<td>Croft (1984)</td>
<td>Identifying syntactic categories and semantic functions.</td>
<td>Correspondence between:</td>
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<td>‘noun’, ‘verb’, ‘adjective’</td>
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<td>- Semantic classes:</td>
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<td></td>
<td>‘object’, ‘action’, ‘property’</td>
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<tr>
<td>Langacker (1986)</td>
<td>All linguistic units are symbolic and bipolar (a semantic and a phonological component, [[SEM]/[PHON]]). No distinction between lexicon, syntax and morphology, as units are in a continuum.</td>
<td>No explicit reference to ‘syntactic’ categories, but symbolic units (in the form of [[THING]/[house]]) make the grammar, which ranges form very specific to maximally schematic units. The distribution of linguistic items is not fully predictable, which makes syntactic categories not fully identifiable/describable.</td>
</tr>
</tbody>
</table>

Table 1 Some of the semantically-motivated approaches to syntactic categories as reviewed in (Rauh, 2010, Ch. 7)
In order to differentiate his approach from that of Chomsky, Givón (1984, p. 12) states that

When one investigates a more realistic data-base of language structure-\textit{cum-use}, one finds that both semantic/grammatical categories and “rules of grammar” exhibit only \textit{partial} categoriality: Categories conform to their basic definitions \textit{in the majority of cases}, and rules obey their strict descriptions \textit{more likely than not}. But there is always a certain amount of messy residue left, one that does not seem to fit into the category/rule in the strictest sense of their definition. (p. 12)

In the excerpt above, Givón reframes the issue of categorization of linguistic elements within his “pragmatically-based [view of language, which] rejects formalism for formalism’s sake, recognizing instead the open-ended, contingent and less-than-categorical nature of language, behavior and cognition.” (p. 9) In a similar vein, Bybee (2010, p. 5) mentions how the categories of auxiliary items, modal auxiliaries, and prepositions of English are quite “gradient” showing “variation […] in function” due to lack of structural and/or functional uniformity among its members, and have “less than discrete boundaries”, for example.

One would assume then that categorization has no place in Givon’s or Bybee’s study of realistic language in use. Far from that, Givón (1984) acknowledges the existence of categoriality which is coupled with non-discreteness and fuzzy borders. The hybrid solution he opts for is Prototype Theory (which, in Bybee’s (2010) terms will be preceded by exemplar categorization, p.79\textsuperscript{15}), according to which “categories within the continuum space are formed at intersections of a number of –sometimes many– ‘characteristic’ or ‘typical’ featured/properties, properties that tend to coincide statistically/probabilistically, but do not always coincide absolutely.” (Givón 1984, p. 14) (See Figure 7).

\textsuperscript{15} See also Bybee and Eddington (2006) for a proposal of how exemplars with higher token frequency become the center of the category.
In Figure (7), the space where all characteristic properties converge is where the most prototypical members of a category are assumed to be. However, the space where most properties converge is only “fairly” typical. A category then is defined around the prototype and all other members would cluster around it. So, distance from the prototype in terms of similarity is paramount to category membership.

Similarities and differences in the functions of items have been proposed to help in the formation of paradigmatic categories. Tomasello (2003) argues that “Paradigmatic categories [e.g. noun] are […] defined in functional terms by their distributional-combinatorial properties: nouns are what nouns do in larger linguistic structures.” (p. 301) This means that out of a distributional analysis of the functions of elements over time come groupings of items which serve a similar function, namely paradigmatic categories.

One could just ask then ‘How would clitic pronouns be categorized under this approach?’ Givón (1984) defines pronouns as “part of the large functional domain of topic identification and topic continuity in discourse” (p. 353). Two characteristic properties are drawn about clitics from this definition of pronouns: their referential function of pointing to a referent, and their discourse function of keeping that topic salient and active. Somewhat similar functions have been assigned to clitics by Aijón Oliva (2011) when he mentions that

“El principal potencial comunicativo de los clíticos reside en su naturaleza deíctica: al establecer concordancia entre los objetos sintácticos y el lexema verbal, permiten al mismo tiempo señalar la prominencia cognitiva gradual de dichos objetos y de sus referentes en la escena discursiva (cf., por ejemplo, Sedano y Bentivoglio 1996-7, García...
2009). Este es, de hecho, el punto de partida para explicar todos los fenómenos de variación que se observan en el paradigma (Aijón Oliva 2006a). Así, los referentes humanos, y en general aquellos que resultan más prominentes en un contexto discursivo muestran [...] Preferencia por las formas de dativo [...] Elevada frecuencia de concordancia clítica con el objeto explícito [...] Elevada frecuencia de anteposición de clíticos en estructuras pluriverbles” “The main communicative potential of clitics resides in their deictic nature: at the same time that they establish agreement between syntactic objects and the verbal lexeme, they allow to signal the gradual cognitive prominence of such objects and of their referents in discourse (cf., for example, Sedano & Bentivoglio 1996-7, García 2009). This is, in fact, the starting point to explain all variable phenomena present in the paradigm (Aijón Oliva 2006a). That way, human referents and, in general, those which enjoy more prominence in a given discourse context show [...] preference for the dative forms [...] high frequency of agreement with the explicit object [...] high frequency of preverbal placement in multi-verb structures” (pp. 27-8)

Here Aijón Oliva not only agrees with Givón regarding the functions mentioned above, but he also makes very interesting connections between those functions and variation in clitic behavior which also involves other salience factors, such as animacy of the clitic referent. He indicates the centrality of the discourse properties of clitics to account for frequency distributions in language use.

One way to capture the gradient\(^{16}\) organization and fuzzy borders of categories which has given linguists a space for clitics in relation to other types of pronouns has been to propose continua which would also account for diachronic developments. Clitics have been proposed to be at a transitional stage towards becoming word-forming particles, or affixes. For instance, Zwicky's (1977) initial categorization implied for diachronic syntax that, through phonological reduction, certain forms could become simple clitics, which could be reanalyzed over time as special clitics, turning eventually into affixes. However, it remains uncertain what type of phonological reduction gives rise to simple clitics and what morphological alternations are

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\(^{16}\) Some of the continua mentioned here do not necessarily pursue gradience in the sense of functionalist or usage-based proposals (eg. Zwicky’s). However, they propose gradience in terms of clitics being at an intermediate stage between categories.
necessary to derive special clitics (Spencer, 1991, p. 377)\textsuperscript{17} Nubling (1992 in Gerlach, 2002) describes bundles of scales, where clitics begin as independent functional words which are reduced in fast speech turning into simple clitics, then into special clitics, and finally into inflectional affixes. Givón (1984) also argues that “…stressed independent pronouns, unassessed/clitic pronouns and verb agreement constitute both a functional-synchronic and diachronic cline” (p. 353). Figure (8) shows a graphic representation of this cline adapted from (Bhat, 2004, p. 17) where clitic pronouns are shown as a step away from becoming agreement markers.

<table>
<thead>
<tr>
<th>strong</th>
<th>weak</th>
<th>clitic</th>
<th>bound</th>
<th>zero</th>
</tr>
</thead>
<tbody>
<tr>
<td>pronouns</td>
<td></td>
<td>agreement</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 8 Functional-synchronic and diachronic cline adapted from (Adapted from Bhat, 2004, p. 17)

Parodi (1998) considers dative clitics as affixal, while accusative clitics are quasi-affixal, given that they still retain some of their pronominal character (p. 95). Parodi also suggests that clitics in Standard and Río de la Plata Spanish may be seen as different stages of development (p. 101) (see also Franco (2000) who considers clitics to have developed into object agreement through time as well as Bouzouita (2008) or Muysken (2008, p. 245) who claim clitics represent an intermediary stage between a full lexical item and an inflectional affix).

Based on what I have discussed in this section, the challenge of categorizing clitics becomes evident. Given that in this dissertation I will hold a Usage-based view of language, it is appropriate to at least characterize clitics within the functionalist/cognitivist framework just presented. It should be expected that within such a framework, a clear-cut categorization will run counter to the view of language as gradient. In turn, it sounds more appropriate to characterize clitics taking their meaning or discourse function (such as the signaling of reference and topicality) as a starting point. Then my working definition of clitics is phonologically and morphologically deficient elements located at a transitional stage toward affixation, which are used not only to point at a referent active in discourse, but also to signal its relative importance or topicality (mainly as a result of animacy considerations).

\textsuperscript{17} Spencer (1991, p. 377) provides an example from Polish where the only thing that differentiates nas ‘us’ full form from nas ‘us’ clitic is that the latter does not take stress, whereas jego ‘3p pronominal masc’ changes to go as clitic. Is nas a simple clitic and go a special one? Probably there is more into this, (eg. Register).
1.3 Constraints on variable clitic placement and their acquisition

Researchers working within Usage-based Variationist approaches analyze corpora in search of regularities in the distribution of clitics in naturalistic use. Corpus studies which have sought regularities in speakers’ variable use of clitics, have reported four main types of variables which seem to play a role in clitic placement: syntactic, lexical, semantic, and discourse variables. In what follows I briefly review the variables favoring proclisis. **Syntactic variables** such as the nature of the clitic (e.g. clitic clusters such as se1 lo2 compré ‘I bought it2 to him/her1’) and the syntactic environment (e.g. following the subordinating conjunction que ‘that’) have been found to favor proclisis (Davies, 1995). The latter has been interpreted in terms of the history of Spanish where certain elements used to be better clitic hosts than others (for example, in earlier stages of Spanish it has been reported that clitics were more likely to follow subordinating conjunctions than coordinating conjunctions, see references in Davies, 1995, p. 377). These variables will not be addressed in the present dissertation.

An important **lexical variable** that has been identified as impacting with clitic placement in Spanish is verb type (also called construction type). Early clitic research identified verbs that allow climbing, and verbs that do not. Within the first group, some verbs have been described as ‘triggering’ verbs because they can allow the clitic preverbally (Aissen & Perlmutter, 1976, p. 5). Triggering verbs tend to belong to classes of verbs such as modal (poder ‘can’), aspectual (terminar ‘finish’), and movement (ir ‘go’) verbs. We will mention some studies here of particular interest to this dissertation. In what was the first comprehensive corpus study of clitic climbing, Davies (1995) examined the spoken and written Spanish from eleven capital cities of the Spanish-speaking world and provided invaluable data about the distribution of proclisis and enclisis across registers, dialects, particular main verbs, and other syntactic factors (such as the nature of the clitic and its syntactic environment.) Despite evidencing little dialectal variation, the results showed that proclisis is favored overall in Spanish, but especially in the spoken register, with certain verbs more than with others (which enabled Davies to order matrix verbs in a continuum-like way), with multiple clitics (e.g. clusters such as me lo), with reflexive clitics (eg. me), with clitics whose referent is animate, and with variable constructions preceded by the

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18 Such as the *Habla Culta* and *Habla Popular* corpora which documents different Spanish dialects spoken by speakers of various socioeconomic backgrounds. (The study presented in Chapter 2 of this dissertation contributes to this type of research by providing data from the *Corpus de Habla Culta de Buenos Aires*, (Barrenechea, 1987).

19 Davies (1995) offers no explanation of the higher likelihood of CC in multiple-clitic utterances.
subordinated construction *que* ‘that’ (e.g. *que se va a curar* ‘that it is going to heal’, Davies 1995, p. 377). Regarding the lexical effect, Davies finds that although nearly all of the verbs belonged to the ‘CC-friendly’ categories of auxiliary/aspectual/modal verbs, there existed variation in the rate of proclisis with each of them. For example, *ir (a) ‘go to’* was used with proclisis (i.e. preverbally) in 86% of the cases whereas *tener que ‘have to’* in only 38% of the occurrences. Davies’s results constitute quantitative evidence in favor of the argument for the effect of semantic complexity and modal-likeness on proclisis (Myhill, 1988; Napoli, 1981; Rosen, 1990). In an analysis of enclisis in Mexican Spanish, Schwenter and Torres Cacoullos (2014) find support for a continuum-like ordering of verbs according to frequency of enclisis. What is more, they find that different uses of the same verb may have different clitic placement preferences. They split *ir (a) ‘go to’* according to two of its uses: as movement and as periphrastic future. They find that *ir (a) as movement* favors enclisis to a higher extent than *ir (a) for future*20 and interpret their results in terms of the rank of each of those two uses in the auxiliary-like scale (as a result of grammaticalization). Experimental work has been done to approach those preferences with monolingual and bilingual adults (Thomas, 2012) showing that monolingual speakers (as well as Spanish-English bilingual speakers) show sensitivity to clitic placement preferences based on the specific matrix (finite) verb.

One semantic variable that has been pointed out as influencing clitic placement is the animacy of the clitic referent. Spanish clitic pronouns have been found to favor proclisis when they refer to an animate entity21 (Davies, 1995), which provides support to Myhill's animacy hierarchy (1988). In contrast, Schwenter and Torres Cacoullos (2014) (cf. Gudmestad, 2014) find that inanimate referents favor proclisis, which is explained in terms of topicality and information flow. Finally, discourse variables such as topic persistence have been found to interact with clitic placement. More specifically, DO clitics referring to topics that are not persistent in upcoming discourse favor enclisis (Schwenter & Torres Cacoullos, 2014).

In this dissertation I will be working within this variationist perspective of Spanish clitic placement (§Chapter 2) and will try to account for their distribution by resorting to Usage-based principles and assumptions.

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20 The methodological challenge of coding for this subtle distinction is discussed by (Gudmestad, 2014).
21 Also to propositional or non-referential antecedents (Schwenter & Torres Cacoullos, 2014),
One critical aspect of theorizing about how language is structured is that the language modelled needs to be able to be acquired, including systematic linguistic variation such as the one displayed by Spanish clitic placement. Very few studies have looked at L1 acquisition of variation in connection to Spanish morpho-syntax (e.g. Shin & Erker, 2015). In the specific case of Spanish clitics, Eisenchlas (2003) has been able to show monolingual children’s knowledge of the variation as well as a clear preference for proclisis which falls in line with the distribution of proclisis in modern Spanish (e.g. Davies, 1995). However, I am not aware of any studies of children’s knowledge of the constraints identified by variationist studies in the target language, such as the lexical and the semantic constraints. In §Chapter 3 I assume a learning task toward reaching full mastery of variable clitic placement and provide evidence from four experiments conducted with Argentine children between 4;0 and 7;0 years old.
Chapter 2 A Usage-based Proposal for Spanish Variable Clitic Placement

2.1 Introduction

Spanish displays variable positioning of Direct Object (DO/ACC) clitic pronouns accompanying verbal periphrases consisting of a finite verb + a non-finite form (such as infinitive or gerund), as in (2.1). A lot has been written about this phenomenon; however, most of this work consists of formal analyses that describe where clitics could be generated in the underlying sentence structure and whether they move to reach their surface position (See Kayne, 1975, Aissen & Perlmutter 1976, Rouveret & Vergnaud, 1980, Rosen, 1990, Belletti, 1999, Cardinaletti, 1994).

(2.1a) \textit{Quiero} \quad comprar=lo \quad \textit{(Enclisis)}
\begin{align*}
\text{want-PRS.1SG} & \quad \text{buy-INF} = \text{it-ACC-M3SG} \\
\text{‘I want to buy it’}
\end{align*}

(2.1b) \textit{Lo} \quad \textit{quiero} \quad comprar \quad \textit{(Proclisis/CC\textsuperscript{22})}
\begin{align*}
\text{it-ACC-M3SG} & \quad \text{want-PRS.1SG} \quad \text{buy-INF} \\
\text{‘I want to buy it’}
\end{align*}

Such derivational perspectives mostly have seen (2.1a) and (2.1b) as optional alternations (eg. one derives from the other) when trying to motivate the surface word order in a given utterance (eg. Kayne, 1975). Alternatively, they may assume clitics are generated in different positions (eg. Strozer, 1976), for example as the result of different featural configurations that in turn render different orderings in the merging of elements in the sentence (Masullo, 2004).

From early on studies have highlighted the role of properties of the finite verb (matrix verb) in these periphrases as a window for studying the variable placement of the clitic (Strozer,

\textsuperscript{22} Clitic Climbing (CC) refers to Proclisis. This term emerged within the transformational accounts of variable clitic placement.
Whereas in Romanian proclisis is obligatory with modal verbs (Gerlach, 2002, p. 200), Spanish (among other Romance languages such as Italian and French) displays different degrees of optionality. Early accounts of clitic placement have looked at lists of finite verbs used in these [finite verb + nonfinite form] constructions as a clue to identify the contexts in which CC (Proclisis) is allowed. Aissen and Perlmutter (1976) classify verbs into those that allow Proclisis (such as querer ‘want’, tratar ‘try’, soler ‘be in the habit of’) and those that do not (like insistir ‘insist’, soñar ‘dream’, parecer ‘seem’). Such lists of verbs “…can account for the fact that CC is appropriate with a given verb in one context, but not in another for the same speaker” (Napoli, 1981a, p. 878). I agree with Napoli that even though previous descriptions have identified which verbs allow the variation and which ones do not, one piece of evidence is still unaccounted for. Such evidence comes from studies of language use which have revealed that verbs which allow the variation form a continuum from those that are more biased toward Proclisis to those more biased toward Enclisis (Davies, 1995). Different biases have also been observed in different uses of a single verb (Schwenter & Torres Cacoullos, 2014), which poses further questions in terms of what distinguishes more and less grammaticalized uses of a single verb. Without undermining the early observation about the importance of the finite verb (much on the contrary), greater knowledge of actual instances of use of Spanish leads researchers to now ask what can account for clitic placement preferences of individual verbs (or uses of verbs) as well as what other factors can play a role in this variation.

This chapter undertakes a Usage-based analysis of this phenomenon assuming clitics to be deficient referential elements that show sensitivity to the nature of their referent (e.g. animacy) and to discourse characteristics (e.g. topicality/salience). As deficient elements, Spanish clitics depend on the verb in terms of placement (single non-finite verb forms take Enclisis, whereas single finite verbs take Proclisis). However, I will argue, together with others, that in variable contexts such as (1a) and (1b) clitics also depend on information about the finite verb (as well as on other factors), which result in a Proclisis or an Enclisis bias. Under this view, Proclisis has been linked to greater grammaticalization, understood as a process by which a lexical form takes on grammatical functions (Hopper & Traugott, 2003, p. 1). Among the many instances of grammaticalization processes in world languages, of particular interest for the

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23 For other languages (or dialects) in which CC seems obligatory see (Cinque, 2006, p. 32 and fn. 47).

24 Grammaticalization refers to the process in the evolution of languages through which an item or structure acquires a (more) grammatical / functional meaning or usage (Hopper & Traugott, 2003; D. Miller, 2011).
present work is how a finite lexical verb acquires aspectual or modal meaning. Following Bybee's (1985) identification of meanings that world languages tend to encode through inflection, Myhill (1988) hypothesizes that verbs which acquire those same meanings through grammaticalization tend to favor proclisis (e.g. verb of movement which acquires future meaning). This is important because it goes beyond the idea that clitic placement can be reduced to certain verb classes (cf. Rizzi, 1978), and because it takes the analysis down to the individual verb level (and specifically to particular uses of a verb). An interesting implication of this aspect of Myhill’s work is that it allows accounting for specific verb idiosyncrasies. This is of relevance to the discussion presented in section §2.3.1.1, which addresses the peculiar behavior of each of the verbs analyzed. When researching the nature of the finite verb, Myhill (1988) (and also Napoli, 1981) would assume a semantic bonding between a semantically weak auxiliary-like finite verb and the non-finite form governing the clitic. These researchers have then proposed that the functioning of the two components of these verbal periphrases as a unit favors preverbal clitics because it mirrors clitic behavior with single finite verbs (which in Modern Spanish categorically take Proclisis). This would be the case of \([ir \ a \ ‘go \ to’ \ + \ Infinitive]\) in sentences where \(ir \ ‘go’\) marks futurity as in (2.2a), whereas \([esperar \ ‘hope’] \ + \ [Infinitive]\) not forming a periphrasis, would not function as neither a semantic nor a syntactically unit (2.2b).

(2.2a) \(\textbf{Lo [voy a conocer] mañana}\)

‘I [am going to meet] \textbf{him} tomorrow’

(2.2b) \(\text{??Lo [espero] [hacer] mañana.}\)

‘I [hope] [to do] \textbf{it} tomorrow’

Evidence for this has been provided by Davies (1998, p. 257) when he reports that in the \textit{Habla Culta} corpus (Davies, 2002- ), auxiliary-like verbs such as \(ir \ a\) show 86% of proclisis, whereas non-auxiliary verbs such as \(esperar\ ‘hope’\) occur with proclisis in 0% of the cases (for more evidence see also Davies, 1995, p. 375). Diacronically, Torres Cacoullos (1999) reports that “[a]s \(estar + -ndo\) emerges as a unit in and of itself, the clitic is increasingly preposed to \(estar\), as is categorically the case with finite verb forms in present-day Spanish.” (p. 153).
Frequent co-occurrence of two forms might also lead users to treat them as a single unit. Bybee (2010) refers to this process as the “chunking of sequential experiences that occurs with repetition” described, among other things, as “the primary mechanism leading to the formation of constructions and constituent structure” (p.34). Thus, grammaticalization has been found to correlate with increased frequency of a form (Bybee & Thompson, 1997, p. 66; Hopper & Traugott, 2003, pp. 126ff., 232). For example, in her study of auxiliary + Gerund constructions, Torres Cacoullos (1999) has found that “diachronic increases in CC [proclisis] do not reflect a direct correspondence between the occurrence of CC and the meaning of the periphrastic expression (grammatical vs. lexical) in any given example but rather indicate the conventionalization of auxiliary + gerund sequences as units whose components are increasingly fused.” (p.147). The author also adds that “a link between construction frequency and parallel structure effects such as have been found in other studies of syntactic variables” (p. 166). So, another (and probably, more illuminating) way of operationalizing the degree of grammaticalization of a form has been to track token and type frequencies (Hopper & Traugott, 2003, p. 127). Following that view, Proclisis should be favored with more frequent periphrases and enclisis with less frequent ones. This is exactly what was found in a variationist study of Mexican Spanish (Schwenter & Torres Cacoullos, 2014). The authors report that the most frequent verbal periphrases in the corpus (namely, ir a ‘go to’, poder ‘can’, querer ‘want’, tener que ‘have to’ + Infinitive, and estar ‘be’+ Gerund) favor proclisis, whereas the less frequent ones favor enclisis. However, as it will be pointed out later, even though collapsing all frequent verbs together has helped identify which verbs are more prone to specific effects, this might oversimplify things when it comes to accounting for clitic placement preferences (esp. for tener que ‘have to’).

So far, this introduction has provided a glimpse of phenomenon which has not been fully addressed in the existing literature, namely the lack of measures of grammaticalization that would allow one-to-one correspondence between particular constructions and clitic placement preferences or biases. This is so, especially when considering the behavior of a periphrasis with tener ‘have’, which is not only among the more frequent verbs in the sampled data, but which also has grammaticalized into an expression of modal obligation. Despite the fact that this configuration would render a Proclisis bias, tener que ‘have to’ displays a strong preference for

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25 Hence the use of “unithood” throughout this chapter.
Enclisis, as shown in previous studies and replicated in Argentine Spanish in the present work. This chapter addresses the tener que ‘have to’ phenomenon by means of a more encompassing analysis that is shown to hold across the most frequent constructions showing clitic placement variation. The proposal rests on a Usage-based view of grammar which assumes linguistic knowledge to consist, for the most part, of pairings of form and function (constructions) that are conventionalized through frequency (Bybee & Thompson, 1997; Goldberg, 1995). Drawing on the idea that items/constructions also encode cumulative information about linguistic contexts/patterns of use (Goldberg, 1995, Ch. 1, fn. 6; Bybee, 1998, p. 287; Brown & Rivas, 2012), I propose that contexts of use of a form outside of a particular construction may influence construction behavior with regard to clitic placement. Specifically, I show that cumulative knowledge of the rate with which a verb is used in contexts where a DO Noun Phrase (NP) or an Infinitive follows can account for clitic placement preferences in variable contexts. First, I show that the bias of a verb toward Enclisis in variable contexts is proportional to the rate of that verb being followed by postverbal DOs. Second, and following grammaticalization/unithood proposals, I show how a verb biased toward Enclisis (eg. tener que ‘have to’) displays low degree of unithood with an Infinitive as measured in relative frequency. Even though these two factors can independently account for the continuum-like distribution of verbs according to clitic placement preferences (cf. Davies, 1995), for tener que ‘have to’, in particular, I also show that connections which constructions hold with other constructions that have related parts (much as in the case of word morphology in Bybee, 1985) might provide greater understanding of construction behavior in highly componential constructions (Bybee, 1998, pp. 281ff.). However, for more grammaticalized chunks (such as poder ‘can’ + Infinitive), which display less componentiality, looking at subcomponent usage might be less illuminating.

In sections §2.2 and 2.3, I discuss speakers’ patterns of clitic placement in Modern Spanish by reviewing previous variationist research. These studies show a strong lexical effect of construction on clitic placement variation, which has been proposed to result from increased grammaticalization (Myhill, 1988), operationalized in an aggregate frequency effect where the more frequent constructions display more proclisis (Schwenter & Torres Cacoullos, 2014). However, I draw on novel data on clitic placement in Argentine Spanish that replicates some of the findings in previous studies, in order to illustrate how tener que ‘have to’ favors enclisis despite its grammaticalized meaning of obligation and its high frequency in corpora. Apart from
serving the purpose of exemplifying the idiosyncratic behavior of tener que ‘have to’, the Argentine data reported in this section will later represent the adult norm for the child experimental data reported in Chapter 3.

In section §2.4, I draw upon assumptions of Usage-based grammar, such as the encoding of information about contexts of use and the cumulative storing of linguistic elements as used in context, in order to propose how cumulative patterns of use may account for the variation found in clitic placement in Modern Spanish. The general pattern turns out to be that proclisis or enclisis of a variable construction may be influenced by the frequency with which a finite verb is used elsewhere in V+NP, Cl+V, and V+Inf constructions. The results of searches in the several oral corpora for XX century Spanish contained in the Corpus del Español (Davies, 2002-) show that these contexts of use of particular verbs can independently account for the clitic placement preferences in variable constructions with those verbs. This Usage-based proposal poses that speakers may access information about how general patterns of verb use in order to guide the placement of the clitic pronoun in variable contexts.

2.2 Previous Variationist Studies

Early studies of the variation in Spanish clitic placement analyzed written corpora, mostly trying to describe or account for diachronic changes in the position of the clitic with single verbs (e.g. Spaulding, 1927; Wanner, 1982; Granberg, 1988; Nieuwenhuijsen, 1995, Castillo Lluch, 1996; Bouzouita, 2007, 2008; Bouzouita & Kempson, 2006). With the advent of technological tools, researchers began exploring larger corpora to study the diachronic development of clitic placement concentrating on the variation found in verbal periphrases such as the ones explored in this chapter (Davies, 1998). Some of these studies included either only spoken data (Davies, 1995), or spoken and written data (Torres Cacoullos, 1999). Through this research a number of language-internal factors have been identified as affecting the position of clitic pronouns in variable contexts. These are lexical factors (specific finite verb used), semantic factors (referent animacy) and discourse factors (eg. topicality).26

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26 For some indication of extra-linguistic factors, see Gudmestad (2014).
Davies (1995)\textsuperscript{27} conducted the first large-scale study of clitic placement variation in verbal periphrases such as in (1) in a set of twelve spoken corpora (from ten different Spanish-speaking countries). His study found a continuum-like distribution of the 32 verbs analyzed according to the extent to which they appear in proclisis.

\begin{table}[h]
\centering
\begin{tabular}{|l|c|c|c|c|c|}
\hline
\textbf{VERB} & \textbf{AVERAGE/#} & \textbf{SPOKEN/#} & \textbf{WRITTEN/#} \\
\hline
\textit{ir+a} ‘go to’ & 76 (3421) & 86 (2838) & 66 (583) \\
\hline
\textit{acabar de} ‘have just…’ & 57 (143) & 85 (92) & 29 (51) \\
\hline
\textit{haber+de} ‘there be’ & 56 (134) & 80 (65) & 33 (69) \\
\hline
\textit{volver+a} ‘do…again’ & 54 (379) & 81 (159) & 27 (220) \\
\hline
\textit{soler} ‘tend to’ & 46 (60) & 86 (16) & 5 (44) \\
\hline
\textit{poder} ‘can/may’ & 41 (4764) & 60 (3633) & 22 (1131) \\
\hline
\textit{venir+a} ‘come to’ & 36 (237) & 55 (129) & 18 (108) \\
\hline
\textit{saber} ‘know’ & 33 (164) & 52 (119) & 14 (45) \\
\hline
\textit{terminar+de} ‘finish’ & 31 (23) & 55 (13) & 8 (10) \\
\hline
\textit{querer} ‘want’ & 31 (1265) & 47 (798) & 15 (467) \\
\hline
\textit{empezar+a} ‘start to’ & 29 (379) & 45 (221) & 13 (158) \\
\hline
\textit{llegar+a} ‘come to’ & 27 (177) & 42 (131) & 11 (46) \\
\hline
\textit{dejar+de} ‘stop/quit’ & 25 (66) & 41 (21) & 10 (45) \\
\hline
\textit{tener+que} ‘have to’ & 25 (1230) & 38 (984) & 13 (246) \\
\hline
\textit{comenzar+a} ‘begin to’ & 25 (219) & 45 (75) & 5 (144) \\
\hline
\textit{aprender+a} ‘learn to’ & 22 (24) & 45 (19) & 0 (5) \\
\hline
\textit{lograr} ‘succeed in’ & 21 (121) & 41 (45) & 2 (76) \\
\hline
\textit{deber} ‘must’ & 20 (63) & 33 (36) & 7 (27) \\
\hline
\textit{salir+a} ‘go out to’ & 17 (17) & 35 (9) & 0 (8) \\
\hline
\textit{pensar} ‘think of/consider’ & 15 (98) & 24 (54) & 7 (44) \\
\hline
\textit{desear} ‘wish’ & 12 (39) & 20 (14) & 4 (25) \\
\hline
\textit{tratar+de} ‘try to’ & 10 (216) & 20 (210) & 1 (106) \\
\hline
\textit{pasar+a} ‘move on/turn to’ & 8 (11) & 0 (5) & 17 (6) \\
\hline
\textit{preferir} ‘prefer to’ & 7 (51) & 15 (30) & 0 (21) \\
\hline
\textit{procurar} ‘ensure/try to’ & 7 (37) & 14 (18) & 0 (19) \\
\hline
\textit{intentar} ‘attempt to’ & 6 (52) & 11 (11) & 1 (41) \\
\hline
\textit{resolver} ‘resolve to’ & 3 (13) & 5 (7) & 0 (6) \\
\hline
\textit{esperar} ‘hope to’ & 0 (18) & 0 (14) & 0 (4) \\
\hline
\textit{insistir+en} ‘insist on’ & 0 (6) & 0 (1) & 0 (5) \\
\hline
\textit{soñar+con} ‘dream of’ & 0 (1) & 0 (1) & 0 (4) \\
\hline
\textit{haber+que} ‘be necessary to’ & 0 (485) & 0 (385) & 0 (100) \\
\hline
\end{tabular}
\caption{Distribution of proclisis in Davies by verb and register (1995:374)}
\end{table}

\textsuperscript{27} Another study conducted by Troya Déniz (2003) over twelve dialects included in the \textit{Macrocorpus de la norma lingüística de las principales ciudades del mundo hispánico} (Samper Padilla, Hernández Cabrera, & Troya Déniz, 1998) showed 74% proclisis, as reported in Troya Déniz and Pérez Martín (2011, p. 15).
This finding provides important quantitative evidence for the role of the finite verb on the frequency of proclisis. Davies’ study also finds that multiple clitics or reflexives appear in proclisis significantly more often than single clitics and non-reflexives. More importantly for the present study, Davies reports a semantic effect of animacy, where clitics with animate referents prefer preverbal position. This constitutes support for Myhill’s proposal of the way animacy interacts with proclisis. In his study of 543 tokens of clitics in variable contexts from written texts, Myhill (1988, p. 360) finds that proclisis is more frequent whenever the clitic outranks the subject in the Animacy Hierarchy\(^{28}\) than in the opposite scenario.

Davies (1998) presents a study on a corpus of written texts from the 1200s to the 1800s and shows evidence of a steady decrease in proclisis towards the 1700s especially due to the influence of the ±auxiliary nature of the finite verb in the construction. More importantly for the purposes here, the study finds that the shift towards postverbal clitics did not happen across the board, but as an extension through related constructions that share surface characteristics. In particular, Davies finds evidence from frequency of use that connects constructions such as V + Prep + Infinitive (eg. *dejan de hacerlo* ‘stop [Prep] doing it’) with Prep + Infinitive constructions (eg. *de hacerlo* ‘of doing it’). As final placement decreased in the latter and became categorical (~1600s), the former construction followed suit with a lag of approximately 200 years. In turn, the constructions without the intervening preposition (V + Infinitive) experienced a similar change but at a slightly later time. Even though this study concentrated on language change, the fact that change spreads by means of a sort of “inertia” from one construction to another reflects the existing links between a construction with its sub-units, as well as the links between similar constructions.

Torres Cacoullos (1999) deals with Auxiliary + Gerund (-ndo) periphrases. Her study finds stylistic stratification (with proclisis being favored in conversational data as opposed to formal texts) and concludes that diachronic changes are related to the fusing of the elements in these periphrastic expressions as proclisis increases through time on a par with greater positional

fixing, and a decrease in intervening material and multiple gerunds (p. 165). More importantly for the present discussion, Torres Cacoullos adds that

in evaluating frequency effects, it may be important to count both the tokens of an item appearing in a construction as well as the tokens of the same item not appearing in the construction. We found that it is not only the token frequency of –ndo constructions that varies significantly between corpora, but also the proportion of lone-standing gerunds. (p. 165)

In this way, Torres Cacoullos’ study highlights the importance of the relative frequency of use of an item outside of the construction because of the links it holds with its use within the construction. I will elaborate more on this idea in the proposal put forward in this chapter to account for the behavior of the tener que construction.

In the past ten years, variationist studies have been conducted with a focus on specific dialects, some of which had been included in the Davies (1995) study. As a result, data on individual dialects from Madrid and Bogotá (Sinnott & Smith, 2007), Caracas (Gudmestad, 2014; Zabalegui, 2008), Gran Canaria (Troya Déniz & Pérez Martín, 2011), Salamanca (Aijón Oliva & Borrego Nieto, 2013), Asturian in Northern Spain (González López, 2013), and Mexico (Schwenter & Torres Cacoullos, 2014) are now available. In what follows, I briefly review their findings in chronological order and turn to present data from Argentine Spanish.

Sinnott and Smith (2007) conducted a variationist study on El habla de la ciudad de Madrid: Materiales para su estudio (Esgueva & Cantarero, 1981) corpus and El habla de la ciudad de Bogotá: Materiales para su estudio corpus (Otálora de Fernández & González G., 1986). The study included both accusative and dative clitics (as in Davies 1995) in variable contexts as exemplified in (1) consisting of an infinitive or a gerund following the finite verb. The results show that clitic placement differs in the two dialects not only in the overall distribution of proclisis (82% for Madrid and 68% for Bogotá), but also in the factor groups that significantly affect the variation (differences in order of some of the constraints/factors).

Similarities in factor group ranking include verb tense (ranked 1st in both dialects where future tense favored proclisis), polarity (ranked 4th in both dialects with negative polarity favoring proclisis), and animacy (ranked 5th in both dialects with animate referents favoring proclisis). The authors conclude that there is dialectal variation in clitic placement. This study challenges
Davies claim of no dialectal differences (e.g. multiple clitics favor proclisis in the Madrid data, but this factor group is not significant in the Bogotá dialect). Unfortunately, this work does not analyze the frequency of proclisis by lexical types of finite verbs.

Zabalegui (2008) studied Venezuelan Spanish by conducting a multivariate examination of variable clitic placement in a sample consisting of twenty-four speakers from the *Corpus Sociolingüístico PRESEEA-Caracas 2004-2010*. The results showed 80% of Proclisis in the spoken register as well as significant effects of the type of auxiliary verb (*deber, haber de, tener que* and aspectuals favoring Enclisis), type of clitic pronoun, intervening material, clitic grammatical person, and referent animacy (inanimates favoring Enclisis).²⁹

Troya Déniz and Pérez Martín (2011) studied clitic placement in the variety of Spanish spoken by college students from Las Palmas (Gran Canaria). The variationist study of twenty-four interviews from the *Corpus Sociolingüístico PRESEEA-Las Palmas de Gran Canaria* shows that variable clitic placement is affected by language-internal factors and not by stylistic or social factors analyzed (e.g. gender, age). The data also show that the variables playing a role in variable clitic placement are: the auxiliary verb, the type of clitic, the clitic function, grammatical person of auxiliary verb, and auxiliary verb category. With relation to the finite (“auxiliary”) verb, Enclisis is favored by one frequent verb (*tener que*, probability weight .83) and other less frequent verbs (*soler, seguir, empezar, deber*, etc).

Gudmestad (2014) studied clitic placement in the *Estudio Sociolingüístico de Caracas* (Venezuela) corpus (Bentivoglio & Sedano, 1993). The study included both accusative and dative clitics in variable contexts with the verbs *ir* ‘go’ and *querer* ‘want’. Apart from linguistic factors, Gudmestad coded for socioeconomic status, age and gender of the speakers. The results show that, despite the fact that both verbs favored proclisis, *ir* presented a higher rate of preverbal clitics. More specifically, proclisis with *ir* is favored by inanimate referents, singular clitics, and 2nd or 1st person clitics; but proclisis with *querer* is more likely in the speech of females from the lower socioeconomic group, which the author explains in terms of stable social variation. Even though this study includes sociolinguistic variables, the limitation in terms of scope (two verbs only) and the inclusion of a wide range of clitic types (accusative and dative) make it difficult to interpret some of its results. In connection with the linguistic factors affecting

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²⁹ An earlier study of Venezuelan Spanish was conducted by Navarro (1990) and found greater Proclisis in periphrases with Infinitives (68% Proclisis) and Gerunds (92% Proclisis), as reported in Zabalegui (2008, p. 87).
ir, Gudmestad attributes the inanimacy effect to coding differences of the se clitic in her study compared to previous studies. The effect of clitic number is explained as a frequency effect by which singular clitics favor proclisis. The effect of clitic person (2nd>1st>3rd) is explained in terms of the animacy hierarchy proposed by Myhill, although Gudmestad acknowledges this result is in conflict with the data on animacy in her own study.

A study of sociolinguistic factors affecting clitic placement in nonvariable contexts (i.e. contexts of clitics with single finite verbs) in speakers of the Asturian Spanish contact variety was conducted by González López (2013). In this variety enclisis is the default as is the case of Asturian. However, Asturian allows proclisis in specific cases (such as negation, topicalization and focus) and Spanish categorically allows only proclisis in these contexts. As a result of this contact situation, speakers may alternate between enclisis and proclisis. The results showed that enclisis was more frequent among bilingual speakers who identified both Spanish and Asturian as their own language, and Asturian as their L1. Overall self-identity as Asturian also triggered enclisis, despite specific group effects discussed by the author. Finally, this study reports an an effect of age (speakers between 30-60 years old preferring proclisis) explained in terms of socio-political factors (this group receiving formal education during the Franco dictatorship favoring proclisis), and an effect of gender (male speakers favoring enclisis) explained in terms of gender patterns in connection with prestige (Asturian being the minority language). Even though this study does not examine linguistic factors affecting variable clitic placement, these results show the importance of individual differences and socio-political factors in contact and bilingual varieties.

Aijón Oliva and Borrego Nieto (2013) studied variable clitic placement in the Corpus de Lenguaje de los Medios de Comunicación de Salamanca (MEDIASA) which includes written and oral genres of mass media (printed and radio). Among the various effects, the study shows an effect of animacy of the referent (Inanimates favoring Enclisis) and an effect of discourse continuity (Enclisis is favored by lesser discourse continuity).

A more recent study that assesses the relative role played by several variables on variable 3p DO clitic placement conducted by Schwenter and Torres Cacoullos (2014) explores enclisis on three corpora of Mexican Spanish to specifically show how pragmatic factors are still operative in grammaticalized constructions. Their results also show that verbs with high token
frequency\textsuperscript{30} (like \textit{ir a} ‘go to’, \textit{poder} ‘can’, \textit{querer} ‘want’, \textit{tener que} ‘have to’ + Infinitive; and \textit{estar} ‘be’ + Gerund) favor proclisis, which the authors explain in terms of greater grammaticalization into tense-aspect-mood forms. In contrast, verbs with low token frequency (like \textit{andar} ‘go/be’, \textit{ir} ‘go’ + Gerund, \textit{deber (de)} ‘must’, \textit{haber de} ‘have to’, \textit{saber} ‘know’, \textit{tratar de} ‘try’, \textit{venir a} ‘come to’, and \textit{volver a} ‘go back to’ + Infinitive) favor enclisis. These results not only suggest gradual spread of proclisis from one construction to another as forms grammaticalize, but also that “[d]ifferences between particular constructions are tied to token and relative frequency as measures of unithood (e.g., infinitive constructions with poder vs. querer)” (p. 533). Schwenter and Torres Cacoullos’ study is the basis for the present work where I test all the frequent verbs in variable contexts and stress the role of relative frequency in accounting for their clitic placement preferences. With regard to other factors analyzed, the authors also find that non-persistent referents (i.e. referents that are not repeatedly mentioned in subsequent ten clauses) are shown to favor enclisis. However, this study finds that, contrary to the prediction based on (Myhill, 1988) animacy scale, enclisis is favored with animate referents. This surprising inanimacy effect is explained in terms of its interaction with topic persistence and with how proclisis affects prototypical DOs (i.e. inanimates) by making them topical, which in turn promotes proclisis. The authors locate this spread of proclisis in the language as taking place through very frequent constructions\textsuperscript{31}.

Adding to the available evidence from different dialects of Spanish, the following section (§2.1), reports on a small-scale corpus study of variable clitic placement in Argentine Spanish. This study provides further evidence in favor of lexical, semantic and discourse/topicality effects. A multivariate analysis shows that in Argentine Spanish enclisis is favored mainly by \textit{tener que} as well as less frequent verbs, by the presence of inanimate referents and short-lived maintenance of the referent in subsequent discourse. The results from the Argentine data are discussed in relation to previous studies (Sections §2.1.4 and §2.1.5) and constitute further evidence of the peculiar behavior of \textit{tener que} ‘have to’, which is the focus of Section §3.

\textsuperscript{30} The authors operationalize high frequency based on observed distribution. This results in verb types which account for >8% of all the extracted tokens in the corpora being considered to be frequent. Under this assumption, \textit{tener que} ‘have to’ is found to be among the most frequent verbs.

\textsuperscript{31} Davies (1998) shows that in earlier stages of Spanish, the shift toward enclisis took place almost a hundred years later with the three most frequent verbs (\textit{poder, querer, deber}) than with thirteen less frequent ones (See figure 1 on p. 254). This shows support for the role of frequency in grammaticalization and language change.
2.3 Corpus Study of Argentine Spanish

2.3.1 Data

The corpus Habla Culta de la Ciudad de Buenos Aires (Barrenechea, 1987) constitutes, to the best of my knowledge, the biggest available corpus of Argentinean spoken Spanish. It consists of 33 free conversations ranging from 17-55 minutes in length each between two and four participants. The speakers are both male and female professionals ranging between 26 and 70 years of age, and born in Buenos Aires.

From each conversation all occurrences of 3p ACC clitics (lo.MSG, los.MPL, la.FSG, las.FPL) were manually extracted and coded (See APPENDIX A for instances that were not extracted). I restricted my study to 3p DO in an attempt to avoid conflating other persons and syntactic roles (such as reflexives and IOs). The reason behind this decision is the fact that, being animacy a critical factor playing a role in variable clitic placement, I attempted to exclude those clitics which tend to be animate most of the time, which could interfere with the results. All cases of invariable clitic placement (eg. preverbal clitics with single finite verbs and postverbal clitics with non-finite forms) as well as cases with very infrequent verbs were excluded (See APPENDIX A). Twenty-five cases of contexts of a finite verb followed by multiple non-finite forms were identified. Of those, only the instances that allowed only two clitic positions (eg. 2.3a-b) were included in the analysis (N=11). Cases in which the clitic could occupy an additional third position (2.3c-d), were excluded (N=14).

2.3a) lo tiene que haber matado. (XXXI, 439:1)  
*it-ACC-M3SG* has to have killed  
‘he/she must have killed it’

2.3b) lo debo haber tenido adentro- - - (XVI, 239:9)  
*it-ACC-M3SG* must have had inside  
‘I must have had it inside’

---

32 All examples belong to the Corpus de Habla Culta de la Ciudad de Buenos Aires (Barrenechea, 1987) and appear followed by the conversation number (XXXI), then the page number (439), and finally the paragraph number (1).
As the result of data cleaning, I was left with a total of 252 cases of variable clitic placement in the whole corpus. Of all the variable cases, 163 (65%) display Proclisis, whereas 89 (35%) display Enclisis. The prevalence of Proclisis overall is a pattern that has been already attested in Modern Spanish regardless of the continuum-like distribution of verbs according to their preference for proclisis (Davies, 1995). The high frequency of preverbal clitics in variable constructions could be attributed to multiple factors, however following the same reasoning I will employ later about how contexts of use outside of the construction might impact construction behavior, a search within the Argentine corpus shows that in invariable constructions there is a higher frequency of preverbal clitics (i.e. clitics followed by a single finite verb, N=1262) than postverbal clitics (i.e. clitics following Infinitives or Gerunds, N=165). However, it would be presumptuous, and probably inaccurate, to try to explain the widespread use of Proclisis in variable contexts solely on the basis of this evidence and disregard diachronic and language change issues (such as the “gradual, construction by construction, spread of proclitic position” suggested by Schwenter and Torres Cacoullos 2014, p. 533).

Even though this is quite a small data set, the results of this study replicate some previous findings with larger corpora, and add to the description of this phenomenon on different dialects, which could be used to establish comparisons across varieties of Spanish, as mentioned by (Gudmestad, 2014:13-4). Formal approaches have also noted how CC is possible with some types of verbs. Verbs have, for example, been classified into those that trigger structure simplification and those that do not. Structure simplification would then make the finite and non-finite elements of these periphrases belong to the same clause, thus allowing preverbal clitics. Aissen and Perlmutter (1976) identify “trigger” verbs (such as querer ‘want’, tratar ‘try’, soler ‘be in the habit of’) and ‘non-trigger’ verbs (like insistir ‘insist’, soñar ‘dream’, parecer ‘seem’). The authors support the Clause Union hypothesis (rendering structure simplification) and discard the existence of a specific rule that would account for preverbal clitics. Rizzi (1976), on the other hand, relates proclisis to the verb by proposing a lexically governed rule called ‘Restructuring’ which allows clitics to appear preverbally. Both, Rizzi (for Italian) and (Suñer, 1980) (for Spanish) agree that modals, aspectuals, and motion verbs allow proclisis in addition to enclisis.

Thus, cases such as “Usted lo enseñó en segundo año” (XI, 177:1) are much more frequent than cases such as “Para enseñarlo.” (XXI, 25:7). If aggregate frequency plays a role as analogical model for clitic placement in individual constructions, Proclisis should be favored as Modern Spanish shows seems to be the case.
However, given that this chapter seeks to highlight the importance of looking at contexts of use in order to study language variation, it is relevant to report that this also holds for the overall bias Modern Spanish has toward Proclisis as well.

2.3.1.1 Variable contexts according to finite verb

A number of verbs make-up the 252 tokens of variable clitic placement. Figure (9) shows the number of variable clitic placement contexts found for each of the nine finite verbs.

The three most frequent finite verbs used in variable constructions in the Buenos Aires data are *poder* ‘can’, *ir a* ‘go to’, and *tener que* ‘have to’. Examples (2.4-2.6) show instances of these three most frequent verbs in the corpus.
(2.4) Variable use with *poder* ‘can’:

**Proclisis:**

a. únicamente lo puedo hacer en castellano (XXIV, 185:13)
   only *it-ACC.M.SG can-PRS.1SG do in Spanish*
   ‘I can only do it in Spanish’

**Enclisis:**

b. no podés hacer=lo dando vuelta los esquís (IV, 73:3)
   NEG *can-PRS.2SG do=it-ACC.M.SG turn-GER around the skis*
   ‘You cannot do it turning the skis around.’

(2.5) Variable use with *ir (a)* ‘go to’:

**Proclisis:**

a. la vamos a destruir (XXIV, 212:5)
   *it-ACC.F.SG go-PRS.1PL to destroy*
   ‘We are going to destroy it’

**Enclisis:**

b. vamos a acortar=la un poquito (X, 160:3)
   *go-PRS.1PL to shorten=it-ACC.F.SG a bit*
   ‘We are going to shorten it a bit’

(2.6) Variable use with *tener que* ‘have to’:

**Proclisis:**

a. Lo tengo que conversar- - - casualmente… (XXVI, 289:28)
   *it-ACC.M.SG have-PRS.1SG to discuss - - - by the way*
   ‘I have to discuss it, by the way’
Enclisis:

b. todo eso tengo que cuidar=lo plenamente (X, 160:3)

all that have-PRS.1SG to take care of=it-ACC.M.SG completely

‘I have to take care of all that completely’

These exact three verbs have been identified as the most frequent periphrases of Infinitive in previous studies (for references see Fernández Ulloa, 2001:29; cf. Gómez Manzano, 1992). So far, the data seem to suggest that tener que ‘have to’ is a frequent verb, and as such, following grammaticalization accounts (Myhill 1988) it should behave just as other frequent verbs (poder ‘can’, ir a ‘go to’), which clitic placement will show is not the case.

2.3.1.2 Clitic placement according to finite verb in variable contexts

Given that proclisis is pervasive in Modern Spanish, the data on clitic placement will be reported from the perspective of enclisis thereon. Table (3) displays the continuum-like distribution of enclisis in variable contexts in the Argentine corpus according to the finite verb (cf. Davies, 1995, p. 374). The relationship between token frequency of particular verbs and their clitic placement preferences is important given that within usage-based linguistics language use shapes the grammar through repetition (Givón, 1979; DuBois, 1985; Hopper, 1987), so with increased frequency, even the grammar of larger units can be shaped. Some studies have classified verbs into two groups based on token frequency (i.e. the number of occurrences of a particular verb such as quiere ‘wants’.3SG in the corpus) and noted that the two groups behave differently. For example, the more frequent verbs took longer to retract from proclisis compared to less frequent ones at a point in time when Spanish was moving in that direction (Davies, 1998, p. 253). Crucially, Table (3) shows that there is no one-to-one correspondence between the frequency of specific verbs and rate of enclisis (cf. Schwenter & Torres Cacoullos, 2014). The three most frequent verbs (shaded rows) show very different rates of enclisis. Even though it may be informative to know that when grouped together more frequent periphrases favor proclisis, it is important to also take heed of individual construction behavior that might be overlooked by clustering. Specifically, tener que ‘have to’ behaves very differently from the other frequent (and grammaticalized) verbal periphrases with regard to clitic placement.
An important aspect of highly frequent lexical elements is that they may develop grammatical uses (grammaticalization) (D. Miller, 2011). This characterizes the most frequent verbs in our data, which have undergone processes of grammaticalization to a greater or lesser extent, resulting in novel uses with different meanings. As stated above, when high-frequency lexical items grammaticalized, they acquire grammatical function as conventionalization through frequency, as is the case of the English construction [be + go to + …] attaining future meaning (Bybee, 2003). Gramaticalization implies meaning loss (‘desemanticization’ in Heine and Kuteva, 2002, p. 2) at the same time that new meanings are assigned via metaphor and implicatures (Traugott & Dasher, 2002, p. 5).

The variable placement of Spanish clitics in verbal periphrases has also been referred to as “…a syntactic-semantic change in progress, which involves the gradual grammaticalization of a number of verbs” (Silva-Corvalán, 1994, p. 128). The prediction for variable clitic placement in view of grammaticalization as proposed by Myhill (1988) is that the more a verb is grammaticalized, the more it will favor proclisis as the result of the auxiliarization of the finite verb, which would make finite + non-finite verbs function as a unit (chunk), triggering the clitic to appear in the position that is canonical for single finite verbs in Modern Spanish (i.e Proclisis).

A logical methodological step is then to check whether such prediction holds in actual data. Some initial evidence that this might be the case is provided by Davies (1995, p. 375) when he acknowledges the superiority of “semantics-based” accounts to identify “…which type of verbs are most likely to allow clitic climbing, and that this account also allows quite nicely for the continuum-like nature of the phenomena.” (p. 375). Even though such an approach may
make sense of the continuum-like distribution found in the data (e.g. more Proclisis with verbs of desire that are conceptually more basic, like querer ‘want’, but less Proclisis with soñar con ‘dream of’, Davies 1995, p. 375), Davies finds puzzling the exceptional behavior of hay que ‘there be to’, which despite its grammaticalized meaning as a deontic modal, never allows proclisis (pp. 373-4). It is constructions such as this which prompt me to agree with Schwenter and Torres Cacoullos’ (2014) report that “a division based on the verbal category expressed by the construction (aspectual vs. modal constructions)” is also unsatisfactory (p. 11), especially because of the same verb having different uses.

In their study of Mexican Spanish Schwenter and Torres Cacoullos (2014) discuss how a similar relationship between grammaticalization and clitic placement is evident when comparing constructions which have more grammaticalized meanings (e.g. poder ‘can’ + Infinitive can mean not only ‘ability’, but also ‘root’ or non-epistemic possibility) with constructions with less grammaticalized uses (e.g. querer ‘want’ + Infinitive). The reported rates of enclisis in the Mexican data are 13% and 37%, respectively. An important piece of evidence provided in that work shows that two uses of the construction ir a ‘go to’ seem to occur more or less with enclisis in line with Myhill’s (1988) grammaticalization proposal. The study shows that when ir a ‘go to’ is used with the meaning of motion (e.g. I am going to visit you there and then come back) it occurs with enclisis much more often (32%) than when it bears the more grammaticalized meaning of future (e.g. I am going to visit you tomorrow) (7%). In what follows, I will explore different uses of two frequent verbs (ir a ‘go’, and tener que ‘have’) before I present the results of a multivariate analysis of variable clitic placement in Argentine Spanish.

(A) Ir ‘go’

The changes that the verb ir (a) ‘go to’ has undergone, from referring to space to referring to (future) time (Traugott & Dasher, 2002), follow a universal strategy through which speakers across languages draw on the concrete to encode the abstract (for a list of languages in which ‘go to’ is used to express futurity see Heine and Kuteva, 2002, pp. 161–163). Polysemy in spontaneous speech from Buenos Aires has been recently described for constructions with [ir ‘go’ + the clitics le/la] (Albano & Ghio, 2013) highlighting how, on some occasions, ir ‘go’

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36 I have also pointed out earlier that even operationalizations of grammaticalization based on token frequency in variable contexts, although significant, overlooks some idiosyncrasies in the data.
preserves its original idea of movement and its arguments, but the clitic adds a new meaning. Despite the fact that other meanings such as hortative (2.7), advice/warning (2.8), or negative meanings with rhetorical questions (2.9) have been identified (see Kornfeld, 2013 for a description of particular and novel uses), for our purposes, we will distinguish *ir a* as Movement (2.10) from *ir a* with Future meaning (2.11). This distinction aims at comparing less grammaticalized (Motion) and more grammaticalized (Future) uses, hypothesizing that enclisis would prevail in the former.

(2.7) (Hortative)

```plaintext
vamos a acortar-la un poquito (X, 160:3)
go-PRS.1PL to shorten-it-ACC.F.SG a little
’let’s shorten it a bit’
```

(2.8) (Advice/Warning, Kornfeld 2013)

```plaintext
No toques eso, Negra, que vas a
NEG touch-IMP.2SG that, Negra, that-REL go-PRS.2SG to
romper-lo (XXIV, 177:17)
break-it-ACC.M.SG
’Don’t touch that, Negra, that you will break it’
```

(2.9) (Negative meanings with Rhetorical Questions, Kornfeld 2013)

```plaintext
¿Y para qué las iba a traer?
and for what them-ACC.F.PL go-PST.IPFW.1SG to bring
’And what was I going to bring them for?’
```

(2.10) (Motion)

```plaintext
el lunes lo fui a ver (XXIV, 202:18)
the-M.SG Monday it-ACC.M.SG go-PST.PRF.1SG to see
’On Monday I went to see it’
```
(2.11) (Future)

Y dentro de dos años creo que
and within of two years believe-PRS.1SG that-REL

las va a alquilar (XXVI, 303:21)
them-ACC.F.PL go-PRS.3SG to rent

‘And in two years I believe [s/he] will rent them’

The distribution of enclisis according to each use of \textit{ir a} (Table 4) falls in line with the prediction of more grammaticalized meanings (in this case, Future) allowing more preverbal clitics due to the fusion of the finite and non-finite verbs (Myhill, 1988). Similar rates have been reported for Mexican Spanish (Schwenter & Torres Cacoullos, 2014) with even more enclisis with the Motions sense.

<table>
<thead>
<tr>
<th>Use of \textit{IR A}</th>
<th>Enclisis (n/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motion</td>
<td>23% (3/13)</td>
</tr>
<tr>
<td>Future</td>
<td>9% (5/55)</td>
</tr>
</tbody>
</table>

Table 4 Rate of enclisis by use of \textit{ir a} ‘go to’

(B) \textit{Tener que} ‘have to’

In a corpus study of the diachronic development of \textit{tener} ‘have’ into a fused unit \textit{tener que} ‘have to’, Bauman (2013) clearly shows that from its origin as a construction in the 12th century until the 20th century, \textit{tener que} has developed from possession to obligation in a process analogous to the one attested for the English ‘have to’ (Heine & Kuteva, 2002). Another interesting finding of Bauman’s study is the fact that this gradual (and late, compared to other modal verbs) process of grammaticalization appears to have developed even further in the 20\textsuperscript{th} century through cases of \textit{tener que} used for probability. In the Argentine data only one token of \textit{tener que} ‘have to’ used with a highly grammaticalized (epistemic) meaning was found (see example 2.14 below). Counter to our prediction, this token appears with enclisis, and was included in a residual category ‘Other’ for the multivariate analysis. The distribution of enclisis
in the rest of the cases of tener que ‘have to’ (n=38) is 73% (27/37), thus strongly favoring enclisis.

(2.14) El "pues" tenés que haber=lo dicho mucho (XXIV, p. 164, 24)
   the “pues” have-prs.2SG to have=it-ACC.M.SG said much
   ‘You must have said “pues” a lot’

_Tener que_ constitutes a very intriguing case in clitic studies, since it shows strong preference for enclisis despite its high frequency and its grammaticalized use as a modal of obligation. In the next section I will present the results of a multivariate analysis that provides support for the role of a lexical effect of verb, a semantic effect of animacy of the referent and a discourse effect of topic continuity. The results are then discussed in relation to the previous studies. The idiosyncratic clitic placement behavior of verbs such as _tener que_ ‘have to’ will be examined in detail in Section §2.4.

2.3.2 Analysis and results

The N=252 tokens of variable contexts were manually extracted and coded for the following variables (or factor groups): Finite Verb, Referent Animacy, Referent Accessibility (RA), Topic Persistence (TP), and Extent of Persistence (EP). Each variable will be discussed below.

The data were analyzed using Goldvarb X (Sankoff, Tagliamonte, & Smith, 2005), a software designed for variationist sociolinguistics to perform binomial logistic regression. This type of analysis allows us to identify which factors (or variables), when taken together, affect the application of the selected dependent value (in our case enclisis). Besides, it enables us to rank the variables according to their relative magnitude of the effect of each variable or factor group (known as ‘Range’). Table (7) shows the results of the multivariate study. The first column includes the Weight, which indicates the probability that each factor contributes to the application value, namely enclisis. The closer it is to 1, the more likely it is (taking >.5 as a significance cut-point).
### Variable Rule Analysis: Factors contributing to speakers’ choice of enclitic position

#### Finite Verb

This factor group was included in order to find out whether certain verbs (or certain uses of some verbs) favor Enclisis more than others. This is important not only in terms of finding out specific lexical effects, but also for testing the effect of grammaticalization on clitic placement.

The factors in this factor group were all finite verbs in the data set (eg. *poder, ir a, tener que, querer, estar, deber, empezar a*, etc.). As table (7) above shows, particular finite verbs favor Enclisis at varying levels (cf. Davies, 1995, p. 374).

For *ir a*, I also predicted that the more grammaticalized use (future) would disfavor enclisis (for the same reasons as in the previous case). Indeed, the data confirms that whereas *ir a* typically disprefers enclisis, its use with future meaning displays stronger dispreference than the
use as movement/motion. This finding resembles a significant effect found by (Schwenter & Torres Cacoullos, 2014) for Mexican Spanish. Finally, a few verbs are more likely to appear in enclisis than in proclisis. Among these the most striking case, because of its high frequency, is that of tener que ‘have to’. Its behavior calls for further exploration as it goes contrary to the general pattern towards proclisis found in modern Spanish. Section §2.4 will attempt to account for the behavior of this construction from a usage-based perspective that assumes speakers store information not only of form and function regularities, but also about contexts of use of language units.

1.3.2.2 Referent Animacy

This factor group was included in order to explore Myhill's (1988) hypothesis that inanimate referents would favor enclisis, as they do not tend to be topicalized as much as animate referents. In his characterization of human referents (as well as the more prominent referents in general) Aijón Oliva (2011, p.28) includes the high frequency of preverbal placement of clitics in variable structures mirroring the subject position in prototypical SVO syntactic order. I coded for animate referents (2.15), inanimate referents (2.16), and propositional referents (those clitics whose referent is a whole proposition) (2.17).

(2.15) Animate Referent: (lo ‘him’ = a man)

lo iba a matar (XXII, p. 99, 10)

it-ACC.M.SG go-PST.IPV.3SG to kill

‘(he) was going to kill him’

(2.16) Inanimate Referent: (lo ‘it’ = a book)

Voy a mirar-lo. (XXIV, p. 166, 19)

go-PRS.1SG to look-it-ACC.M.SG

‘I’m going to look at it’
As Table (7) shows, the present results confirm Myhill’s hypothesis by showing how propositional and inanimate referents favor enclisis, while referents that rank higher in the animacy scale appear more often in proclisis. The present data clearly show a significant semantic effect of animacy in the expected direction (compare opposite effect in (Schwenter & Torres Cacoullos, 2014)).

### 2.3.2.3 Referent Accessibility (RA)

Considering the last time that an NP referent was mentioned (Givón, 1995) can provide a measure of how topical the referent is. The hypothesis is that ‘the more recently it has been mentioned, the more topical it is’ (Myhill, 2005, p. 473). I thus coded for whether the referent was immediately accessible (same clause, previous clause) (2.18), or not immediately accessible (meaning that it was mentioned earlier in discourse but not in the same or immediately previous clause) (2.19) (Schwenter & Torres Cacoullos, 2014). This factor group was not selected as significant in the multivariate analysis (Table 7). Referent accessibility was not significant in Mexican Spanish either (Schwenter & Torres Cacoullos, 2014), which has been suggested to be modulated by animacy (p. 19). A crosstabulation of animacy and RA in the present data (see Table 8) shows that the highest percent of enclisis occurs with inanimate referents that are immediately accessible, which could cause the stronger animacy effect to override RA. This result is however not significant ($\chi^2 = .6871$, $p = .4$).

---

37 I also coded for the syntactic function of cases of immediate mention, such as Subject, Object, and Other. This was not significant, so the final analysis collapsed all syntactic functions.
<table>
<thead>
<tr>
<th></th>
<th>Inanimate</th>
<th>Animate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immediately Accessible</td>
<td>44% (37/84)</td>
<td>19% (5/26)</td>
</tr>
<tr>
<td>Not Immediately Accessible</td>
<td>34% (21/62)</td>
<td>20% (8/41)</td>
</tr>
</tbody>
</table>

Table 6 Rate of enclisis by animacy and RA

(2.18) Immediately Accessible Referent:
Bueno, lo llama- - y el lunes lo fui a ver. (XXIV, p. 202, 18)

Translation:
Well, he calls him, and on Monday I went to see him

(2.19) Not Immediately Accessible Referent:
Inf. A. ---Sí... esté... yo creo que sí. Yo he visto pasar por acá todos los colectivos [...........] en la línea.
Inf. B. ---Bueno, pero [........] de la línea hasta que oscurezca. Después ya no va a haber más.
Inf. A. ---Pero después empiezan a retirar-los porque tienen miedo que pase alguna cosa. (XXVII, p. 319, 11-13)

Translation:
Inf. A. ---Yes... I believe that yes. I have seen all the buses [....] of the line go through here.
Inf. B. ---Well, but [...] of the line until the evening. After that, there will be none.
Inf. A. ---But then they start removing them-ACC.3PL because they are afraid that something might happen. (XXVII, p. 319, 11-13)

---

38 This table does not include N=39 cases of propositional referents.
39 The translations corresponding to the examples for each of the discourse factors are provided immediately after the Spanish in more idiomatic form only.
2.3.2.4 Topic Persistence (TP)

Topic Persistence counts how many times the clitic referent is mentioned in upcoming discourse as a cataphoric indicator of topicality (Givón, 1983, pp. 14–15). This could be related to the way Lewis (1979) conceptualizes ‘salience’ within referential semantics as the most salient entity “…in the domain of discourse, according to some contextually determined salience ranking” (p. 348). The author draws on (and critiques) the more philosophical proposal (Russell, 1905) according to which a prominent-objects coordinate for denoted elements is “…determined on a given occasion of utterance of a sentence, by mental factors such as the speaker’s expectations regarding the things he is likely to bring to the attention of his audience” (Lewis, 1970, p. 63) [highlighting is mine]. In an attempt to tap onto speaker’s expectations about the ranking of comparative prominence or salience given to the clitic referent, I analyzed the following ten clauses after each token and coded for the number of times that the clitic reference was mentioned (once vs. more than once) and the syntactic function of each of those subsequent mentions (expressed or unexpressed subject, DO, ‘other’, and in more than one syntactic function). Syntactic function was not selected as significant, so all uses were collapsed into Non-Persistent uses (either absent or mentioned just once in upcoming discourse) (2.21), and Persistent uses (mentioned more than once in upcoming discourse) (2.20).

(2.20) Persistent Referent:

No, pero vos **los** podés preparar bien. Los podés preparar bien y los podés preparar mal. Yo **los** preparé mal. ¡Qué le vas a hacer! [risas] (XXI, p. 17, 12)

Translation:

No, but you can prepare **them-ACC.3PL** well. You can prepare **them** well and you can prepare **them** badly. I prepared **them** badly. What are you going to do! [laugh]

---

40 Unlike Schwenter & Torres Cacoullos (2014), here I included interlocutor tokens as well as quotative and other discourse formulas.
This factor group was not selected as significant (in contrast with Schwenter & Torres Cacoullos, 2014). However, the direction of the effect is the expected one, namely referents which are not the topic of predication in upcoming discourse (i.e. have low topicality) favor enclisis. Schwenter and Torres Cacoullos (2014) find that persistence and proclisis mark topicality in human referents only. A crosstabulation of TP and animacy in the Buenos Aires data shows that the association between these two variables is significant (especially for animate referents, and Persistent animate referents in particular) ($\chi^2 = 3.889$, p = .048). Whereas animate referents tend to be persistent, inanimate referents tend to be non-persistent, and favor Enclisis.

<table>
<thead>
<tr>
<th></th>
<th>Inanimate</th>
<th>Animate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistent</td>
<td>33% (15/45)</td>
<td>22% (7/32)</td>
</tr>
<tr>
<td>Not Persistent</td>
<td>43% (43/101)</td>
<td>17% (6/35)</td>
</tr>
</tbody>
</table>

Table 7 Rate of enclisis by animacy and TP

---
41 This table does not include N=39 cases of propositional referents.
Table (9) shows that whereas animate referents display similar number of occurrences as Persistent (n=32) and as Not persistent (n=35), inanimate referents tend to be Not persistent (n=101), and that Persistent inanimates have a lower enclisis rate than Not persistent ones (cf. Schwenter & Torres Cacoullos, 2014, pp. 16–7). Figure (10) below shows this with inanimates, but it also shows that, counter to Schwenter and Torres Cacoullos (2014, p. 17), Persistent animates have higher rate of enclisis than Not persistent ones. This factor group, however, did not turn out to be significant.

![Figure 10 Rate of enclisis for animate and inanimate referents by topic persistent](image)

2.3.2.5 Extent of Persistence (EP)

Givón (1992) would argue that “the topic is only ‘talked about’ or ‘important’ if it remains ‘talked about’ or ‘important’ through a number of successive clauses” (p. 12). When analyzing TP (see §2.1.3d), ten subsequent clauses were considered for cataphoric mention. However, a closer examination of those mentions revealed that as discourse progresses, the amount of mentions descreases by 50% after the fifth subsequent clause.\(^{42}\) This would mean that

\(^{42}\) If assigning a number 1-10 to each subsequent clause, the N of cataphoric mentions were as follows: N=79 in subsequent clause 1, N=66 in subsequent clause 2, N=53 in subsequent clause 3, N=49 in subsequent clause 4, N=46 in subsequent clause 5, N= 40 in subsequent clause 6, N= 32 in subsequent clause 7, N=32 in subsequent clause 8, N=25 in subsequent clause 9, and N=17 in subsequent clause 10.
of all the cataphoric mentions in the corpus, 67% (293/439) occur within the first five subsequent clauses, whereas 33% (146/439) occur after that in discourse. If speakers can keep track of patterns of use, it could be the case that encountering cataphoric mentions immediately after the clitic and its antecedent would be predictable, whereas the presence of cataphoric mentions later on in subsequent discourse might indicate speakers’ efforts to keep the topic active and ‘important’. In order to test this, I coded each token for whether thematic persistence over the following ten clauses was either short-lived (i.e. spanning over only the immediate five clauses after the token) (2.22) or long-lived (i.e. spanning throughout the ten upcoming clauses) (2.23). The prediction was that topics whose persistence is short-lived could be perceive by the speaker as less topical and as such should display more enclisis.

(2.22) Short-lived Persistence: (lo ‘it’ = book El inglés de los güesos)
Inf. ----...y tienen que ilustrar=lo con dibujos, con lectura modelo... /\(^{43}\)
Enc. ---Claro.
Inf. ----... o con es... esté... dramatización.
Enc. ---Bueno, nosotros también lo hacíamos, / porque al hacer la adaptación...
Inf. ----Claro, trabajaban. Claro, sí. /
Enc. ---Hicimos El inglés de los güesos, / después lo representamos.
Inf. ---Yo sigo haciendo... / eso es una clase... una clase- - -tipo... / que yo tomé en mi materia, / pero para exponer sobre Mármol en sí o sobre Sarmiento, no me conviene, / porque las chicas entonces leen mucho ellas, / pero las otras- - - pasan a ser pasivas. / Así que todo está condicionado a... al profesor en la materia. (XI, p. 171, 8-14)

Translation:
Inf. ----...and they have to illustrate=it-ACC.3SG with drawings, with simple Reading... /
Enc. ---Right.
Inf. ----... or with... uhm.... dramatization.
Enc. ---Well, we also did that, / because while doing the adaptation...
Inf. ----Right, they work. Right, yes. /

\(^{43}\) The symbol ‘/’ was used to indicate arbitrarily chosen clause boundaries. The examples presented here may show some clauses beyond the tenth following clause. This was done in order to provide more context to the examples offered here.
Enc. ---We did El inglés de los güesos, / then we dramatized it.
Inf. ---I keep doing… / that is a class… a class- - - like… / that I took in my course, / but in order to present about Mármol itself or about Sarmiento, it is not useful, / because the students then read a lot, / but the other ones- - - remain passive. / So that everything is conditioned to the professor teaching the course.

(2.23) Long-lived Persistence: (lo ‘him’ = the husband)

Inf. B. --Bueno, pero--- es que no lo va a conquistar más al marido [.......... ] / si la otra está muerta ya, / ¿para qué la va a defender? /
Inf. A. ---No, no lo va a conquis... [..........] / La mujer se murió. /
Inf. B. ---Y por eso. Entonces, ¿para qué va a remover...? /
Inf. A. ---A mí me parece ridículo / que ella le... dice / que ella podría no decirlo ella, / sino hacérselo decir por una tercera persona. / Entonces ella lo consolaría / cuando él estuviera desesperado. / Pero si este hombre... / lo único que va a ganar es / que se ponga completamente- - - neurasténico, / porque si adora tanto a la memoria de su mujer... (XXVII, p. 343, 3-6)

Translation:

Inf. B. –Well, but--- the thing is that she will not win him-acc.3sg over the husband [..........] / if the other one is dead already, / why is she defending her? /
Inf. A. ---No, she will not win him ove.... [..........] / The wife died. /
Inf. B. ---And that’s why. So, why stir that up? /
Inf. A. ---To me it sounds ridiculous / that she tells him... / that she could not tell that herself, / but have a third party tell him so. / So she would comfort him / when he would be desperate. / But if this man... / the only thing she’ll do is / that he would become neurasthenic, / because if he adores his wife’s memory that much... (XXVII, p. 343, 3).

This factor group was selected as significant in the multivariate analysis (see Table 7 above). Topics which are short-lived (i.e. those that will only be talked-about for no more than five clauses) favor enclisis, whereas long-lived topics disfavor it. A crosstabulation of EP and animacy (Table 10) shows that the association between these two variables is not significant
This finding strengthens the importance of thematic importance for clitic placement and provides further information about how discourse is structured and the way such structure might influence word order.

<table>
<thead>
<tr>
<th></th>
<th>Inanimate</th>
<th>Animate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-lived persistence</td>
<td>45% (21/47)</td>
<td>31% (8/26)</td>
</tr>
<tr>
<td>Long-lived persistence</td>
<td>22% (4/18)</td>
<td>12% (2/17)</td>
</tr>
</tbody>
</table>

Table 8 Rate of enclisis by animacy and EP

2.3.3 Discussion of corpus study

The small scale study presented in this section has examined variable clitic placement in Argentine Spanish and has found:

- similar overall enclisis rate as that reported for Mexican Spanish, as well as similar factor groups selected as significant (Schwenter & Torres Cacoullos, 2014), which would indicate that the dialectal differences reported in Sinnott and Smith (2007) do not hold for these two varieties at least when considering the factors examined here.
- evidence showing that *querer* ‘want’ is also affected by linguistic factors (contrary to Gudmestad, 2014).
- dispreference for enclisis in modern Spanish, continuum-like distribution of enclisis across constructions, and no evidence for one-to-one correspondence between frequency and rate of enclisis (cf. Davies, 1995; Schwenter & Torres Cacoullos, 2014)
- some evidence in favor of the grammaticalization accounts (less enclisis with *ir a* when it refers to Movement or with *poder* as compared with *querer*) (cf. Schwenter & Torres Cacoullos, 2014).
- presence of a high frequency grammaticalized verb (*tener que*) which favors enclisis (cf. Davies, 1995; Schwenter & Torres Cacoullos, 2014)
- an effect of extent of persistence where short-lived referents favor enclisis (in line with Schwenter & Torres Cacoullos, 2014).

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44 FET was used here instead of Chi-Square given that enclisis displays values lower than 5 for some of the cells.
These results, some of which replicate previous studies, show at least four things: First, they show that variable clitic placement is influenced by a strong lexical effect which seems to account for a large part of the variation. Second, they show that semantic (animacy) and discourse (EP) factors play a role, possibly via the interaction with one another as suggested by previous studies. Third, they show that the study of clitic placement requires serious consideration of the particular uses developed by particular forms as the result of grammaticalization. Finally, and very importantly, we need to be able to motivate not only widespread patterns, but also idiosyncratic uses. In order to attempt this, I will assume (1a) and (1b) above to result from the interplay of several factors (as evidenced by the multivariate analysis), the most important of which has to do with frequency distributions of verbs within a complex network of units stored in memory together with information about their contexts of use. The role played by frequency is highlighted by Functionalist or Usage-based approaches to language, whose basic assumption is that language use impacts language structure (Bybee & Thompson, 1997). A basic claim within this framework is that frequency of occurrence of a particular items in language can have an effect on their own behavior/function (eg. in processes of grammaticalization), on the way people process them (eg. faster lexical access), as well as on the behavior of other related elements in the language (eg. by means of analogy). Thus, one important aspect of usage-based approaches is the importance given to individual items (or exemplars), as well as the speakers’ ability to form generalizations.

The aim of section §2.4 of this chapter is to draw on usage-based principles to explain the lexical effect found in corpora. Thus, I discuss what has been proposed about how sub-units of a construction can keep ties with occurrences of the same unit in other constructions within the network, and I propose that the position of frequent constructions in the Proclisis-Enclisis continuum may be captured by the relative frequencies of parts of those constructions (mostly the verb) in other contexts of use.

2.4 Motivating construction behavior

The usage-based literature suggests that the regularity found in language (i.e. the grammar) comes from language use. Hopper (1987) shows how discourse shapes structure by making it always provisional or negotiable. According to this view, “[s]tructure […] is not an overarching set of abstract principles, but more a question of a spreading of systematicity from
individual words, phrases, and small sets” (Hopper, 1987, p. 4). The central role of actual language use in determining the way language is organized anchors this perspective “in the specific concrete form of an utterance” (Hopper, 1987, p. 3). This is why frequency is central to Usage-Based grammar. In relation to the lexicon, Bybee (1998) states that “[i]t is actual tokens of use that are stored in memory and not smaller units such as bound morphemes…” (p. 422), even though word structure has been assumed to be derivable from sets of connections made between words that have related parts (Bybee, 1985). Bybee's (1985) Network Model for morphology (which assumes, for example, that un-believ-able would derive its parts from connections with other words that share the prefix un-, words that share the suffix –able and the verb believe), also applies to larger units, such as grammaticalizing constructions ([I don’t know] or [S + be + gonna + V]), so that speakers link each sub-unit with the same item used in other constructions at the same time that they recognize how each sub-unit contributes to the meaning of the construction (Bybee, 1998, p. 425).

As aggregate frequency of a construction increases, changes can be seen in its constituent structure, which could make the construction more autonomous (in its associations with other constructions) and which could increase its function as a unit (a process known as chunking) (Bybee & Scheibman, 1999; Bybee, 2003). This is assumed to be the case of highly grammaticalized constructions such as [I don’t know] or Spanish periphrastic future with [ir + Infinitive] (Company Company, 2003, p. 40-41; see also Torres Cacoullos, 1999, p. 147 for estar + -ndo constructions). For example, Schwenter & Torres Cacoullos (2014) propose that the difference between poder ‘can’ and querer ‘want’ could be associated to their relative frequencies within the V+Infinitive construction as opposed to other uses. The authors then show how the former is expected greater ‘unithood’ than the latter due to the highly frequent use with an infinitive [poder+Infinitive] which, following grammaticalization accounts would explain its higher rate of proclisis.

In what follows, I will present an analysis of relative frequencies of verbs identified as forming the most frequent periphrases\textsuperscript{45} in corpus studies (ir a, poder, querer, and tener que) in order to determine degrees of unithood and try to account for their clitic climbing behavior in variable contexts. The data was obtained from the Corpus del Español (Davies, 2002- ). I will try to answer three questions:

\textsuperscript{45} For a discussion on determining high versus low frequency items, see Chapter 4.
(1) What is the relative frequency of V+Infinitive?
(2) What is the relative frequency of V+NP?⁴⁶
(3) What is the relative frequency of Cl+V?⁴⁷

I hypothesize that verbs which prefer enclisis in variable contexts would display a low relative frequency in V+Infinitive contexts, a high relative frequency in V+NP contexts and a low relative frequency of any clitic preceding them (Cl+V).

2.4.1 *Ir ‘go’*

One of the verbs with the highest rates of proclisis is *ir ‘go’*. As Table (11) below shows, *ir* is very often used with an infinitive (2.23), which would constitute an argument for high unithood of the *ir a*-Infinitive construction. Other less frequent uses of this verb are with a gerund (2.24) or with a pause/adverb/PP/etc. (2.25).

(2.23) Si yo voy a preguntar una cosa (CDE:19-OR, Habla Culta: Bogotá)
      if I go-PRS.1SG to ask one thing
      ‘If I’m going to ask one thing…’

(2.24) Pero ahí voy aprendiendo poquito a poco (CDE:19-OR, HC: Bogotá)
      but there go-PRS.1SG learn-PTCP little-DIM to little
      ‘But there I am learning little by little’

(2.25) si yo voy a un país (CDE:19-OR, Habla Culta: Bogotá)
      if I go to a country
      ‘If I go to a country’

---

⁴⁶ Here NP refers to a Direct Object Noun Phrase or Clause.
⁴⁷ Here Cl+V refers to all clitics (regardless of case and person/number) which appear followed by a finite verb.
Table 9 The three main linguistic items following *voy* (N=1059)

<table>
<thead>
<tr>
<th>Following item</th>
<th>Occurrences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>NP</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Gerund</td>
<td>19</td>
<td>2%</td>
</tr>
<tr>
<td>Infinitive</td>
<td>787</td>
<td>74%</td>
</tr>
<tr>
<td>Other/pause</td>
<td>253</td>
<td>24%</td>
</tr>
</tbody>
</table>

One critical observation with regard to the analysis presented here is that, at least in non-contact varieties of Spanish, clitics occurring with single finite verbs appear categorically in preverbal position, it could be argued that the high frequency of this preverbal clitic use across the board could override the effects found in the present analysis. Table (12) below shows, however, that the high frequency verb *ir* ‘go’ has a very strong bias toward proclisis.

Table 10 [voy+NP] versus [Cl+voy] (N=1059)

<table>
<thead>
<tr>
<th>Following item</th>
<th>Occurrences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[voy + NP]</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>[any Cl + voy]</td>
<td>461</td>
<td>43.5%</td>
</tr>
</tbody>
</table>

2.4.2 *Poder* ‘can’

Here I present data on another frequent verb which constitutes a well-established case of grammaticalization and which favors proclisis, namely *puedo* ‘I can’ + Infinitive. As Table (13) below shows, *puedo* ‘I can’ appears almost always followed by an Infinitive, as in (2.26). Assuming cumulative information in speakers minds about patterns of use, this could mean that *poder* ‘can’ is very strongly associated to Infinitives (see Schwenter & Torres Cacoullos (2014) for similar data on Mexican Spanish reporting 94% of *poder*+Infinitive). In the rest of the cases poder ‘can’ appears followed by a pause (2.27), by other elements (2.28).

(2.26) No te puedo dar una opinión (CDE:19-OR, Habla Culta: Lima)

---

48 This includes the following continuations: Prepositional Phrase (n=10), Clauses/Other (n=14), and Adverbials (n=20).
49 Thanks to Scott Schwenter (p.c.) for bringing this up.
50 Even though *ir* does not allow a transitive use and thus never occurs with a following DO NP, I include this row for the purpose of comparison with the other verbs.
NEG you-DAT.2SG can-PRS.1SG give an opinion  
‘I cannot give you an opinion’

(2.27) cuando puedo, lo hago (CDE:19-OR)  
when can-PRS.1SG it-ACC.M.SG DO-PRS.1SG  
‘when I can, I do it’

(2.28) no puedo con mi genio (CDE:19-OR)  
NEG can-PRS.1SG with my temper  
‘I can’t hold my temper’

<table>
<thead>
<tr>
<th>Following item</th>
<th>Occurrences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>NP</td>
<td>4</td>
<td>0.3%</td>
</tr>
<tr>
<td>pause</td>
<td>104</td>
<td>7%</td>
</tr>
<tr>
<td>Infinitive</td>
<td>1292</td>
<td>91%</td>
</tr>
<tr>
<td>Other51</td>
<td>20</td>
<td>1%</td>
</tr>
</tbody>
</table>

Table 11 The three main linguistic items following puedo (N=1420)

As shown here, puedo ‘I can’ does not keep strong ties with a postverbal NP, as it almost never selects an NP argument (2.29). This could also be the reason why there is a stronger association of puedo ‘can’ with preverbal clitics than with postverbal NPs (shown in Table 14).

(2.29) yo puedo la siguiente (CDE:19-OR, España Oral:ETEC001A)  
I can-PRS.1SG the next  
‘I am able/available the following one’

51 This includes the following continuations: Prepositional Phrase (n=10), Clauses/Other (n=14), and Adverbials (n=20).
One feature of the two verbs analyzed so far is that they either do not allow transitive uses (V+NP), or that such uses are very unlikely. This constitutes evidence in favor of the argument that variable clitic placement can be linked to the relative frequencies of postverbal NPs as well as postverbal Infinitives. However, next I present data on querer ‘want’ which not only allows the periphrastic use, but also the transitive one.

2.4.3 Querer ‘want’

A close examination of instances of the present 1SG form quiero ‘[I] want’ in the Corpus del Español (Davies, 2002-) (Table 15) shows that despite the fact that in 75% of the cases querer occurs followed by an infinitive (2.30), this verb allows 14% of NP continuations (2.31) and 11% Other continuations (2.32).

(2.30) yo quiero pertenecer a una cultura (CDE:19-OR, Entrevista, ABC)
I want-PRS.1SG belong to a culture
‘I want to belong to a culture’

(2.31) Yo quiero un poquito de azúcar (CDE:19-OR, Habla Culta: Caracas)
I want-PRS.1SG a little of sugar
‘I want a little sugar’

(2.32) No, quiero más. (CDE:19-OR, Habla Culta: Lima)
NEG want-PRS.1SG more
‘No, I want more.’

<table>
<thead>
<tr>
<th>Following item</th>
<th>Occurrences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>[puedo + NP]</td>
<td>4</td>
<td>0.3%</td>
</tr>
<tr>
<td>[any Cl + puedo]</td>
<td>467</td>
<td>33%</td>
</tr>
</tbody>
</table>

Table 12 [puedo+NP] versus [Cl+pudo] (N=1420)
Even though the high rate of Infinitive continuations here resembles that of *ir* ‘go’, *querer* ‘want’ is different not only in that it allows almost 15% of NP continuations, but also in that it displays no difference between the rate of postverbal NPs and preverbal clitics (see Table 16). This makes *querer* a more neutral verb, which may be the reason it is reported to appear in proclisis almost half of the time (cf. Davies 1995, Schwenter and Torres Cacoullos 2014).

<table>
<thead>
<tr>
<th>Following item</th>
<th>Occurrences</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
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<td>NP</td>
<td>221</td>
</tr>
<tr>
<td>pause/Other</td>
<td>167</td>
</tr>
<tr>
<td>Infinitive</td>
<td>1185</td>
</tr>
</tbody>
</table>

Table 13 The three main linguistic items following *quiero* (N=1573)

2.4.4 *Tener* ‘have’

The analysis of *tener* ‘have’ (Table 17) shows that out of 1509 tokens of *tengo*\(^{52}\), two thirds (66%) correspond to the transitive use (2.32) as opposed to *que*+Infinitive (2.33) or Other (2.34) continuations. This finding could account for the bias toward postverbal arguments as speakers are aware of the overwhelmingly transitive use of this verb.

\(^{52}\) Note that as in the case of the other verbs, the data here corresponds only to the first person singular form of *tener* ‘have’, namely *tengo* ‘I have’. This form was selected given that it is the most frequent form of the verb *tener* in the corpus study presented in section §2.1. It has been suggested that an analysis of 1p could affect the results given that human/animate subjects tend to favor transitive events (thus V+NP). However, a search of N=772 instances of the 3PSG form of *tener* in the Corpus del Español (Davies, 2002- ) shows the following distribution: *tiene*+NP (64%, n=495), *tiene*+Other (19%, n=145), *tiene*+que+INF (17%, n=132). The fact that 3PSG resembles 1PSG in these relative frequencies proves that the proposed analysis may hold for the verbs selected regardless of person. Also, the preverbal clitics with *tiene* (34/722) make up only 5% of the data.
revista. (CDE:19-OR, Habla Culta Buenos Aires)
magazine
‘I have a friend who is the director of the magazine’

(2.33) *tengo + que + Infinitive*

Tengo que pensar muy bien qué le contesto a este hombre. (CDE:19-OR, Habla Culta Buenos Aires)

‘I have to think very well what I answer to this man’

(2.34) *tengo + Adv/PP/other*

yo no tengo en este momento, es decir,

porque ya pasó el momento (CDE:19-OR, Habla Culta Bs As)

‘I don’t have at this moment, that is to say, because the time has passed’

<table>
<thead>
<tr>
<th>Following item</th>
<th>Occurrences</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
</tr>
<tr>
<td>NP</td>
<td>1001</td>
<td>66%</td>
</tr>
<tr>
<td>Adv/PP/pause/etc.</td>
<td>272</td>
<td>18%</td>
</tr>
<tr>
<td><em>que + Infinitive</em></td>
<td>238</td>
<td>16%</td>
</tr>
</tbody>
</table>

Table 15 The three main linguistic items following *tengo* (N=1511)

Table (18) below shows that lexical DOs are more frequent with *tengo* ‘I have’ (66%) than proclisis (6%), which provides further support to the proposal.
<table>
<thead>
<tr>
<th>Following item</th>
<th>Occurrences</th>
</tr>
</thead>
<tbody>
<tr>
<td>[tengo + NP]</td>
<td>1001</td>
</tr>
<tr>
<td>[any Cl + tengo]</td>
<td>68</td>
</tr>
</tbody>
</table>

Table 16 [tengo+NP] versus [Cl+tengo] (N=1511)

The data presented above offers new insight into the clitic placement preferences by answering the three questions posed before. In terms of questions (2) (the relative frequency of V+NP) and (3) (the relative frequency of Cl+V) the data presented (and summarized in Figures 11 and 12) show that independent of one another these two measures offer a high degree of correspondence with clitic placement preferences (compared with Table 3).

Based on this information, it can be hypothesized that verbs which prefer enclisis in variable contexts display a high relative frequency in V+NP contexts (Figure 11). This suggests that information about the general pattern of use of these verbs in transitive constructions should suffice to account for their clitic placement preferences in variable constructions.

![Figure 11](image-url) Relative frequency of 1SG present tense form of each verb followed by NP in Corpus del Español (Davies (2002-))
Figure (12) below summarizes the answer to question (3) and indicates that verbs which prefer enclisis in variable contexts display a low relative frequency in Cl+V overall. This finding shows that overall clitic use (DAT, ACC, and clitic clusters) can also account for the preferences that these verbs display in ACC variable clitic placement. These data also show that the overall high frequency of proclisis in the language does not override lexical effects at the individual verb level.

![Figure 12](Relative frequency of 1SG present tense form of each verb preceded by any clitic in Corpus del Español (Davies (2002-))]

Finally, with respect to question (1) (the relative frequency of V+Infinitive as a measure of unithood), it can be observed in Figure (13) that this measure does not present one-to-one correspondence with clitic placement behavior in variable contexts.
By looking at Figure (13) one realizes that tener que + V_infinite differs from the other highly grammaticalized and frequent constructions in that tener que + V_infinite (at least according to this measure) might not have reached a degree of unithood so as to be grouped with them\(^\text{53}\). Despite tener que + V_infinite being the main form of expressing obligation in Modern Spanish, I will propose that as recent case of grammaticalization, this construction could still retain some compositionality, and importantly, that its sub-components hold ties with constructions that favor enclisis.

2.4.4.1 Compositionality of tener que + Infinitive

In contrast to the very well-established grammaticalized use of \textit{ir a} with future meaning where clitics prefer to occur preverbally maybe as a result of chunking due to frequent repetition (Schwenter & Torres Cacoullos, 2014), tener que used for obligation constitutes a relatively recent innovation, which could explain the more conservative behavior of enclisis. In a recent paper on verbal periphrases Fernández Martín (2013, p. 100) contrasts the degree of unithood

\(^{53}\) Even though \textit{querer} ‘want’ cannot be said to form a unit with Infinitives in the same way as \textit{poder} ‘can’ and \textit{ir} ‘go’.
En el caso de las perífrasis, resulta mucho menos frecuente que entre verbos que con tener que + infinitivo, lo que puede deberse bien a que si se introduce un complemento en medio lo más cognitivamente intuitivo sea interpretarlo como complemento del verbo de movimiento y, por tanto, más cercano al significado léxico que al perifrástico; bien a que la construcción está mucho más gramaticalizada de lo esperado y, por tanto, impide la inclusión de complementos adverbiales en un núcleo suficientemente cohesionado. En este segundo caso, estaríamos entonces ante una perífrasis más cercana al prototipo de la categoría TIEMPO VERBAL que al de la categoría PERÍFRASIS VERBAL, sin que llegara a convertirse en aquel.

In the case of periphrases, it is less frequent that an adverb would appear between *ir a* ‘go to’ + Infinitive than between *tener que* ‘have to’ + Infinitive, which may be due either to the fact that it may be cognitively intuitive to interpret an intervening complement as a complement of the verb of movement, and thus, closer to the lexical meaning than to the periphrastic one; or due to the fact that the construction is more grammaticalized than expected, and in consequence, impedes the inclusion of adverbial complements in such a fused unit. In this latter case, we would then be in the presence of a periphrasis that would resemble more the prototype of the TENSE category than that of the VERBAL PERIPHRASIS category, but without becoming the former yet.

The development of *tener que* as obligation (as in the case of *haber que*) comes from a quasi-modal relative construction of old Spanish which was mainly used with verbs of possession, of which *tener que* was the most obvious candidate to replace modal constructions with *haber* (Olbertz, 1998, p. 250ff.). As evidence for this, (Bauman, 2013) has shown that *tener que* has increased its absolute frequency since the 18th century (see Figure 14), taking over not only contexts that had previously belonged to other expressions of obligation (such as *deber (de)*

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54 I would argue here that as the aggregate frequency of a construction increases (as well as its unithood), looking at the contexts of use of its component parts is less informative. This is the case of *ir + a + Infinitive*, which functions as a unit. However, *tener + que + Infinitive* will be shown to be a recent case of grammaticalization and as such, I will argue, it’s subcomponents could keep ties with their use outside of the construction. See Torres Cacoullos (1999) for priming as a measure of association between constructions with *estar + Gerund*. 
and *haber que*, for example), but probably taking up some features about their preferences of use as well.

![Increase in absolute frequency of tener que](image)

**Figure 14** Relative frequencies of modal constructions from the 18th to the 20th century (Adapted from Bauman, 2013, p. 147)

Olbertz also notes that most times the antecedent of the relative clause [e.g. *pan* ‘bread’ in *Tenemos pan que comer* ‘We have bread to eat’] was implicit, so that *que* would follow the finite verb and precede the infinitive, just as prepositions do in other periphrases (p. 252). Despite this conventionalization of *tener que* as a modal periphrasis, Olbertz acknowledges that *tener que* retains a homonymous non-periphrastic lexical construction. The distinction is clearly seen in (2.35) below:

(2.35) a. *No tengo que decir nada.*  (Modal obligation periphrastic construction)

I don’t have to say anything.

b. *No tengo nada (que decir).*  (Lexical construction)

I don’t have anything (to say).
In connection to the observation that both English deontic have and Spanish tener que ‘have to’ allow both alternative uses (2.35a and b) Giammatteo and Marcovecchio (2009) add: “Que el auxiliado no sea obligatoriamente adyacente al auxiliary evidencia la no consolidación plena de la perífrasis” / ‘The fact that the verb accompanying the auxiliary does not have to be adjacent to it evidences the lack of periphrastic consolidation.’ (p. 34). This lack of consolidation probably as a result of the relatively recent grammaticalization of the construction, will be assumed here to have implications in speakers’ cognitive representations.

The grammaticalization of tener que as a construction due to frequency does not impede that, as a relatively recent case of grammaticalization, its constituent units might keep ties with other constructions in which they occur. In what follows I will examine the association between the constituents of the tener que construction and other constructions by drawing on frequency data from the Corpus del Español (Davies, 2002- ). My aim is to show that it is possible to think of the sub-units of this construction still holding tight bonds with their occurrence in other constructions, and how contexts of use of these sub-units outside of the tener que construction could explain clitic placement preferences (see Figure 15)55. In order to accomplish this, below I add some data to the already presented about tengo, by also showing how speakers previous experience with que as used in other constructions can also lead to an enclisis bias. These data suggest that probabilistic information on the use of these forms outside of the tener que construction could impact tener que behavior in relation to clitic placement.

![Diagram](image)

Figure 15 Sub-units of the [tengo que] ‘have to’ construction

The data I provided earlier on the relative frequencies of elements following tengo (Table 17) show a strong association of this verb with the transitive construction. This means that users

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55 One variable that Davies introduced to the study of Contemporary Spanish was the nature of the preceding material. He replicated what was true for older stages of Spanish, namely that constructions preceded by the subordinating conjunction que ‘that’ appear in proclitic position more often than with the coordinating conjunction y ‘and’.
of the language would retain a cumulative knowledge based on this highly frequent prior experience with \textit{tener} in transitive contexts (Brown & Rivas, 2012). Even though it was shown how this profile of \textit{tener}+NP can independently account for variable clitic placement with \textit{tener que}, in this section I would like to propose how, under the assumption that the components of a construction can keep ties to their use outside of the construction, the subordinating conjunction \textit{que} can also lead to enclisis.

As before, I carried out a search in the 1900s data of the Corpus del Español (Davies, 2002- ) for the form \textit{que}. From the 2000 tokens in the output I extracted all but 11 tokens which actually corresponded to the interrogative pronoun \textit{qué} which was misspelled without the accent. Also 6 tokens that introduced direct quotations (such as 2.36 and 2.37 below) were excluded given the intertextual nature of quotations that makes the clause introduced by \textit{que} special.

(2.36) \textit{Esto me recuerda la antigua sentencia de que ‘...’ (Entrevista (ABC) CDE: 19-OR)}
\begin{tabular}{ll}
& this me-DAT remind-PRS.3SG the ancient sentence of \\
\end{tabular}
\begin{tabular}{ll}
que & ‘...’
\end{tabular}

\begin{tabular}{ll}
that & ‘...’
\end{tabular}

\begin{tabular}{ll}
\text{“this reminds me of the ancient sentence that ‘...’”}
\end{tabular}

(2.37) \textit{Dice usted en sus memorias que ‘...’ (CDE: 19-OR: Entrevista (ABC))}
\begin{tabular}{ll}
& say-PRS.2SG you in your memoirs that ‘...’
\end{tabular}

\begin{tabular}{ll}
\text{“you say in your memoirs that ‘...’”}
\end{tabular}

Table 19 shows the results for the linguistic items following the subordinating conjunction \textit{que}. Here we observe that the out of N=1983 tokens of \textit{que}, only 6% of the tokens are followed by an Infinitive (2.38). The rest of the time \textit{que} was followed by a finite verb (2.39), or by another category referring to NPs, PPs, etc. (2.40).

(2.38) \textit{que + Infinitive}
\begin{tabular}{ll}
& Los poetas tiene que escribir lo máximo posible (CDE: 19-OR: Entrevista (ABC))
\end{tabular}
\begin{tabular}{ll}
the poets have-prs.3pl to write the maximum possible
\end{tabular}
‘Poets have to write as much as possible’

(2.39) $que + (Adv) + V$

Sin embargo, la grabación que prefiero en la
however, the recording that prefer-PRS.1SG in the

actualidad es la “Misa en Si menor” de Bach (Entrevista (ABC) CDE: 19-OR)
present is the “Misa en Si menor” by Bach

“However, the recording that I prefer at present is the ‘…’ by Bach”

(2.40) $que + NP/nominal clause/Adv/PP$

¿ Cuándo descubrió usted que el piano lo
when discover-PST.PRET.2SG you that the piano it

era todo en su vida? (Entrevista (ABC) CDE: 19-OR)
be-PST.IPV.3SG all in your life

‘When did you discover that the piano was everything for you in life?’

<table>
<thead>
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<th>Occurrences</th>
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</thead>
<tbody>
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<td></td>
<td>Number</td>
</tr>
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</tr>
<tr>
<td>NP/nominal clause/Adv/PP</td>
<td>551</td>
</tr>
<tr>
<td>Infinitive</td>
<td>122</td>
</tr>
</tbody>
</table>

Table 17 The three main linguistic items following $que$ (N=1983)

A closer examination of the $N=122$ instances of $que +$ Infinitive shows that only two elements almost exclusively precede this construction (Table 20). They are the verbs tener (2.41) and haber (2.42). This would imply very strong connections between $que +$ Infinitive and each of these two verbs due to restrictive type frequency of this construction. The way these two verbs cover almost all the productivity of the $que +$ Infinitive construction in the present data could explain why this construction does not attract new members (in line with Goldberg, 1995, Ch. 5) as well as how the construction tener + $que +$ Infinitive could hold a very strong analogical relationship with haber + $que +$ Infinitive, which only allows enclisis (as it will be discussed
Similar findings have been proposed for word stems in morphology (Bybee, 1998, p. 422). Type frequency of a pattern (i.e. the number of lexical items heard in such pattern) determines the productivity of that pattern (Bybee & Thompson, 1997). Low type frequency in the [Finite V + [que + Infinitive]] construction would indicate a strong association with particular finite verbs, as well as less likelihood of a general category as well as of it’s the extension of this construction to other finite verbs.

(2.41) *tener + que + Infinitive*

…sólo **tengo** que tapar las cuatro cuerdas con la mano. (Entrevista (ABC) CDE: 19-OR)

hand

‘I only have to press the four strings with the hand’

(2.42) *haber + que + Infinitive*

**hay** que tener paciencia (Entrevista (ABC) CDE: 19-OR)

‘one has to have patience’

<table>
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<tr>
<th>Preceding verb</th>
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</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>tener ‘have’</td>
<td>77</td>
</tr>
<tr>
<td>haber ‘there be’</td>
<td>42</td>
</tr>
<tr>
<td>Other(^{56})</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 18 Verbs preceding *que* + Infinitive (N=122)

In a way that would approximate Bybee’s Network Model first proposed for morphology and later extended to grammaticalizing constructions (Bybee, 1998), Figure (16) below shows a diagram which displays the data offered so far. As initially noted, *tengo* shows an NP bias (66%). On the other hand, *que* has a finite V bias (66%) and, when the following element is an

\(^{56}\) Other cases include: *resulta que* + Infinitive (CDE:19-OR, Entrevista (ABC)), *Pensaba yo que* + Infinitive (CDE:19-OR, Entrevista (ABC)), …*cajón de sastre del que* + Infinitive (CDE:19-OR, Entrevista (ABC)).
nonfinite verb, the [que + Infinitive] construction is very restricted to two preceding elements, either the verb tener or the verb haber. Crucially, haber ‘there be’ only allows Enclisis. So, by looking at the associations that the components of the tener que + Infinitive construction hold with other constructions, it becomes clear why enclisis is the preferred position for clitics.

![Diagram of links between construction components with their use in their constructions](image)

Figure 16 Diagram of links between construction components with their use in their constructions

In this chapter I have considered the proposal that contexts of use of a construction can impact construction behavior by looking at how co-occurrence of a verb with certain other elements may be an indicator of Spanish clitic placement preferences of that verb in variable contexts. Whereas just the existence of grammaticalized uses or increased aggregate frequency cannot account for a verb’s clitic placement preference with one-to-one correspondence, I have argued that the cumulative information of contexts of use of a construction (or its sub-units) might provide crucial information for understanding variable clitic placement. The main finding is that the specific clitic placement preferences of the verbs analyzed here may be accounted for by looking at the frequency with which each verb co-occurs with postverbal NPs and pre-verbal clitics in general.

When analyzing unithood (chunking) operationalized as the relative frequency of V+Infinitive, tener que emerges as still retaining some degree of analyzability, suggesting its
recent grammaticalization. In constructions with such componentiality, usage-based grammar assumes that sub-units can keep more or less strong ties with contexts of use outside of the construction. I have thus suggested that it keeps ties with other more and less general constructions that pave the wave for the tener que construction to favor postverbal clitics (enclisis). More specifically, I have explored how at least one form of tener occurs most of the time in the transitive construction [tengo + NP], which could impact the use of tener in the tener que construction calling for a postverbal DO. In relation to que, I have shown that the only context of occurrence of [que + Infinitive] outside of the [tener que Infinitive] construction in the present data is [haber que] that categorically occurs with enclisis.

2.5 Conclusion

This chapter has reviewed a number of variationist studies of variable clitic placement which report that Modern spoken Spanish displays a skewed distribution of clitics favoring the preverbal position (Proclisis). Then I have examined this instance of variation through a small-scale corpus of Argentine Spanish, which replicated the effects of finite verb, animacy of the referent and discourse topicality/continuity. The data reported there provided further support for lexical and discourse (through a novel measure of topic persistence) effects found in Schwenter and Torres Cacoullos (2014), but also provided evidence showing that Enclisis is favored by Inanimate referents (cf. Davies, 1995; Zabalegui, 2008, but see Schwenter and Torres Cacoullos, 2014).

An important point made in the chapter is the observation that the highly frequent and grammaticalized verb tener que ‘have to’ displays a bias toward Enclisis. The behavior of this verb with respect to clitic placement variation has been identified as idiosyncratic in line with the grammaticalization accounts which, based on grammaticalized meaning or aggregate token frequency, predict that constructions with grammaticalized meanings (Davies, 1995, p. 375; Myhill, 1988, p. 353ff) and high aggregate frequency (Aijón Oliva & Borrego Nieto, 2013, p. 106; Bybee, 2010; Schwenter & Torres Cacoullos, 2014) should disprefer Enclisis.

Inspired in ideas of relative frequencies (mentioned by Schwenter & Torres Cacoullos, 2014, p. 527) and the influence of contexts of use/grammatical relations probability (Brown & Rivas, 2012), I proposed an account based on the usage-based assumption that constructions can keep ties with others and that speakers can keep track of cumulative patterns of use. At least for
the constructions analyzed here (which are the most frequent ones in the corpus) information about contexts of use of a finite verb overall in the language can account for clitic placement preferences of that verb in variable constructions. In particular, the results show that the ability of a verb to appear in transitive [V+NP] constructions can help predict the bias toward Enclisis in variable contexts. Also, the data suggest that despite the high frequency of Proclicitis in single-verb contexts, individual verb rates in [Cl+V] constructions are also indicative of the bias of a verb toward Enclisis or Proclisis when used in variable contexts. Finally, an analysis of the verb’s relative frequencies in [V+Infinitive] as a measure of unithood has shown that tener seems to behave differently than the rest of the verbs included. Even though this in itself could constitute evidence for its idiosyncratic behavior, a closer look at relative frequencies of this componential/analyzable constructions shows that its sub-units (tener, que) may keep ties with contexts of use favoring enclisis.

Still several questions remain unanswered, such as whether these frequency effects would hold for verbs with are overall less frequent in corpora. On the basis of Díaz-Campos, Hoff, and Piquerès Gilabert’ (2014) frequency threshold in the pluralization of existential haber ‘there be’ data (Brown & Rivas, 2012) and also based on the aggregate frequency evidence provided by Schwenter and Torres Cacoullos, (2014), one could consider necessary that aggregate frequency would be added to the proposal. In such a case, the expectation would be that in the case of less frequent verbs (eg. deber ‘must’) the measures which have been shown to account for clitic placement preferences in the present data might be of lesser use (if at all). Initial pilot evidence from an analysis of deber, seems to support the hypothesis that the proposal may apply t frequent exemplars only (maybe those beyond a certain frequency cutoff point). The aspect of thresholds is explored in some more detail in Chapter 4.

This chapter also poses questions and allows me to hypothesize how children acquire this variation. Specifically, it invites further study of when children become aware of the two available clitic positions, whether they display knowledge of the overall preferential pattern towards proclisis, and more importantly, whether they show sensitivity to the constraints that seem to operate in adult speakers. These aspects will be dealt with in Chapter 3.
Chapter 3 Acquisition of Spanish Clitic Placement Variation

3.1 Introduction

Target-like variation (as opposed to developmental variation) in language presents a challenge for L1 acquisition because, in order to be fully mastered, the child needs to be aware of information which often times is not only very subtle, but also comes from different domains (e.g. lexical, semantic, discourse, pragmatic, socioeconomic). It is because of this that the study of the acquisition of variation can inform theories of knowledge of language as well as theories of language acquisition (although it is also true that often times one same set of acquisition evidence can be interpreted by resorting to different models). In this chapter I investigate the acquisition of Spanish variable clitic placement by conducting four experimental studies which sought to reveal if children constrain the variation the way adults do, i.e. if they use the previously-identified linguistic constraints. Out of the many constraints that may play a role in this instance of variation, I chose to test for the presence of the two constraints which have repeatedly shown to receive higher probability weights in corpus studies on adult speakers (Chapter 2), namely Finite verb and Animacy of the referent.

I start this chapter with an overview of some language acquisition models after which I decide to follow Tomasello (2003) piecemeal learning model for this work (Section §3.2). Then I review literature on L1 acquisition of variation, with special interest in the acquisition of syntactic variation (Section §3.3). In the following section (Section §3.4), I present a brief overview of Spanish clitic placement variation in Argentine Spanish (for more detailed analysis see § Chapter 2) which lays the foundation for a hypothesized variable clitic placement learning trajectory/task which culminates with children being able to constrain the variation in adult-like manner (Section §3.5). The next section presents the results of four experiments with Argentine children which show that lexical and semantic constraints are operative from age four (Sections §3.6-3.9). The chapter ends (Section §3.10) with a discussion of the results in terms of their contribution to our understanding of the variable clitic placement learning trajectory and to the studies on L1 acquisition of variation. It also poses new questions that should be the focus of future research.
3.1.1 Models of language development

In order to make sense of acquisition data, a number of models have been proposed that vary on the assumptions they make about the nature of knowledge of language, the learner’s initial state, and the role of input, for example. In this section, I review two types of language acquisition models as well as the predictions they make regarding the acquisition of variation. In the discussion of these models (Section §3.2.3), I decide to frame the acquisition research of the remaining sections within a Usage-based Emergentist perspective.

3.1.1.1 Generative models

In order to answer big empirical questions such as what constitutes knowledge of language, how language is used and acquired given the limited input in the environment in terms of the infinite options a language offers, generative accounts proceed from the assumption that language is a rule/computational system and that there is a specific faculty devoted to language which characterizes the human mind/brain. A generative grammar, then is “… a formal system that states explicitly what […] finite means [are] available to the mind/brain, which can then make infinite, unbounded use of these means.” (Chomsky, 1999, p. 37). Together with the pursuit of making fully explicit what a person knows when they know a language, generative approaches address the problem of how such knowledge is acquired. In view of the poverty of the input stimuli, which means that input alone does not seem to account for the vast knowledge attained, generative approaches to language acquisition specify the initial state of the language faculty as genetically endowed. In a traditional language learning equation (a), there is this innate grammar (UG) “… that determines much of the form of the attained grammar” (op cit. p. 56), for example, by constraining the architecture of human language (Guasti, 2009, p. 104) as it determines which rules are possible (cf. Chomsky, 1999, p. 48). Second in the equation, the child (learner) is assumed to be endowed with a learning component (language-acquisition device or LAD) which aids during the selection of a rule system that would appropriately capture the evidence in the input. The result (output) of this process is a cognitive system (the target language) which is “internalized [and] represented in the adult mind/brain” (op cit. p.43).

(a) \[ \text{UG} + \text{LAD} = \text{Target Language} \]
Importantly, since language is considered just like any other faculty of the mind/brain, its development is deterministic, which means that given the enabling conditions of the environment, it will necessarily develop (without the child’s ability to change that, much like body maturation). The environment plays a role, however, in the maturational process as it “…determines how the options left undetermined by universal grammar are fixed, yielding different languages” (Chomsky, 1999, p. 41).

3.1.1.2 Usage-based models

Usage-based models emerge from the assumption that language use shapes linguistic knowledge (Barlow & Kemmer, 2000). In other words, the speaker’s experience with the language helps shape his or her grammar (Bybee, 2006) without the aid of any universal innate grammar (Tomasello, 2003, p. 3). These models then assume item-by-item, gradual learning as children extract words from their input followed, in some cases, by generalizations into constructions. These are understood as conventional form-meaning pairings that are characterized by having sequential structure, including both fixed and open slots, and varying in their level of complexity and abstraction (Fillmore, Kay, & O’Connor, 1988; Goldberg, 1995, 2006; Bybee, 2010). Not only are particular constructions, but also their organization into networks acquired in an item-by-item way based on domain-general mechanisms (Diessel, 2013; Tomasello, 2003, pp. 3ff). More crucially for variationist analyses, by definition constructions not only store information about their form (which could be more or less schematic), but crucially their meaning and function.

It all starts with learning words. According to usage-based approaches, such as the social pragmatic approach endorsed by (Tomasello, 2003, pp. 87ff), when learning words children employ general learning principles that seem to be applicable to linguistic and non-linguistic phenomena together with social-cognitive skills (of joint attention and intention-reading) that become available just by the time word learning emerges (before 1;0 of age) (Tomasello 2003, p. 81, 91). After basic words are learned, early syntax starts to emerge.

At the early stages of syntactic development children learn “…word combinations, pivot-schema, and item-based constructions [which are] highly concrete [and] based around individual words and phrases” (Tomasello 2003, p. 140). Up to this point, children’s knowledge of the language could be characterized as an expanded lexicon containing “relatively isolated, item-
based constructional islands” (p. 140). Early basic schemas (also called pivot schemas or constructional islands) such as [More+N/Adj/V] (Braine, 1976) and [Find it+N/Adj] (Tomasello, 1992) are initially formed and later expanded so that the number of constructions that can be used with a particular lexical element is extended. These schemas are useful for producing novel utterances that can, in turn, develop into more complex and abstract ones in later stages of developments (as commented below). In fact, “schemas explain the way the child moves from stored concrete usage-based events to more abstract categories” (Nardy, Chevrot, & Barbu, 2013, p. 25). Nardy (2008) applied Tomasello’s (2003) piecemeal learning framework to the variable liaison between adjectives + nouns in French, such as gros arbre ‘big tree’ which can be realized as [ɡʁɔzɑʁbʁ] or as [ɡʁɔaʁbʁ]. The findings were taken to indicate that initially children memorize frequent adjective + noun constructions with and without liaison, then generalizing two competing schemas gros + /zX/ and gros + /[vowel]X/, respectively. Since higher-class children hear liaisons more often, they would generalize the first schema earlier than lower-class children, which accounts for the social differences found in the data. The existence of competing schemas accounts for variation and the role of frequency of exemplars.

Construction and other Usage-based (exemplar) models have the advantage of accounting for the role of the environment, of input frequency, of the relationship between linguistic and social information, and the cognitive mechanisms of generalization/abstraction (Nardy et al. 2013:276).

In later years (from around 2;0 or 3;0 years old onwards) children continue their piecemeal learning, but through exposure to and use of language (and with the help of domain-general mechanisms such as intention-reading, and pattern finding) they are assumed to generalize items into more abstract constructions, usually called argument-structure constructions57 (Goldberg, 1995). Two cognitive processes that have been proposed to play a major role in children’s abstractions are analogy and distributional analysis.

By means of analogy, children are able to create more general schemas from different item-based constructions58. It has been suggested that what children align in order to make analogies is the relational structure of the elements, but not the elements themselves (see references to Gentner’s work in Tomasello (2003, p. 164)). However, variable phenomena such

57 E.g. “transitives, intransitivity, ditransitive, attributives, passives, imperatives, reflexives, locatives, resultatives, causatives, […] questions” (Tomasello, 2003, p. 144)
58 Unlike item-based schemas, these abstract constructions need not have items in common (e.g. the transitive construction does not require a particular lexical verb).
as clitic placement in Spanish cannot be subject to analogy under such terms, because both variants contain supposedly elements holding similar relations to each other. Alternatively, it has also been hypothesized that analogies could be formed out of structural alignment across item-based-constructions. For example, the structure \([\text{NP1} + \text{V} + \text{NP2}]\) could be associated with transitive verbs all holding the meaning of “transfer”. In the case of Spanish variable clitic placement, if children formed analogies out of structural alignment, it could be hypothesized that \([\text{Cl} + \text{V}_{\text{finite}} + \text{V}_{\text{non-finite}}]\) could be associated with transitive non-finite verbs whose object is salient because of its nature (e.g. animacy) or its role in discourse (e.g. discourse topicality). However, it is hard to predict what this sort of analogical processes would do with the variation and distribution of finite verbs which seem to favor this construction (as opposed to \([\text{V}_{\text{finite}} + \text{V}_{\text{non-finite}}}=\text{Cl}\)).

By means of distributional analysis, researchers usually mean that items that behave in the same way (because they co-occur with similar elements) are grouped into paradigmatic categories (Tomasello, 2003, p. 145). However, Tomasello adds the concept of communicative function to distributional analysis proposes that what children group are words and phrases “according to similarities in what they do communicatively […]", cognitively and linguistically.” (p. 172). In this way, children gradually create the more abstract paradigmatic categories that form part of adult language.

In Table (21), I reproduce Tomasello (2003) summary of the cognitive processes involved in the creation of the different constructions. Here he also adds the type of input that is assumed to be relevant for the formation of each kind of construction.

<table>
<thead>
<tr>
<th>Input</th>
<th>Cognitive Process</th>
<th>Construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>I wanna see it</td>
<td>Segmenting communicative</td>
<td>Expression</td>
</tr>
<tr>
<td>I wanna see it</td>
<td>Intentions (perhaps)</td>
<td></td>
</tr>
<tr>
<td>I wanna see it</td>
<td>Reproducing sequences</td>
<td></td>
</tr>
<tr>
<td>Throw ball</td>
<td>Schema formation</td>
<td>Pivot schema</td>
</tr>
<tr>
<td>Throw can</td>
<td>Slot-filler category</td>
<td></td>
</tr>
<tr>
<td>Throw pillow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>John hugs Mary</td>
<td>Second-order symbols</td>
<td>Item-based construction</td>
</tr>
<tr>
<td>Mary hugs John</td>
<td></td>
<td></td>
</tr>
<tr>
<td>X hugs Y</td>
<td>Analogy</td>
<td>Abstract construction (and syntactic roles)</td>
</tr>
<tr>
<td>A kisses B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M kicks N</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Unfortunately, the process of abstraction by children is not error free because children are known to overextend certain words to constructions/schemas where the result is ungrammatical (see Diessel (2013) for a review on verbs). So, at a certain point overgeneralizations need to be constrained. The Usage-based perspective considers children to be conservative learners and does not predict much overgeneralization early on, but does predict such behavior in syntax around age 3;0 when children show greater productivity with nonce verbs (Tomasello, 2003, p. 176). Some researchers find evidence for the high frequency of a verb in a particular construction discouraging the extension of such verb to other constructions, which has been referred to as entrenchment (Brooks, Tomasello, Dodson, & Lewis, 1999). Other researchers emphasize the way in which a verb needs to accommodate to the constraints of the construction of which it is part. This view assumes that children reject overgeneralization when faced with incompatibility (Ambridge, Pine, Rowland, Jones, & Clark, 2009). Yet other researchers point to a process of statistical preemption that consists of “a particular type of negative evidence that results from repeatedly hearing a formulation, B, in a context where one might have expected to hear a semantically and pragmatically related alternative formulation, A.” (Boyd & Goldberg, 2011, p. 60, and references therein). This perspective accounts for what the learner perceives/expects as the most appropriate of a set of options all available in the same context. Boyd and Goldberg (op cit.:61) point out that whereas in entrenchment the strength of the negative evidence is given by the frequency of the verb “in just any alternative construction”, in statistical preemption the strength of such negative evidence is given by the frequency of the verb “in functionally comparable constructions”. Even though research on entrenchment and preemption has focused more on recovering from generalizations that render ungrammatical sentences, analogous processes could account for the coexistence of two variants, allowing statistics to favor one or the other in particular contexts. One application of Construction Grammar to L1 acquisition has been the work that examines how children form argument structure generalizations by associating the meaning of a frequent verb in the construction with the construction itself (e.g.
children associate the high frequency of *give* in the ditransitive construction) (Goldberg, Casenhiser, & Sethuraman, 2004).

3.1.1.3 Discussion and predictions for the acquisition of clitic placement

The acquisition of variation has not been modeled yet in a way that can be readily used to account for the phenomenon studied here, so I have reviewed two models of language acquisition coming from very different traditions and supported by different sets of assumptions. Given that this dissertation takes as point of departure the assumption that language use shapes structure, and that the input child Spanish speakers are exposed to offers the full range of constraints on clitic placement variation (see §Chapter 2), I will follow Usage-based/Emergentist proposals to language development.

Models within the Emergentist tradition assume that language arises gradually, in piecemeal fashion, and with the aid of general cognitive processes. Usage-based and Constructionist models assign great importance to frequency that describe the way speakers keep track of salient exemplars or constructions and how, around these, structure emerges. Such lexical items may be then abstracted into cognitive schemas or generalized into more schematic constructions. Tomasello (2003) summarizes this perspective by saying that

“…usage-based approaches expect children’s learning to be more gradual, piecemeal, and lexically dependent – with the acquisition of particular linguistic structures depending heavily on the specific language to which a particular child is exposed, and with generalizations coming only after a fair amount of concrete material has been learned.” (p. 98)

It must be noted, however, that in many cases the same set of language acquisition data may provide evidence for several of these models simultaneously. This is particularly clear when it comes to children taking heed of the properties of the input, for example. The perspective adopted in this dissertation is one in which language use shapes language structure and drives language learning. Then, variation may result from what the speaker expects or assumes to be the most appropriate option on the basis of his or her usage of language. One would hypothesize then that due to frequency, some lexical elements may be highly expected in a particular schema/construction, and thus the learners’ task would be to figure that out. If, as a result of
knowledge of the preferred schema/construction for one lexical verb in the linguistic input, learners overgeneralize based on such information, (1) would be predicted.

(1) **Learners are expected to overgeneralize a particular schema/construction to all uses with a particular verb in their production** (e.g. if learners know that *ir a* ‘go to’ with future meaning occurs predominantly in proclisis in the input, they may not use enclisis in their own production).

However, if (especially high-frequency) verbs discourages generalizations (as proposed by the entrenchment proposals), (2) is to be expected, where learners avoid generalizations.

(2) **The distribution of proclisis and enclisis in learners’ productions are expected to match the distributions in the input** (e.g. learners are expected to show high rates of enclisis with *tener que* ‘have to’, lower with *querer* ‘want’, the lowest with *ir a* ‘go to’. Similarly, the rate of enclisis with Inanimate referents is hypothesized to be higher than with Animate referents).

### 3.1.2 Acquisition of language variation

It is well known that variation is characterized by strong regularities and that the use of particular variants is conditioned by language internal and/or language external factors (Nardy et al., 2013, p. 2). Children are then confronted with such constrained variation that includes norms and preferences (biases) of use (Chambers, 2003, p. 174) and their task is to acquire them in a way such as to gain “sociolinguistic maturity” (Smith, Durham, & Richards, 2013, p. 286). Since the 1990s when linguists became more and more interested in the development of variable phenomena (cf. Nardy et al., 2013, p. 7), there has been agreement that “a complete acquisitional model demands the inclusion of all forms of language, those which are variable and those which are categorical” (Roberts, 1997, p. 354).

One way of understanding the acquisition of variation, is to assume it consists of the formation and appropriate ordering of rules. One type of rule that has been identified corresponds to deterministic statements (i.e. that apply all the time) about the distribution of forms, called *categorical rules* (cf. Walker, 2010, p. 17). For example, in Modern Spanish Direct Object clitics hosted by a single finite verb can only appear before it (b). Categorical rules are thus “…simple obligations – that is, […] affirmative prescriptions stating necessary conditions for grammatical well-formedness in the language being described” (Sanders, 1994, p. 6).
(b) Spanish clitics precede finite verbs.

Whenever it is not possible to arrive at such categorical rules because a phenomenon occurs randomly (as in free variation), optional rules have been proposed. These can be considered equivalent to grammatical permission statements which state, for example, that an alternative formulation is possible in a particular context. For example, synonymy provides speakers with options of possible names they can use to refer to an entity (c).

(c) In Spanish, a female human may be called *mujer* ‘woman’

However, it is often the case that variation which seems random is in fact structured. In consequence, Labov (1972) proposed adding information about rates of application and about order of constraints to these optional rules, which came to be known as variable rules. For example, the fact that Proclisis and Enclisis have very different distributions and that different variables affect such distribution by exerting greater or lesser influence, seems to make Spanish variable clitic placement a candidate for a variable rule (which could be formulated just for the purpose of exemplification, as in d).

(d) In many verb periphrases, Spanish favors enclisis with particular verbs, in the first place; and in contexts with inanimate referents, in the second place.

Variable rules have been suggested to be acquired at the same time as related categorical rules (cf. Roberts & Labov, 1995, p. 101), but the specific timing of acquisition of variation, however, has been the topic of much debate (especially with regard to phonological variation). On the one hand, there are studies showing that children manipulate abstract categories (e.g. verb) to formulate abstract rules, which would be right from the beginning pending minor adjustments of variable constraints (Smith et al., 2013, p. 21). For example, some instances of
phonological variation have been reported to be acquired by 3;0 or 4;0 (Roberts, 1997)\(^\text{59}\). This was taken to indicate that they are acquired as rules and not word by word. Counter to these findings, other studies which do not find evidence for abstract rule formation. Instead, children seem to either imitate adult surface forms or their variable uses cluster around frequent lexical items, which would point to piecemeal learning based on frequency or memorization of salient exemplars and conditions of their use (Bybee, 2006). For instance, Chevrot, Beaud, and Varga's (2000) study on variable deletion of post-consonantal and word-final /R/ in French (\textit{sucr /sykR /} \rightarrow / syk<s>R>/)\(^\text{60}\) among school-aged children found that linguistic factors (phonological context) may be established before social ones (situation and social environment). In the remains of this section I will review some of the research on the acquisition of variation (mostly sociolinguistic) by looking at how, depending on the particular type of variation under investigation, studies show full, partial or no convergence with target-like use of the variants. Also, I will describe previous research which indicates a paramount role of the linguistic input available to the child as it correlates with the age of acquisition of the variation.

3.1.2.1 The type of variation

Many of the studies that will be reviewed below suggest that the age of acquisition of variable phenomena depends on the particular variable under study. This includes the perceptual salience of the variants, their articulatory complexity, their relationship with the available input (Smith, Durham, & Fortune, 2007, 2009), and their sociolinguistic value (or social recognition, Labov, 2001, p. 196) in a specific community (Chevrot et al., 2000, p. 296). Also the type of variation (phonological, morpho-syntactic, etc.) may play a role in the age of acquisition. In what follows I review some of the literature on the acquisition of variation showing either early full or partial convergence with adult-like variation. The main point here is to highlight how variation at different linguistic levels (phonological, morphological, syntactic, stylistic), as well as a specific case of variation within a particular level may be mastered at different ages. Anderssen, Bentzen, and Westergaard (2010) put it in relation to word order variation: “some […] variation is target-

\(^{59}\) This study one –t and -d deletion will be mentioned later in connection to social factors being acquired after linguistic factors. In contrast with this indication, Patterson (1992) would say phonological variation to be acquired between 6:0 and 7:0 years of age.

\(^{60}\) <> indicate that deletion of the voiced uvular trill is variable.
consistent in child language from early on, while some constructions are slightly delayed and others severely delayed.” (p. 6)

*Early full convergence*

Early mastery of **phonological** variation has been supported by Labov’s (1989) research showing early acquisition of stylistic and linguistic variation (around 7;0). A more recent example of early mastery is Foulkes, Docherty, and Watt’s (1999) study the realization of English (-t) which in some dialects gets glottalized when it appears in word-medieval intersonorant and word-final prevocalic position, but aspirated in initial position. The study found that children show sophisticated mastery of the adult patterns producing qualitatively different phonetic variants in the appropriate phonological contexts and sensitivity to lexically restricted variants. According to the authors learning variable phonetic forms might help the child get sociolinguistic competence by enabling him to use the language appropriately in particular contexts (p.18). For Spanish, Díaz-Campos’ (2004) study of intervocalic /d/ showed that by age 4;5 Venezuelan children use sociolinguistic variation following adult patterns beginning with frequent words and spreading to less frequent ones. These results are evidence of very early acquisition of variable phonology.

In the case of **morphological** variation, a longitudinal study of verbal marking in a child (2;4-4;9) exposed to Trinidarian Creole and Standard English, Youssef (1991, p. 96) found that both social and linguistic constraints were acquired around the same time. The child used the verb forms of each system differentially according to addressee, discourse mode, semantic intent, and grammatical factors from age 2;7.

Studies on **syntactic** variation have shown that word order variation can successfully be acquired early on as well, without going through prolonged periods of generalization or omission. For example, in the Norwegian dialect spoken in Tromsø the placement of *wh*-elements depends on their length in terms of number of syllables. So, while disyllabic *wh*-words are used in V2 word order, monosyllabic words can either be in V2 position (in the case if new or focused information) or in non-V2 position (with given information, eg. pronouns). Westergaard (2003) found that children produce both word orders from early on and that they show sensitivity to information structure. Other work showing early mastery of the principles

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61 (Labov, 1964) had initially found that stylistic variation was acquired in adolescence.
that account for variable word order include Kapetangianni (2010) study on S-V word order in Greek and Cardinaletti and Giusti’s (2010) work on Italian adjective placement. Research on American Sign Language (ASL) has shown that adult word order, including noncannonical VO sequences, is produced by children as young as 2;4 (Chen Pichler, 2001, p. 155).

Early partial convergence or lack of convergence

However, the available literature also includes studies in which children were shown to take longer to converge with adult speakers of the same communities in some variables compared to others, or studies in which children do not seem to have more than one variant available, which could be because it would require further maturation to take heed of certain subtleties in the language.

One study showing how different types of variation may provide diverging patterns of developmental results is offered by (Smith et al., 2007, 2013) who studied the phenomenon (called the Northern Subject Rule) present in the dialect of English spoken in Buckie, as well as in other dialects of Scots, where 3p plural verbs may (historically) carry –s inflection (e.g. *the men syts*..., (Murray, 1873, p. 212) in plural full NP contexts62. Additionally, the researchers examined a case of phonological variation, where a specific group of words with ‘ow’ or ‘ou’ in their spelling can variably be realized as a dipthong (/ɄɄ/) or a monophthong (/u:/).

Interestingly in terms of how acquisition varies depending on the type of variation at hand, the results showed that the two types of variation, morphological and phonological, presented differences in their development. Specifically, whereas children had access to both morphological variants (-s vs. no –s) from the outset, they exclusively used only one phonological variant (the standard, /ɄɄ/) for a long time. I will come back to studies showing how different variables display differential acquisition development later.

Westergaard and Bentzen (2007) provide similar data on syntactic variation. They studied two low-frequency constructions with variable verb placement in Norwegian which allow the verb to come before negation and adverbs (despite the standard language preference for having the verb after these elements). The study found that with one structure children acquire the variation, but with the other one they produce non-target-consistent word order until very late (6;0). The children in Zuckerman (2001) and Zuckerman and Hulk (2001) did not produce non-

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62 However, -s cannot appear with pronominal ‘they’.
target word order. Instead they displayed preference for the least frequent word order in the input. Specifically, French \textit{wh}-question words that can either stay in-situ or move, but adult speakers tend to move them. However, children strategically prefer to keep them in-situ. Another example of children preferring one of the variants is that reported on Subject Shift (Westergaard, 2008). In Norwegian non-subject-initial V2 clauses, the subject can come before (with given subjects) or after (with new or focused subjects) an adverbial or expression of negation. Westergaard (2008) study showed that children have a preference for one position until 2;6-3;0 years old when production becomes target-consistent. Evidence of word order variation within the DP in Norwegian (which allows possessives to come pre- or post-nominal - favoring different interpretations) shows that children use pre-nominal word order more frequently than adults in the early stages of acquisition (Anderssen & Westergaard, 2010).

The research presented in the previous paragraph could point at learners being very conservative in their approach to variation, not committing to a second variant until they can operate all the necessary constraints. This could also be the result of children not being fully sensitive to subtle linguistic information early on (Henry, Mclaren, Wilson, & Finlay, 1997, p. 269), especially if such information is discourse, social or stylistic. For example, data coming from studies of object scrambling show that at 2;0 children scramble only 30% of Direct Objects in obligatory scrambling environments both in Dutch and Italian (Schaeffer, 2000, p. 123). An additional example of social constraint acquisition taking a longer time to be fully mastered is Roberts' (1997) study of –t and –d deletion (or consonant cluster simplification, as in ‘I don’t know’) in 3;0- and 4;0-year-olds from Philadelphia. The study found that children were on their way to acquire the phonological and morphological constraints that characterize –t/-d deletion in adult speakers. This means that by 3;0 they had learned a variable deletion rule (as opposed to item-by-item acquisition), however the mastery of the social constraints was “far less complete” (p.358). This is not surprising based on the hypothesis that it is not until the child has been exposed to sufficient variety of uses (around adolescence) that he or she discovers the social meaning of linguistic forms (Labov, 1964; Wolfram & Fasold, 1974).\textsuperscript{63} Kerswill and Williams

\textsuperscript{63} In contrast with this view, stylistic variation (as well as metalinguistic awareness) has also been found to be acquired very early (for references see Smith, Durham, & Richards, 2013, p. 286). The acquisition of linguistic variation has been hypothesized to begin by children being exposed to their parents’ stylistic differentiation between formal (instruction, punishment) and informal (intimacy, fun) speech (Labov, 2001, p.437). In a study already mentioned Youssef (1991) found that a child in a language contact situation spoke Trinidarian Creole and Standard English to the appropriate addressees right from the beginning.
(2000) studied how children (4;0, 8;0 and 12;0 years old) used 10 phonological variants (such as “th-fronting”, “h-dropping”, “t-glottaling”, /ð/ > /v/, and vowel changes such as /ɔ:/ > /oʊ/) that exist in a dialect of English spoken in Milton Keynes (south of England). Their results showed, for the /ɔ:/ > /oʊ/ variation (as in ‘thought’ or ‘horse’) it was the older children who displayed greater style shifting, but younger ones displayed greater effect of caregiver speech. Despite showing early acquisition, these results suggest that some instances or aspects of variation may take longer to be mastered. A particular element in many of the studies reported so far (and just mentioned in relation to Kerswill and Williams’ (2000) results) is the role of caregiver talk, i.e. the input.

**The input**

Children’s early exposure to language is restricted, in most cases, to the language of their own caregivers who speak in what has been referred to as Caregiver Talk, Child-Directed Speech (CDS)\(^{64}\), or Child-Directed Signing (Chen Pichler, 2001) (For a revision of CDS see Snow and Ferguson (1977) or Fletcher and MacWhinney (1995))\(^{65}\). The link between the time of the acquisition of variation and the input can be seen in studies such as Kovac and Adamson’s (1981) who studied the deletion of *be* in African-American (AA) and European-American (EA) children who were 3;0, 5;0 and 7;0 years old\(^{66}\). The results of the acquisition of the well-documented ‘be’ deletion in AA English showed that whereas for EA children the deletion was developmental, for AA children in seemed to be affected by social class. Working-class AA children acquired the deletion before middle-class AA peers, and this latter group acquired contraction before deletion. However, the adult-like constraints of deletion were not fully acquired by 7;0. This study is an example of the impact of social/contextual factors on the acquisition of variation. The important role of caregiver talk for the acquisition of variation is highlighted in Miller’s (2013) study of the acquisition of *l–s/ lenition in Chilean Spanish. The author reports similar patterns of lenition in child-directed speech as in adult-directed-speech. Children between 4;0 and 5;0 years old have

\(^{64}\) And caregivers also tend to be women, what is relevant for cases of sociolinguistic variation based on gender (Labov, 1990; Roberts, 1997). Therefore it is likely that children’s speech will resemble the female model (Foulkes, Docherty, & Watt, 1999), but see Vihman (1993) for different results.

\(^{65}\) These terms are not to be taken as synonymous. In fact, some cultures do not address children directly (See Ochs and Schieffelin, 1984).

\(^{66}\) Their main question was whether the absence of finite *be* indicated dialectal or developmental variation. This question is relevant still today because, as Roberts (2005) points out variation should not be considered “a by-product of the learning process, but an integral part of acquisition itself.” (pp. 153-4)
acquired most of the constraints and pattern like their caregivers. Children between 2;0 and 3;0 have not acquired the variation. Very importantly, higher rates of –s realization in phrase-final position in the input contributed to earlier acquisition of –s lenition and variable usage. In a study comparing an –s dropping Spanish dialect (Chile) and an –s non-dropping Spanish dialect (Mexican), Miller and Schmitt (2010) find that children’s production of /-s/ plural morphological markers is affected by the presence of the marker in the input. Their results also suggest that variation that causes ambiguity makes children take longer in acquiring the variability in comprehension.

One characteristic which the studies reviewed so far and the ones presented in this chapter have in common is that they all try to understand how children learn an essential feature of language, its variability. In this sense, the four studies that I offer as part of this dissertation add to the body of research on the ability to successfully master gradience, optionality, distributional information present in human language. Another characteristic of almost all the research reported so far is that it deals with types of variation which are up to a greater or lesser extent constrained by social factors present in the speakers and groups involved. In this dissertation, nevertheless, I focus on an instance of morpho-syntactic variation which is linguistically constrained (by lexical, semantic and discourse factors), and which is target-like (as opposed to developmental variation that results from children’s lack of command of the target language). In view of the nature of the variation I will deal with in this dissertation, I will now conclude this section reviewing some very pertinent research on the acquisition of Spanish subject pronoun expression, to which I will also refer at the end of the chapter.

Research on the acquisition of syntactic variation in Spanish has explored variable subject pronoun expression and variable clitic placement. Shin and Smith Cairns (2009, 2012) studied the continuity of referent constraint on subject pronoun expression (where a new clause with a switch in subject –compared to the previous verb- favors the overt pronoun). The results of a forced-choice task administered to 7;0, 9;0, 11;0, 13;0 and 14/15;0-year-olds find that children are sensitive to switch-reference only starting at age 9;0 and the rate of overt pronouns with switch-reference became adult-like at age 14/15;0. This result is interpreted with reference to literature showing that around this age children become sensitive enough to interlocutors’

67 Participants were asked: “which version sounded better” (Shin & Smith Cairns, 2009, p. 157)
68 Before age 8;0 monolingual children may alternate between overt lexical NPs and pronouns (Shin, 2012).
needs (perspective taking) and thus start using referring expressions appropriately. A second result of the study is that the preference (measured in percentage) for null pronouns with same-reference expected based on adult behavior is present at 7;0, but not at 9;0 years old. This result is interpreted in relation to the previous result. The authors hypothesize over-acceptance of redundancy on the part of children after they’ve learned (~9;0) that they need to provide disambiguating information. In relation to the topic in this Chapter, the study by Shin and Smith Cairns (2009) shows that discourse constraints on variation are acquired relatively late in L1 acquisition, which would imply that full mastery of variable subject pronoun expression (where reference continuity is “one of the most powerful variables that influence adult Spanish speakers’ choice…” p. 155) is a late development. In a corpus study of when and how children converge on the adult pattern of structured variability in subject pronoun expression Shin and Erker (2015) find, among other things, that factors conditioning this variation are acquired following a predictable sequence, which starts with the stronger predictors first. Figure (17) below shows the ranking of constraints in child speakers compared to adult speakers.

<table>
<thead>
<tr>
<th>ADULTS</th>
<th>CHILDREN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Person &amp; Number</td>
<td>Person &amp; Number</td>
</tr>
<tr>
<td>Reference</td>
<td>Reference</td>
</tr>
<tr>
<td>TMA</td>
<td>TMA</td>
</tr>
<tr>
<td>Cause, Semantic, &amp; Reflexive</td>
<td>Cause, Semantic, &amp; Reflexive</td>
</tr>
</tbody>
</table>

Figure 17 Ranking of constraints on Spanish subject pronoun expression in adults and children (Adapted from Shin and Erker 2015, p. 174)

Shin and Erker (2015) provide evidence for children’s “sensitivity to probabilistic information in variable linguistic input in general and to patterns of morphosyntactic variation” in ways that suggest that “children are making direct use of adult behavior to tune the settings of the variable components of their own grammar” (p. 184). Their research makes interesting
predictions for the present study of clitic placement variation. Most importantly, I can hypothesize that those factors that have been reported to play a major role in constraining the variation (which will be reviewed in the next section) should be acquired first. Also, it is important to consider that the Mexican children who participated in Shin and Erker’s study were between 6;0 and 8;0 years old. In particular, I would like to highlight the fact that children mirror adult performance in use of different types of constraints (Person vs Discourse Continuity). It could also be noted that by 6;0 years of age, the participants in Shin and Erker’s study effectively use discourse information in adult-like manner. Even though in variable clitic placement, the discourse factor of continuity is not found to be at the top of the constraint hierarchies, the cited subject pronoun study is important because it predicts that constraints found to be strong in adult data should become operative before other weaker ones, even if they involve discourse or semantics.

The study of how language variation is acquired helps researchers address fundamental questions regarding the role of the environment and the role of children extracting information from the input and adopting patterns of usage until they become (socio-)linguistically mature. However, this does not seem to happen across the board, but following specific acquisition trajectories according to the variable at hand, what reinforces the idea that the acquisition of variability is variable dependent (Smith et al 2013). In the following section I very briefly review the factors that constraint clitic placement variation in adult speakers before outlining a possible learning trajectory.

3.1.3 Adult preferences in Spanish variable clitic placement

As it has been shown in §Chapter 2, variable clitic placement in Modern Spanish is characterized by a skewed distribution favoring proclisis overall. Variationist research has identified linguistic constraints on this variation having to do mainly with the finite (matrix) verb that introduces the periphrasis. Other constraints involve the animacy of the clitic referent, as well as discourse topicality measured in terms of continuity/extent of persistence in upcoming discourse. Even though previous research has identified an effect of aggregate frequency where proclisis is favored by more frequent verbs (Schwenter & Torres Cacoullos, 2014), in Chapter 2 I have discussed in some length the idiosyncratic behavior of at least one frequent and grammaticalized verb (tener que ‘have to’) which favors enclisis. I have attempted to account for
this finding resorting to speakers’ knowledge about the relative frequency of these verbs in different contexts of use. In what follows I outline the learning task for the L1 learner who has to master this variation in order to become a native speaker of his linguistic community.

3.1.4 Acquisition of clitics: The learning task

In this section, the learner’s task is outlined. This outline does not pretend to be exhaustive, as the variable context constitutes an instance of complex language including not only finite verbs in infinitival periphrases, but also referential expressions (clitics). The outline below does, by no means imply chronological order of acquisition, given that some of the stages include the acquisition of phenomena that could span over months and for which the exact time of acquisition is not necessarily relevant for the questions asked in this dissertation. Additionally, it could be the case that the acquisition presented separately here could occur simultaneously (e.g. as children start using finite verbs (A), they learn the legal position of clitics with them (B)).

(A) Acquisition of the components of the variable context (verbs, infinitival complements, clitics)
(B) Acquisition of clitic legal positions
(C) Acquisition of variable constraints

This outline portrays what I assume is part of the learning trajectory that would help the learner master Spanish variable clitic placement. Even though in (A) I briefly mention the grammatical categories that need to be learned in order for a context to be considered variable for clitic placement, it must be noted what (Bittner, Dressler, & Kilani-Schoch, 2003, p. viii) mention in relation to Usage-Based proposals when they say that

“Usage-based models proceed from the assumption that ‘the units of language with which people operate are not presupposed or prejudged’ (Tomasello 2000a:78). Thus, in language acquisition, grammar does not start necessarily with establishing target-like categories… [but that these] …can be constructed or reconstructed in a stepwise way […] as results of a child’s abstractions and hypotheses…” (p. viii)
Therefore, the outline provided above does not intend to direct the readers’ attention to a
discussion about the actual development of each point, but to locate (in a non-chronological and
non-exhaustive manner) the basic knowledge assumed to be in place at the time when Spanish-
speaking children are able to fully exploit the clitic placement variation. It also serves the
purpose of showing how research on Spanish clitic placement has not addressed the acquisition
of variable constraints (C), so far. It is the aim of this chapter to shed some light into children’s
knowledge of variable constraints.

(A) Acquisition of the components of the variable context

Acquisition of verbal periphrases (auxiliary verbs + non-finite forms)

The early acquisition of verbs has been documented for English-speaking children in a
number of single-child studies (Naigles, Hoff, & Vear, 2009, p. 91) and more recently by a bigger
quantitative study using the diary record methodology with eight children between 15 and 19
months of age (Naigles et al., 2009) which showed that by 18 months, children had produced the
first instance of the 34 verbs included, adding approximately 3.21 verbs per month (p.32).
Another work reviewing early verb acquisition in three languages (Spanish, German, and
English) shows that verb acquisition is characterized by the acquisition of verb types, to which
additional forms are added throughout a rather long period of time (Ingram, Welti, & Priem,
2006, p. 151). The proposal that verbs are acquired in a piecemeal fashion was put forward by
Tomasello’s (1992) study of how his daughter’s use of arguments and verbal morphology varied
depending on the particular verbs she used. For Spanish this piecemeal pattern is reported by
Mueller Gathercole, Sebastián, and Soto (1999) when they report that “Until 1;11.8 for Juan, and
2;2.11 for María, the data show virtually only one verb form per verb type.” (p. 145). Similarly,
Aguirre (2003) reports that the child under investigation (Magín) initially has “only one form
for every verb” (p. 20). These data support models which incorporate “limited-scope, piecemeal
knowledge and rote-learned acquisition” (Mueller Gathercole et al., 1999, p. 162). With
reference to verbs which can form periphrases (modal, volitional, aspectual, auxiliary,

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69 Some concerns with this study include the fact that the Spanish-speaking children data reviewed belong to
children identified as having a language delay. Also, the German-speaking child data reviewed belongs to a child
immersed in English-speaking Canada. So the Ingram et al chapter is only mentioned here in relation to the stages in
the development of the verbal system for which the authors claim to find cross-linguistic support.
70 This is up to age 1:8, what is identified by the author as the end of the pre-morphological stage (Aguirre, 2003, p.
18)
movement) and thus allow variable clitic placement in some contexts, Naigles et al. (2009) reports that ‘go’ was ranked second and ‘want’ was ranked eighteenth according to the order of acquisition out of the 34 verbs studied (p. 34). The acquisition of modal verbs in English has been reviewed in (Papafragou, 1998) indicating that modals start appearing between 1;10-2;6 and that epistemic modality follows root modality, the former appearing after the third year of age (p. 375-377).

In Spanish, the window between 2;6-3;0 years old has been identified as the beginning of syntactic categorization of the elements in the simple sentence and the end of the omission of basic categories (verb, subject, object) (López Ornat, 1990, p. 64). López Ornat’s (1990) study of 62 children between 1;6-3;6 concludes that by 2;6 children can build simple grammatical sentences. However, these are still limited given that the recently developed syntactic categories (of Subject, Verb, and Object) are still limited in scope.

La nueva categoría «Sujeto» tiene una extensión muy reducida […] (yo-tú-él). La nueva categoría «Verbo» sólo es para: infinitivo, imperativo, presente del indicativo, presente continuo (presente + gerundio), futuro perifrástico inmediato (presente del verbo «ir» + preposición «a» + infinitivo) y pasado muy reciente (pretérito perfecto). La nueva categoría «Objeto» necesita aún de ciertos desarrollos pronominales que todavía faltan (los clíticos plurales, por ej.). The new category «Subject» has a very reduced extension […] (I-you.sg-he). The new category «Verb» is only for: infinitive, imperative, present indicative, present continuous (present + gerund), immediate periphrastic future (present of the verb «go» + preposition «to» + infinitive) and very recent past (preterit perfect). The new category «Object» needs yet some pronominal developments that are still lacking (e.g. plural clitics). (López Ornat, 1990, p. 69)

López Ornat notes that by 2;6 Spanish-speaking children already use the present continuous and periphrastic future (both of which can enable variable clitic placement). However, by this age, the whole clitic system does not seem to be fully developed. It is during the following time window analyzed in her study (2;6-3;6) that all these new categories expand.

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71 Verbs in that study also vary in the production rate with Direct Objects (94% with ‘want’ vs 0% with ‘jump’ or ‘lay’) (p.36), which suggests that verb learning might be linked to particular contexts of use.
to include “…los diferentes casos pronominales y partículas que expresan objetos…” (the different pronominal cases and object particles) (p. 69). I will come expand on the acquisition of clitics later.

The emergence of auxiliary verbs in the first periphrastic constructions is noted by Aguirre (2003, p. 14) as an additional indicator that the child Magín has entered the protomorphological stage at age 1;9. At this age, the child displays use of the analytical past perfect and a bit later (1;10) of some present progressive forms as well as modal uses of poder ‘can’. In her discussion of morphosyntactic development Montrul (2004) cites two examples (3.1 and 3.2) taken from Bel (2001) which also show early use of periphrases.

(3.1) “Voy a buscar la pelota (María, 1;11)
I am going to look for the ball
‘I’m going to look for the ball’

(3.2) Quiero cantar (Emilio 2;3)
I want to sing
‘I want to sing’” (Bel 2001 in Montrul 2004, p. 112)

About the acquisition of compound tenses and other periphrases involving an auxiliary + a non-finite form (gerund, participle, infinitive), Montrul (2004:117ff.) comments that children initially omit auxiliaries but their use of non-finite forms is elliptical (children know they can answer a question such as ¿Qué tal? ‘How are you?’ with a gerund alone, such as Tirando ‘Hanging’) and contextually correct. During the two-word stage, they optionally omit the auxiliaries. Montrul (2004) also highlights the presence of modal/main verb + infinitive exemplars in Bel’s (2001) work about children younger than 2;6 years of age, such as (3.3-3.5).72

(3.3) “Voy a buscar la pelota (María 1;11)
‘I am going to get/look for the ball.’

72 Fernández Martinez (1994) reports on data from one child learning Spanish. The results show that by 24 months old the periphrastic future appeared and by 26 months old, aspectual contrasts including the present continuous appeared
(3.4) Tenía que t(r)abaja(r) (María 2;0)
‘I had to work.’

(3.5) Quiero cantar. (Emilio 2;3)
‘I want to sing.’” (Bel 2001 in Montrul, 2004, p. 119)

Acquisition of clitics

Clitics appear in simple sentences very early in children’s productions. They have been reported to appear before 2;0 years of age (see Coene and Avram 2012, for Romanian; and Guasti 1993, for Italian). This is also true in Spanish (Fantini, 1985; Hernández Pina, 1990; López Ornat, Fernández, Gallo, & Mariscal, 1994; Aguado Orea 2000; Blasco Asnar, 2002; Montrul, Foote, Perpiñán, Thornhill, and Vidal 2006). One characteristic of children’s utterances that has been widely discussed in the literature is the fact that children initially omit clitics in contexts where adults would use them. Similar results have been found for English DO pronouns (For a recent review, see Mateu, 2014). For example, English-speaking children would use proper names where adults would prefer to use pronouns, but not the opposite (Chiat, 1986, p. 386ff). In what follows, we will concentrate on production vs. omission of clitics the literature.

On the one hand, there is ample evidence that children omit clitics until they reach 3;0 years of age and omission rates decrease. Evidence has shown this in French (Friedemann, 1993; Hamann, Rizzi, & Frauenfelder, 1996; Müller, Schmitz, Kupisch, & Cantone, 2006) in Italian (Antelmi, 1992; Cipriani, Chilosi, Bottari, & Pfanner, 1993; Schaeffer, 1997, 2000, Müller et al., 2006; Caprin & Guasti, 2009), in Dutch (Schaeffer, 1993), in Catalan (Wexler, Gavarró, & Torrens, 2004, p. 84ff), in Romanian (Avram & Coene, 2007; Coene & Avram, 2012), and in European Portuguese (Silva, 2010). Spanish-speaking children also have been reported to omit up to 80% the first two years of life (Reglero & Ticio, 2003; Aguado Orea, 73 Most of the first productions usually correspond to Dative clitics in imperative utterances (da=me ‘give me’) and as Fantini (1985) notes they are ‘merely imitated expressions, requiring no knowledge of syntactic rules’ (p. 157).

74 European Portuguese, however, presents a case in which omission lasts even longer (Carmona & Silva, 2007; Costa & Lobo, 2006; Costa, Lobo, & Silva, 2008; Silva, 2008).

75 But see conflicting evidence for Italian showing a low omission rate (14%) until 2;5 (Guasti, 1993) as well as evidence showing that omissions drop below 10% by 4;0 (Schaeffer, 1997, 2000).
In view of this evidence, (at least some) omission is to be expected in the early stages of clitic use. Given that the purpose of this dissertation is to analyze child use of clitics, I decided to examine clitic use in children over 4;0, i.e. past the omission stage that some studies report for Spanish (Fujino & Sano, 2002; Castilla, Pérez-Leroux, & Eriks-Brophy, 2008; Castilla & Pérez-Leroux, 2010).

On the other hand, there is some evidence that children acquire certain clitics of the ones available in the language inventory before others, which could be indicative of default forms and/or positions. It has been shown that French-speaking children acquire masculine and singular clitics before the rest (Zesiger et al., 2010). For Romanian, it has been shown preference for a default form and less omission of 1p and 2p clitics (compared to 3p clitics) (Coene & Avram, 2012, p. 144ff). For Spanish, lo (3p sing masc) has been reported as the default (Domínguez, 2003).

This dissertation will then focus on children who are 4;0 years of age or older. More specifically, the population studied here is between 4;0 – 7;0 years old. The expectation is that these children would produce as many clitic pronouns as adult speakers in contexts that require clitic use and that they would be past the earliest stages in clitic acquisition where default forms have been found. However, the question still remains regarding whether by this age children have acquired the factors that constrained variable clitic placement in adult speakers.

(B) Acquisition of clitic legal positions

Knowledge of clitics implies knowledge about their syntactic distribution in relation to their hosts. Placement of clitics varies across languages. While Spanish differs from languages like Romanian and French where proclisis is used with infinitives (as well as with gerunds in French), it shows similar patterns at Italian in that proclisis is grammatical with finite verbs only, whereas non-finite forms and imperatives use enclisis. Gerlach (2002, p. 197) offers a table that summarizes that distribution, shown in Table (22) below.

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76 But see conflicting evidence showing no omission at all in Spanish (Wexler, Gavarró, & Torrens, 2004), as has been shown for Greek (Tsakali & Wexler, 2003; Hyams & Wexler, 1993).

77 Here I draw on the distinction between clitic position and clitic placement (Leal de Andrade, 2010). The former “responsible for the syntactic category where the clitic appears”, whereas the latter “responsible for the ordering of the clitic with respect to this category” (p. 99). Despite the differences with Portuguese, these terms will be used here to refer to the legal (grammatical) positions clitics can occupy and the place assigned in variable contexts, respectively.
Research suggests that early in development children almost always place clitics in the correct position (Antelmi, 1992; Guasti, 1993 for Italian; Hyams, 1983, 1986). For example, Schaeffer (2000, p. 114) found that Italian 2-, 3-, 4-, and 5-year-olds’ productions displayed 100% of clitics in correct positions. Sebastián and Slobin (1994) asked children to narrate stories and found that from 3;0 years of age Spanish-speaking participants placed clitics before finite verbs. Bel 2001 (in Montrul, 2004, p. 113) cites instances of correct clitic positioning by 1;7 years old (3.6-3.8).

(3.6) “Se cae e nene. (María, 1;7)
clitic-refl falls the baby
‘The baby falls.’

(3.7) A ata(r)lo. (Juan, 2;1.0)
to tie it
‘Tie it.’

(3.8) Témelo. [%tráemelo] (Emilio, 1;9)
bring-imp me it
‘Bring it to me.’” (Bel 2001 in Montrul 2004:114)

There has been some discussion about whether suffixes may be prosodically more salient than prefixes, and thus be acquired earlier (Slobin, 1973). According to Deen (2012, p. 249) this could be predicted for clitics as well. However, Aguado Orea (2000, p. 151) finds that enclisis to non-finite forms appears at the same time as preverbal clitics. Additionally, the study shows that
after a period of lack of full command, proclisis becomes more frequent than enclisis around 2;0 years of age.

In Spanish variable contexts, clitics emerge early on with very few occurrences. Studies document first uses of Proclisis around 2;1 (Blasco Asnar, 2002), 2;5 (Aguado Orea, 2000, p. 82ff), and between 1;7-2;5 (Thomas 2007 in Thomas, 2012; Mondoñedo, Snyder, & Sugisaki, 2004). Other types of clitic positioning phenomena (object fronting or left dislocation) appear later, around 3;0 (Grinstead, 2004).

Eisenchlas (2003) studied variable clitic placement structures by administering a sentence (elicited) imitation task to 71 Argentine Spanish-speaking children between 3;0 – 6;4 years old. One of her research questions (Question 3) was whether children know the rules that regulate clitic placement. From the analysis of children’s repetitions, Eisenchlas concludes that, despite some consistent errors, Spanish-speaking children did not adjoin clitics to non-verbal elements, place clitics in the canonical DO position (postverbal) with finite verbs; and if they move the clitic, they consistently place it in restricted clitic positions (Eisenchlas 2003, p. 207). The study concludes that by 3;0 children have mastered the morphological and syntactic selectional properties of clitics.

Summing up, we can restate that Spanish-speaking children seem to acquire clitics in both (enclitic and proclitic) positions during the first half of their second year, and that by their third year children place clitics in grammatical clitic positions. However, the clitic placement variation present in Spanish is not free, but it is patterned and constrained. In (C) I motivate the research I conducted for this dissertation and which is presented in the remaining sections of this chapter.

(C) Acquisition of variable constraints

There are some features of clitic use that seem unlikely to be acquired unless there is sufficient exposure to the input from a community of speakers. One could assume that sensitivity to particular lexical verbs or to the nature of the clitic referent being manipulated would fall under this category. However, it is not the case that children merely imitate the input. Deen (2012, p. 253) shows that Swahili object clitics are acquired before subject clitics even though

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78 In this task children showed improved performance (in terms of accurate sentence repetitions) from 4;6 years of age onwards (Eisenchlas, 2003, p. 201).
the former are less frequent in the input. This is taken by the author to indicate that more complex factors such as the degree of consistency and uniformity/predictability of the input is more valuable than just frequency. In this section, I will present what is still missing in our knowledge of the acquisition of the Spanish clitic placement variation.

While the overall bias toward proclisis has been tested experimentally in monolingual (Eisenchlas, 2003) and bilingual children (Pérez-Leroux, Cuza, & Thomas, 2011), no study has approached the specific construction biases in children’s clitic placement preferences either through corpus studies or experimentally. This has only been indirectly addressed with monolingual adults in the control group of a larger bilingual study (Thomas, 2012). Thus so far we do not know if the same language-internal factors that characterize clitic placement variation in adult Spanish, are operative in child linguistic performance. Knowledge of this will shed light on children’s ability to acquire subtle patterns of syntactic variation in language.

The remaining of this Chapter presents two Elicited Imitation studies and two Elicited Production studies. However, the studies are organized according to the participants tested in them. As such, STUDY 1 and STUDY 2 were administered to one group of children, and STUDY 3 and STUDY 4 were administered to a different group of children. In both cases children were tested in two twenty-minute sessions a week apart from each other. Each session began with a Short Term Memory (STM) task. The Elicited Production tasks (STUDY 1 and STUDY 3) were administered in either the first or the second session, always right after the STM task and before the Elicited Imitation tasks. Due to the larger number of trials, the sentences that made up the Elicited Imitation tasks (STUDY 2 and STUDY 4) were split over the two sessions.
3.2 STUDY 1: Elicited Production Task: Windows

3.2.1 Rationale

One of the experimental tasks proposed in order to elicit sentences with clitics in variable constructions was created following Thomas’ (2012) dissertation. In that study, adult monolingual (and bilingual) Spanish speakers were presented with an illustration of two characters were thinking about what they ‘were going to do’, ‘wanted to do’ or ‘preferred to do’ with the same object. After hearing the preamble (e.g. “Two twins are sitting in the living-room. The window is half way open. Anne is cold, but Mary is warm.”) participants were asked a critical question using one of the three specific verb constructions that were tested (e.g. “What does each of the girls want to do with the window?”). Participants were explicitly asked to “respond in a manner that most closely resembled the question” (Thomas op cit:156). The monolingual results showed the expected pattern of higher enclisis with preferir ‘to prefer’ (78%), followed by querer ‘want’ (50%), and last ir a ‘go to’ (26%)\(^79\). In the present study, a similar task was designed to elicit variable clitic contexts from children.

3.2.2 Participants

Sixty middle-class children between 4;1-7;0 (M = 5;7) were recruited from an private elementary school and a kindergarten in the city of Cordoba, in the center of Argentina. From them, N=51 produced the variable structures, and were thus included in the analysis (see fn. 23). Table (23) shows the classification of child participants by age group. A group of N=11 adults from the same community also participated in the study. From them, one was excluded as s/he did not use variable contexts at all. Thus, the analysis was carried out over N=10 adults. Stimuli and procedure used with the adults was the same as with child participants.

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>4;0 (N=13)</td>
<td>(M = 4;5\ (SD = 0;2))</td>
</tr>
<tr>
<td>5;0 (N=17)</td>
<td>(M = 5;5\ (SD = 0;2))</td>
</tr>
<tr>
<td>6;0 (N=21)</td>
<td>(M = 6;6\ (SD = 0;3))</td>
</tr>
</tbody>
</table>

\(^{79}\) These rates are out of all response types. Enclisis only for pronominal responses was 36% (15/43) for \(ir\ a\) ‘go to’, 67% (49/74) for \(querer\) ‘want’, and 100% (38/38) for \(preferir\) ‘prefer’.
For alternative analyses, the child and adult participant groups were also subdivided according to Short-term memory (STM) capacity into low vs. high based on the median for each group calculated over a composite score of the two STM tasks described below (See APPENDIX B for list of stimuli). Two tasks measured Short-Term Memory capacity in participants, namely digit- and word-recall. Stimuli for the digit span task consisted of the numbers from 1±10 presented in four sets of varying length. There were four sets of one item, four sets of two items, and so on up to sets of five items. Items were presented at the rate of one item per second. Testing ceased when the participant failed to recall all the items in two sets that contained the same number of items. The number of phonemically correct repetitions for the digit STM task was recorded (maximum = 60). Measures for participants whose data were analyzed are provided on tables 24 and 25.

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>STM Composite Score (Maximum score = 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child – Low STM (N=26)</td>
<td>M = 5;3 (SD = 0;7)</td>
<td>M = 25.59 (SD = 4.19)</td>
</tr>
<tr>
<td>Child – High STM (N=25)</td>
<td>M = 6;1 (SD = 0;8)</td>
<td>M = 41.70 (SD = 5.95)</td>
</tr>
</tbody>
</table>

Table 22 STUDY 1 – STM Groups based on composite score means and standard deviations for child participants (N=51)

<table>
<thead>
<tr>
<th>Group</th>
<th>STM Composite Score (Maximum score = 60)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult – Low STM (N=5)</td>
<td>M = 50.9 (SD = 3.56)</td>
</tr>
<tr>
<td>Adult – High STM (N=5)</td>
<td>M = 57.4 (SD = .37)</td>
</tr>
</tbody>
</table>

Table 23 STUDY 1 - STM Groups based on composite score means and standard deviations for adult participants (N=10)

An Independent Samples t-test with equal variances shows that the two child subgroups (high and low STM) differed in STM as measured by the composite ($t_{(49)} = -11.203, p < .000$). A second Independent Samples t-test with unequal variances shows that the two child subgroups (high and low STM) differed in Age as measured in months ($t_{(49)} = -3.807, p < .000$). An Independent Samples t-test with unequal variances shows that the two adult subgroups (high and low STM) differed in STM as measured by the composite ($t_{(4.088)} = -3.622, p < .021$).
3.2.3 Stimuli

A set of 6 large-sized cards introduced a pair of familiar characters each as well as a context situation which included a referent (e.g. a puppy) (Figure 18). Each card contained two folded ends (‘windows’) which served to cover the thought bubbles about what each character was going to/wanted to/had to do to the referent entity (See APPENDIX C for the complete set of stimuli).

Figure 18 STUDY 1 – Sample visual support

3.2.4 Procedure

Participants whose parents had previously consented were tested during school hours in a quiet room provided by the school and kindergarten. All participants were eager to take part in the study; both sessions, which took place one week apart from each other, were recorded using digital recorders to facilitate manipulation and transcription. Participants were told that they were going to hear about some characters and that s/he would need to answer questions looking at what the characters think. Participants chose the cards randomly and the experimenter started reading the preamble (3.9) which introduced the characters and the clitic referent.
Experimenter: Yo te voy a mostrar unos personajes. Vos tenés que abrir las ventanitas, mirar los pensamientos de los personajes y responder las preguntas. ‘I will show you some characters. You will have to open the little windows, look at what the characters are thinking, and answer the questions.’

(Beginning of Trial 1)

La Chilindrina y el Chavo van a tener un perro. Contame qué van a hacer con el perro. ‘Chilindrina and Chavo are going to get a puppy. Tell me what they are going to do with the puppy.’

¿Qué va a hacer la Chilindrina con el perro?
‘What is Chilindrina going to do with the puppy?’

Participant: (child lifts the window to the left in order to answer)

La Chilindrina lo va a bañar / va a bañarlo.
‘Chilindrina is going to bathe it’

Experimenter:

¿Qué va a hacer el Chavo con el perro?
‘What is Chavo going to do with the puppy?’

Participant: (child lifts the window to the right in order to answer)

El Chavo lo va a secar / va a secarlo.
‘Chavo is going to rinse it’

When answering, participants were instructed to start their answers with the name of the character by the experimenter saying Empezá por acá ‘Start from here’ while pointing at the character. The experimenter was a speaker of the participants’ dialect of Spanish.
3.2.5 Predictions

The predictions were that if child participants are aware of particular verb preferences with regard to clitic placement, these will be evidenced in their answers. In particular, the hypotheses were:

**Hypothesis 1.1:** The rate of Enclisis in responses is expected to increase from *ir* ‘go’ to *querer* ‘want’ to *tener* ‘have’.

**Hypothesis 1.2:** If specific verb biases (distributions) are developing, younger children would not be as constrained in verb-specific preferences as older children.

3.2.6 Results

(A) Results Adult Participants

*Coding*

The eleven adult participants produced N=132 answers. Of those, I excluded 21 cases coded as Other (3.10), and 16 cases of invariable contexts (3.11).

(3.10) La Chilindrina lo va a intentar abrir
the Chilindrina it.ACC.M3SG go.PRS.3SG to try open
‘Chilindrina is going to try to open it’ (Participant 122)

(3.11) Donald lo abre (Participant 127)
Donald it.ACC.M3SG open
‘Donald opens it’

The remaining 95 tokens included 14 cases pf Full NP DOs (3.12) that were taken out as well. This resulted in a total of N=81 tokens included in the final analysis which belonged to 10/11 participants (for data on the number of responses by participant, please turn to APPENDIX D).
(3.12) El Chavo va a secar el perrito. (Participant 129)
the Chavo go.prs.3sg to rinse the puppy

‘Chavo is going to rinse the puppy’

**Analysis**

A generalized linear mixed model (GLMM) was fitted to the binary response variable (Proclisis vs Encisis) with the following predictor variables: Short Term Memory (Low vs High\(^80\)), and Finite Verb (Ir a, Querer, Tener que). Participant was added as a random intercept. There is no clear theoretical reason to assume that some participants prefer a certain order (although here it was the case that two adult participants used only Proclisis), so any such preference would be inexplicable—adding the participant as a random effect in the model heeds the potential influence of the individual differences without making the claim that they have a theoretically motivated effect on the clitic placement. The addition of the Short-term memory measure was motivated by the fact that this could account for individual differences in adult participants. Analyses were carried out using SPSS.

**Results**

Adult participants produced 62% of Proclisis (50/81). The analysis\(^81\) reveals a non-significant effect of STM (F(1,77) = .313, p = .577) and a significant effect of Finite verb on the placement of the clitic (F(2,77) = 6.645, p = .002). One way to understand these effects is to look at the fixed coefficients table offered by SPSS. The odds of Proclisis are greater with *ir* ‘go’ (M = .966. SE = .037) than with *tener* ‘have’ (M = .429, SE = .271) (Odds Ratio\(^82\) = 38.26, p = .003). This difference reaches significance. However, the odds of Proclisis with *tener* do not differ from those of *querer* ‘want’ (M = .404, SE = .204) (Odds Ratio = .900, p = .918). Figure (19) below shows the estimated means of Proclisis for *ir* ‘go’, *querer* ‘want’, and *tener* ‘have’.

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\(^{80}\) A separate Analysis using STM as a continuous variable also shows a significant effect of Finite verb (F(2,77) = 6.625, p = .002), but no significant effect of STM (F(1,77) = .464, p = .498).

\(^{81}\) I used an alpha level of .05 for all statistical tests.

\(^{82}\) Odds Ratio (OR) is the proportion of application vs. non-application (as opposed to probability which is the proportion of application vs. the total). When OR = 1, both outcomes are equally likely; when OR >1 (up to \(\infty\)), the outcome variable is more likely; and when OR < 1, the outcome is less likely. In this analysis, the odds of proclisis are 38 times greater with *ir* compared to *tener que* (in other terms, the odds are \([38.26 - 1 * 100 = \]) 3726% greater with *ir*).
(B) Results Child Participants

Coding

As it is the case in most elicitation studies, the expected productions were one of the many different types of utterances produced by the children. So, responses were coded by noting first whether in each response the participant included a V+Infinitive as well as a clitic. If this was true, the response was further coded for the finite verb used by the participant in their answer (regardless of the condition) and the position of the clitic. Out of 720 opportunities for clitic use across participants in the whole experiment, I excluded n= 311 responses with verbs in invariable contexts (3.13) and n=4 Other cases (3.14).

(3.13) Lo seca. (Participant J6)

‘it.ACC.MSG rinse.PRS.3SG’

‘[He] rinses it’

(3.14) Minnie quiere hacer cortar=lo. (Participant 25)

Minnie want.PRS.3SG do cut=it.ACC.MSG

‘Minnie wants to do cut it’
The remaining N=405 were tokens that contained variable contexts, but even within these I excluded n=9 cases turned into DAT constructions (3.15), n=62 cases of Full NP DOs (3.16), and n=18 cases of tokens with no DO at all (3.17).

(3.15) Mickey quiere pegar=le plasticola
Mickey want.PRS.3SG paste=it.DAT.3SG glue
‘Mickey wants to put glue to it’

(3.16) El Chavo va a romper el frasco. (Participant 9)
The Chavo go.PRS.3SG to break the jar
‘Chavo is going to break the jar’

(3.17) Donald tiene que leer (Participant J21)
Donald have.PRS.3SG to read
‘Donald has to read’

The remaining N=316 cases were tokens of variable contexts that contained a pronominal DO. Within these cases, I excluded n=2 cases in which the gender of the clitic was changed to the feminine, thus rendering ungrammatical sentences (3.18), n=1 case of a clitic cluster (3.19), and n=3 cases of clitic copying, where the clitic appears in both positions at the same time (3.20).

(3.18) va a bañar=la (Participant P15)
go.PRS.3SG to bathe=it.ACC.FSG
‘[She] is going to bathe her’

(3.19) se lo va a comer (Participant P16)
it.DAT.3SG it.ACC.3SG go.PRS.3SG to eat
‘[He] is going to eat it himself’
La Chilindrina lo va a cerrarlo (Participant 4)

‘Chilindrina [it] is going to eat it.’

The remaining N=310 cases were variable contexts with the clitic lo ‘it. From these six tokens were excluded because the periphrases were not frequent in the data (two cases with deber ‘must’ + Infinitive, one case with estar ‘be’ + Gerund, two cases with pensar ‘think about’ + Infinitive, and finally one case of tartar de ‘try to’ + Infinitive. After exclusions, N=304 tokens were entered into the statistical analysis. This data cleaning resulted in nine participants being excluded, so data from N=51 participants was included in the analysis.  

Analysis

A generalized linear mixed model (GLMM) was fitted to the binary response variable (Proclisis vs Encisis) with the following predictor variables: Age (4;0, 5;0, and 6;0), and Finite Verb (Irá, Querer, Tener que). Participant was added as a random intercept for the same reasons as in the adult analysis.

Results

Participants produced 53% of Proclisis (160/304). The analysis reveals no significant effect of Age (F(2,299) = 1.140, p = .321). However, the Finite Verb significantly affects the placement of the clitic (F(2,299) = 7.014, p = .001). In particular, the odds of Proclisis are greater with ir ‘go’ (M = .744. SE = .088) than with tener ‘have’ (M = .365, SE = .116) (Odds Ratio = 5.04, p = .002). This difference reaches significance. However, the odds of Proclisis with tener do not differ from those of querer ‘want’ (M = .378, SE = .098) (Odds Ratio = 1.05, p = .909).

Figure (20) below shows the estimated means of Proclisis for ir ‘go’, querer ‘want’, and tener ‘have’.

83 The nine participants who did not produce any variable contexts were Participants 8 (6;11), 27 (7;0), J5 (5;5), J6 (5;1), J9 (5;11), P18 (4;8), P26 (4;11), P27 (4;6), P30 (4;5).
84 Alternative analyses were carried out replacing this variable with Age in Months as a continuous variable (F(2,300) = .296, p = .587), with STM as a continuous variable using the composite score (F(1,300) = .034, p = .854), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,300) = .094, p = .760). None of these measures of Age or STM proved to be significant. In consequence, I report the analysis which included Age in Years in order to keep consistency across studies.
85 I used an alpha level of .05 for all statistical tests.
A new analysis using the same model but excluding the *tener* ‘have’ tokens replicates the significant main effect of Finite Verb on clitic placement ($F(1,237) = 11.713$, $p = .001$) where the odds of Proclisis are greater with *ir* ‘go’ ($M = .763$, SE = .085) than with *querer* ‘want’ ($M = .383$, SE = .100) (Odds Ratio = 5.18, $p = .001$). This difference reaches significance. Figure (21) below shows the estimated means of Proclisis for *ir* ‘go’, and *querer* ‘want’.
3.2.7 Discussion

**Hypothesis 1.1: The rate of Enclisis in responses is expected to increase from *ir* ‘go’ to *querer* ‘want’ to *tener* ‘have’.

The Elicited Production Task: The Windows Task tested whether children’s placement of DO clitics is random or whether, instead, it displays knowledge of verb-specific biases in contexts controlled for anaphoric reference (in terms of distance from previous mention of the referent, for example). The significant effect of Finite Verb shows that children treat *ir* ‘go’ differently than *querer* ‘want’ and *tener* ‘have’, producing less Enclisis with the former (24% [25/103]) than with the other two (59% [82/138]; and 59% [37/63], respectively). These results mirror those reported by Thomas (2012) for *querer* ‘want’ (50%) and *ir* ‘go’ (26%) in her monolingual group using a similar task. This could be taken as evidence not only of knowledge about verb-specific preferences, but also to the degrees to which each verb prefers Enclisis. Comparisons with corpus data are less straight-forward because naturalistic data seems to provide more nuances, reflecting the continuum like distribution of Enclisis (*tener>*querer>*ir) as reported for adults in Davies (1995), Gudmestad (2014), Schwenter & Torres Cacoullos (2014) and the data presented in §Chapter 2. Nevertheless, this task has been able to tap onto children’s knowledge of verb-specific biases.

**Hypothesis 1.2: If specific verb biases (distributions) are developing, younger children would not be as constrained in verb-specific preferences as older children.

Data from children aligns with that of adults, showing that children are aware of the fact that differences in the verb used trigger different preferences with regard to clitic placement. A look at responses for each child participant (Figure 22) shows that across the three age groups, the number of children who produced variable contexts remains fairly constant. Even when taking into consideration individual differences by adding it as a random variable, no effect of age was found. However, it could possibly be the case that larger sample sizes coupled with greater number of tokens could reveal an age effect (e.g. it could be the case that the increase of the rate of participants using exclusively Proclisis between 4;0 and 6;0 years of age could surface as a significant effect of children progressively favoring the preverbal word order).
Some shortcomings of the Elicited Production task: Windows are the fact that if STM plays a role in producing clitics, its effect might not be evident in small sample sizes (esp. for the adult group). Additionally, a large part of the data had to be excluded due to the nature of the task that allowed too much freedom to participants in terms of the structure of their answers. In particular, the simplicity of the design together with the immediately preceding mention of the construction in a full question made answers without a Subject and/or finite verb communicatively felicitous (e.g. *abrirlo* ‘to open it’). Despite being grammatical, these responses contain categorical enclitic contexts that had to be removed from the analysis. Another shortcoming is the fact that the task consisted only of twelve trials (four per verb), so other measures that would provide more data would help describe in greater detail children’s knowledge of such specific patterns of use. These issues were addressed in STUDY 3: Elicited Production Task: Envelopes. However, before turning into that study, I will present data on an Elicited Imitation Task which not only investigates the effect of the Finite verb, but also that of the animacy of the clitic referent on the same population as the one examined so far in STUDY 1.
3.3 STUDY 2: Elicited Imitation Task

3.3.1 Rationale

In an Elicited Imitation (EI) task, participants imitate a sentence they have just heard under the assumption that, when the stimulus approximates a memory threshold, participants do not repeat verbatim, but formulate their repetition according to the rules of the grammar available to them, instead. EI is especially useful to test complex structures that are not easily elicited in child language. Variable (also called ‘restructuring’) contexts are particularly suitable for the use of the technique due to their low frequency in naturalistic child data. Eisenchlas (2003) used EI to test Argentinean children’s preferences of Proclisis or Enclisis in complex verbal constructions with ACC clitics (lo.3SGM, la.3SGM) as well as with DAT (me.3SG, le.3SG). In the case of the ACC clitic pronouns, the study presented each clitic once in each position throughout the whole experiment. The two sentences with la used the finite verb querer ‘want’ + Infinitive, whereas the two sentences with lo used poder ‘can’ + Infinitive. The analysis showed that the most frequent error in child imitations was repositioning postverbal clitics to the preverbal position (Forward repositioning), showing a strong preference for Proclisis. Eisenchlas’ study constitutes the first attempt to see clitic placement in Spanish children using this technique and serves as a stepping stone for the present usage-based research of the factors that play a role in clitic placement.

3.3.2 Participants

The same sixty-two middle-class children who were tested in STUDY 1, were also tested in STUDY 2 (which took place after STUDY 1). Unlike STUDY 1, data from all 62 children was included in the analysis of the present task. Table (23) shows a distribution of child participants according to age. The same eleven adults tested in STUDY 1 were also tested in STUDY 2. However, due to technical problems with the recordings two participants (Participants 126 and 127) had to be eliminated from the analysis. Thus, the adult group consisted of 9 participants.
The same measure of STM of STUDY 1 was also used for the analyses of STUDY 2 (See stimuli in APPENDIX B). Given that the participants included in STUDY 2 changes slightly from those whose data were included in STUDY 1, Tables (27 and 28) below show the subgrouping of child and adult participants who entered STUDY 2 based on their STM composite scores. An Independent Samples t-test with equal variances shows that the two child subgroups (high and low STM) differed in STM as measured by the composite (t(60) = -12.246, p < .000). A second Independent Samples t-test with equal variances shows that the two child subgroups (high and low STM) differed in Age as measured in months (t(60) = -4.439, p < .000). An Independent Samples t-test with unequal variances shows that the two adult subgroups (high and low STM) differed in STM as measured by the composite (t(3.153) = -3.906, p < .027).

Table 24 STUDY 2 – AGE Groups based on composite score means and standard deviations for child participants (N=62)

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>STM Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>4;0 (N=16)</td>
<td>M = 4;5 (SD = 0;2)</td>
<td></td>
</tr>
<tr>
<td>5;0 (N=20)</td>
<td>M = 5;4 (SD = 0;2)</td>
<td></td>
</tr>
<tr>
<td>6;0 (N=26)</td>
<td>M = 6;6 (SD = 0;3)</td>
<td></td>
</tr>
</tbody>
</table>

Table 25 STUDY 2 – STM Groups based on composite score means and standard deviations for child participants (N=62)

<table>
<thead>
<tr>
<th>Group</th>
<th>STM Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child – Low STM (N=31)</td>
<td>M = 5;2 (SD = 0;7)</td>
</tr>
<tr>
<td>Child – High STM (N=31)</td>
<td>M = 6;1 (SD = 0;8)</td>
</tr>
</tbody>
</table>

Table 26 STUDY 1 – STM Groups based on composite score means and standard deviations for adult participants (N=9)

<table>
<thead>
<tr>
<th>Group</th>
<th>STM Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult – Low STM (N=4)</td>
<td>M = 50.8 (SD = 2.76)</td>
</tr>
<tr>
<td>Adult – High STM (N=5)</td>
<td>M = 57.2 (SD = .50)</td>
</tr>
</tbody>
</table>
3.3.3 Stimuli

Twenty-four experimental sentences and 11 filler sentences were presented to participants auditorily (See APPENDIX E for the complete set of stimuli). All of them were preceded by a preamble spoken orally by the experimenter as the child looked at a card that contained a picture of the entity mentioned in the preamble. Preambles introduced masculine, singular and indefinite nouns that became the referent of the ACC clitic lo used in the critical sentence that followed the preamble. The choice of masculine singular nouns as referents was motivated by corpus evidence indicating that the clitic lo has the highest frequency among all 3p ACC clitics. Also animacy of the referent was counterbalanced. While inanimate referents included objects and food items, the animate referents were counterbalanced between human and animal. Three finite verbs that vary in their preference for CC according to previous corpus research and to our own corpus analyses of Mexican and Argentinean Spanish were included in the experiment: ir (a) [future meaning] (shown to favor CC), querer (shown to be somehow neutral), and tener (que) (shown to favor CC). Each verb appeared in eight critical sentences (four in which the clitic referent mentioned in the preamble was animate, and four in which it was inanimate). Within each animacy subgroup, two sentences included proclisis and two included enclisis.

All verbs formed complex VPs with a non-finite form. Four infinitives were chosen from the most frequent exemplars used by monolingual children in a corpus of Mexican Spanish. They were: ver ‘see’, buscar ‘look for’, comer ‘eat’, and rescatar ‘rescue’ (in the ir a condition), ver, hacer ‘do’, comer, and acusar ‘accuse’ (in the querer condition), and ver, traer ‘bring’, comprar ‘buy’, and pegar ‘glue’ (in the tener que condition). Each infinitive was used twice with its corresponding finite verb – once with an animate referent and once with an inanimate referent. Examples of the ir a condition stimuli appear below under (Tables 29-30).
In order to create similar length sentences that children had to repeat across conditions, each sentence was around ten-words-long and consisted of [Adjunct + NP (Subject) + VP (with clitic) + Adjunct]. All adjuncts consisted of a PP or an adverb and all subject NPs were names of human-like cartoon characters (character’s sex was counterbalanced). The sentence contained between 7 and 14 (M=9.5) syllables prior to the clitic lo (the mean number of syllables for the three conditions were 9.2 for ir a, 9.8 for querer, and 9.5 for tener que). If phonological liaison is considered, the stimuli contained an average of 9.08 syllables before the clitic (the means for the three conditions were 8.5 for ir a, 9.5 for querer, and 9.2 for tener que). Similar number of
syllables to be recalled before the clitic across conditions and verb types was intended to prevent proclitic pronouns from appearing much earlier than enclitic ones (as was the case in Eisenchlas 2003). Eight filler sentences similar to the experimental sentences in length were also included (4 in each of the two testing sessions) as well as three practice sentences that were administered to all participants at the beginning of session one to achieve familiarity with the task. All participants repeated the practice sentences successfully, which indicates that they were able to perform the task without difficulty. All the experimental and practice sentences were pre-recorded by the researcher (a native speaker of the dialect) at a slower-than-normal speaking rate. Recordings were auditorily checked before testing in order to avoid pauses and salient peaks in intonation.

3.3.4 Procedure

STUDY 2 was immediately preceded by STUDY 1 (which took place in testing Session 1). Due to the length of STUDY 2, it was administered across two sessions one week apart from each other. Participants were told that they would hear some recordings ‘said by the computer’ and that they had to repeat exactly what they heard. Earphones were used to mitigate background noise and ensure good hearing of the stimuli. When the participant was ready, a set of cards was placed before him or her to choose from. Each card contained the preamble on top for the experimenter to read (adult participants read this aloud themselves) and an image of the clitic referent (see Figure 23 below where the preamble is ‘There is a rabbit’). After the preamble, the experimenter said: ‘Now, listen and repeat what happens with the… (name the entity written on the card, eg. conejo ‘rabbit’).

Figure 23 STUDY 2 – Sample visual support with preamble (‘There is a rabbit’)

Hay un conejo
Then, the participant listened to the sentence and repeated it to the experimenter. The fact that the clitic referent was pre-activated and that only the participant could listen to the recording made the task more realistic, as the sentence repetition was more meaningful to experimenter and participant. Also, the use of cards, not only facilitated keeping the clitic referent active while processing the sentence stimuli, but made the task more engaging for the children (as they could choose what card they wanted next), and ensured randomized stimuli presentation. Due to the number of sentences for repetition, the materials were divided in half and administered in two sessions. Also, within each session, two sets of sentences were separated with a break, to avoid tiredness. After each session, child participants were allowed to play with toys and color coloring books before going back to resume their classes.

3.3.5 Scoring

All responses were transcribed by a native speaker of the dialect and checked by a second native speaker. In order to code each imitation trial for accuracy we followed Lust, Flynn, and Foley's (1996, p. 75, fn. 2) suggestion that for each particular study one needs to determine which changes to the stimuli are significant and which are not. In the present study a response was considered accurate if:

1. the finite verb lemma was present
2. the nonfinite verb was present
3. the clitic lo was present
4. the three elements appeared in the same order as in the stimulus sentence

All the responses for which points 1-4 above were not true were considered inaccurate imitations. Any changes or lexical substitutions in the adverbials surrounding the VP and in the subjects were not considered. Also the omissions, substitutions or additions outside of the VP (finite + non-finite) were also not considered as inaccurate. Initially, all trials were coded as ‘accurate’ (1) and ‘inaccurate’ (0) based on the 1-4 criteria. Examples of the types of errors
found can be found in examples (3.21-3.38) below\(^8\). Table (31) shows the number of each error type in the child data. (See APPENDIX F for number of errors by participant).

(3.21) **No imitation at all or totally different elements as in the stimulus sentence (Code: 1)**

**Stimulus:** *Antes de la fiesta Hercules lo va a rescatar rápido.*

‘Before the party Hercules is going to rescue him quickly’

**Imitation:** *El nene…rápido* (J6, 5;1)

‘The kid… quickly’

(3.22) **Finite Verb Omission (Code: 2)**

**Stimulus:** *En el sol Tarzán va a comerlo con muchas ganas.*

‘In the sun tarzan is going to eat it very eagerly’

**Imitation:** *en el sol… comerlo con muchas ganas.* (J10, 5;6)

‘in the sun… eat it very eagerly’

(3.23) **Infinitive Omission (Code: 3)**

**Stimulus:** *Por la tarde Pocahontas quiere verlo contento en su nido.*

‘In the afternoon Pocehontas wants to see it happy in its nest’

**Imitation:** *Por la noche Pocahontas lo quiere en el nido.* (J11, 5;2)

‘In the evening Pocahontas wants it in the nest’

(3.24) **Clitic Omission - No clitic or Full NP (Code: 4)**

**Stimulus:** *Muy cerquita del río Jazmín lo va a ver brillando.*

‘Very close to the river Jasmin is going to see it shinning’.

**Imitation:** Muy cerquita del río Jazmín va a ver brillando. (2, 6;11)

‘Very close to the river Jasmin is going to see shinning’.

(3.25) **Clitic Omission - Full NP or demonstrative pronoun ‘esto’ as DO (Code: 4N)**

**Stimulus:** *Con los enanitos Blancanieves quiere comerlo porque hace mucho calor*

‘With the dwarfs Snow White wants to eat it because it is really hot’

**Imitation:** *Blancanieves quiere comer un helado porque hace calor.* (P9, 4;04)

‘Snow White wants to eat an ice-cream because it is hot’

(3.26) **Clitic Copying (Code: 11)**

**Stimulus:** *Con cuidado Batman tiene que pegarlo antes que se caiga.*

‘Carefully, Batman has to glue it before it falls down’

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\(^8\) In cases where several errors were found in a response, the code of the error highest on this list of examples (3.21-3.38) was assigned. The stimuli are presented here just to illustrate repetition errors. They are thus only translated, not glossed.
Imitation: *Con cuidado que Batman lo tiene que pegar lo antes que se caiga.* (J2, 5;10)
‘Carefully, Batman [it] has to glue it before it falls down’

(3.27) Finite Verb Substitution - Clitic = position (Code: 5)
Stimulus: *Después de una siesta Bella lo quiere comer con miel.*
‘After a nap Belle wants to eat it with honey’
Imitation: *Después de una siesta la bella lo va a comer con miel.* (6, 6;5)
‘After a nap the Beauty is going to eat it with honey’

(3.28) Finite Verb Substitution - Clitic repositioned (Code: 5b)
Stimulus: *En el club Tomy quiere acusarlo a la señora nueva*
‘At the club Tomy wants to tell on him to the new teacher’
Imitation: *Dijo que Tomy lo tiene que acusar.* (P9, 4;4)
It said that Tomy has to tell on him.

(3.29) Finite Verb Substitution – No clitic (Code: 5c)
Stimulus: *A la siesta Mulan va a verlo con sus amigos*
‘At siesta time Mulan is going to see it with her friends’
Imitation: *A la siesta Mulán va a ir con sus amigos a x esto.* (J20, 5;2)
‘At siesta time Mulan is going to go with her friends to x this’

(3.30) Non-finite Verb Substitution - Clitic = position (Code: 6)
Stimulus: *Con los enanitos Blancanieves quiere comerlo porque hace mucho calor.*
‘With the dwarfs Snow White wants to eat it because it is very hot’
Imitation: *Blancanieves quiere comprarlo para que...* (P5, 5;0)
Snow White wants to buy it so that...

(3.31) Non-finite Verb Substitution - Clitic repositioned (Code: 6b)
Stimulus: *A la siesta Mulán va a verlo con sus amigos.*
‘At siesta time Mulan is going to see it with her friends’
Imitation: *A la siesta Mulán lo va a encontrar con sus amigos.* (P8, 4;9)
‘At siesta time Mulan is going to find it with her friends’

(3.32) Clitic Substitution - Change into feminine (Code: 7a)
Stimulus: *Antes de la fiesta Hercules lo va a rescatar rápido.*
‘Before the party Hercules is going to rescue him quickly’
Imitation: *Hércules la va a rescatar rápido.* (P5, 5;0)
‘Hercules is going to rescue her quickly’

(3.33) Clitic Substitution - Change into double clitic (Code: 7d)
Stimulus: *A la siesta Mulan va a verlo con sus amigos.*
‘At siesta time Mulan is going to see it with her friends’

Imitation:  A la siesta Mulán se lo va a ver con sus amigos. (6, 6;5)

‘At siesta time Mulan is going to see it herself with her friends’

(3.34) Clitic Substitution - Change into le (Leismo) or se (Code: 7)

Stimulus:  Por la tarde Pocahontas quiere verlo contento en su nido.

‘In the afternoon Pocahontas wants to see it happy in its nest’

Imitation:  Pocahontas quiere verle contento. (P7, 4;4)

‘Pocahontas wants to see him-DAT/ACC.le happy’

(3.35) Addition of Intervening Material (Code: 8)

Stimulus:  Hoy la hormiguita viajera lo tiene que pegar con plasticola.

‘Today the travelling little has to paste it with glue’

Imitation:  Hoy la hormiguita viajera tiene que hoy pegarlo con plasticola. (4, 6;9)

‘Today the travelling little has to today paste it with glue’

(3.36) Clitic Repositioning – Change into Proclisis/Forward repositioning (Code: 9)

Stimulus:  A la siesta Mulan va a verlo con sus amigos.

‘At siesta time Mulan is going to see it with her friends’

Imitation:  A la mañana Mulán lo va a ver con sus amigos. (P12, 4;8)

‘In the morning Mulan is going to see it with her friends’

(3.37) Clitic Repositioning – Change into Enclisis/Backward repositioning (Code: 10)

Stimulus:  Mañana el hada madrina lo tiene que ver de cerca.

‘Tomorrow the Fairy Godmother has to see it closely’

Imitation:  Mañana tiene que verlo de cerca. (P5, 5;0)

‘Tomorrow has to see it closely’

(3.38) Change in finite verb tense, person, or number (Code: 12)

Stimulus:  Muy a la noche Cenicienta lo va a buscar afuera.

‘Late at night Cinderella is going to look for it outside’

Imitation:  Anoche Cenicienta lo fue a buscar afuera (3, 6;11)

‘Last night Cinderella went to look for it outside’
<table>
<thead>
<tr>
<th>Code</th>
<th>Description of error</th>
<th>Total N of occurrences</th>
<th>4:0 (N/384)</th>
<th>5:0 (N/48)</th>
<th>6:0 (N/62)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No imitation at all or totally different elements as in the stimulus sentence.</td>
<td>64</td>
<td>31</td>
<td>26</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>Finite Verb Omission</td>
<td>16</td>
<td>4</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Infinitive Omission</td>
<td>21</td>
<td>8</td>
<td>10</td>
<td>3</td>
</tr>
</tbody>
</table>
| 4    | Clitic Omission:  
4) No clitic or Full NP (N=66) | 121 | 15 | 33 | 18 |
|      | 4N) Full NP or demonstrative pronoun ‘esto’ as DO (N=55) | 20 | 21 | 14 |
| 5    | Finite Verb Substitution | 92 | 18 | 27 | 11 |
|      | 5) Clitic = position (N=56) | | | |
|      | 5b) Clitic repositioned (N=31) | 13 | 9 | 9 |
|      | 5c) No clitic (N=5) | | | |
| 6    | Non-finite Verb Substitution | 49 | 15 | 12 | 7 |
|      | 6) Clitic = position (N=34) | | | |
|      | 6b) Clitic repositioned (N=15) | 5 | 4 | 6 |
| 7    | Clitic Substitution | 44 | 7 | 8 | 8 |
|      | 7a) Change into feminine (N=23) | | | |
|      | 7d) Change into double clitic (N=2) | | | |
|      | 7l) Leismo or “se” (N=19) | 6 | 7 | 6 |
| 8    | Addition of Intervening Material | 13 | 3 | 5 | 5 |
| 9-10 | Clitic Repositioning | 240 | 55 | 48 | 82 |
|      | 9) Change into Proclisis (N=185) | | | |
|      | 10) Change into Enclisis (N=55) | 12 | 24 | 19 |
| 12   | Change in verb tense, person or number | 19 | 3 | 11 | 5 |

Table 29 STUDY 2 – Scoring child participants’ responses by age group

\(^{87}\) N=384 correspond to the total number of stimuli (sentences) repeated by the 4:0-year-old group.
3.3.6 Predictions

Hypothesis 2.1: Given overall frequency of Proclisis and Enclisis in corpora and previous research (Eisenchlas 2003, p. 201), repetitions of the former will display greater accuracy than repetitions of the latter.

Hypothesis 2.2: In agreement with the lexical effect found on variationist studies, the independent variable Condition (Proclisis vs Enclisis) is hypothesized to interact with the independent variable Finite Verb.

Hypothesis 2.3: Mirroring lexical patterns found in corpora (e.g. Schwenter & Torres Cacoullos (2014), §Chapter 2), Clitic Forward repositioning will be more frequent with *ir (a)* than with the other two verbs (esp. than *tener que* ‘have to’) and Clitic Backward repositioning will be more frequent with *tener que* ‘have to’ and, to a lesser extent with *querer* ‘want’, than with *ir* ‘go’).

Hypothesis 2.4: In agreement with the semantic effect found on variationist studies (e.g. Davies (1995); Myhill (1988), §Chapter 2), Clitic Forward repositioning will be more frequent with Animate referents mirroring preferences found in corpora. Similarly, and for the same reasons, Clitic Backward repositioning is expected to be more frequent with Inanimate referents.

3.3.7 Results

(A) Results Adult Participants

Adult responses consisted of mainly correct repetitions (Table (32)), which reached 96% (201/210). The repetition errors were produced by only two participants, with one participant being producing 8/9 repetition errors. Four types of inaccurate repetitions were found, namely Forward repositioning (N=1), Clitic copying (N=1), Clitic substitution (N=1), and Backward repositioning (N=6) (See Table 32). Due to the small number of repetition inaccuracies, statistical analysis was not conducted. I will offer a description of these results, instead.
Interestingly in terms of the lexical constraint on clitic placement variation, seven inaccurate repetitions produced by the adult group occurred in sentences with tener que ‘have to’, two with querer ‘want’, and none with ir ‘go’, the same being true for Backward repositioning errors (the most frequent type of inaccurate repetitions). Even though adults performed at ceiling in this task, the very few instances of inaccurate repetitions point in the direction of effects expected by the variationist literature.

(B) Results child participants: Accuracy

Analysis

A generalized linear mixed model (GLMM) was fitted to the binary response variable (repetition accuracy vs. inaccuracy) with the following predictor variables: Age (4;0, 5;0, 6;0)\textsuperscript{88},

\textsuperscript{88} Alternative analyses were carried out replicating these results. These analyses replaced though this variable with Age in Months as a continuous variable (F(1,1480) = 23.022, p = .000), with STM as a continuous variable using the composite score (F(1,1480) = 55.963, p = .000), and with STM Groups (high vs low) divided around the median for
Condition (Enclisis vs Proclisis), Animacy (Animate vs Inanimate), and Finite Verb (Ir a, Querer, Tener que). Participant was added as a random effect for the same reasons as in the previous analyses. Due to previous data on verb preferences, the interaction between Condition × Finite Verb was also tested.

**Results**

The percentage of accurate repetitions by child participants was 53% (794/1488). The analysis revealed that two factors significantly affect repetition accuracy, namely Age group (F(2,1479) = 9.170, p = .000) and Condition (F(1,1479) = 130.148, p = .000). Animacy (F(1,1479) = .228, p = .633) or Finite Verb (F(2,1479) = .128, p = .880) did not render significant effects on repetition accuracy. However, a significant interaction between Condition × Finite Verb was found (F(2, 1479) = 8.670, p = .000).

To start with, the positive effect of Age predicted on maturational grounds was statistically significant. Compared to 6;0-year-olds (M = .705, SD = .044), the odds of accurate repetitions decrease for 5;0-year-olds (M = .437, SD = .059) (Odds Ratio = .324, p = .000), and even more with 4;0-year-olds (M = .407, SD = .064) (Odds Ratio = .286, p = .000), both differences being significant. Figure (24) shows the estimated means of Proclisis for the three age groups. A follow-up analysis excluding 6;0-year-olds showed no difference between the other two younger age groups (F(1, 856) = .146, p = .702).

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STM composite scores (F(1,1480) = 31.772, p = .000). All of these measures of Age and of STM proved to be significant for Repetition Accuracy. Here I report the analysis which included Age in Years in order to keep consistency across studies.

89 I used an alpha level of .05 for all statistical tests.
Second, given that Condition is involved in a significant interaction, its positive main effect will be interpreted through the interaction. In the Enclisis condition the odds of correct repetitions decrease for *ir* ‘go’ (M = .318, SE = .042) and *querer* ‘want’ (M = .309, SE = .041) compared to *tener que* ‘have to’ (M = .428, SE = .046). In the Proclisis condition, on the other hand, the odds of correct repetitions increase for *ir* ‘go’ (M = .704, SE = .041) and *querer* ‘want’ (M = .741, SE = .038) compared to *tener que* ‘have to’ (M = .604, SE = .045).

The percentage of errors having to do only with clitic production accounted for 60% of all imitation errors (420/694). (See Figure (25) below and APPENDIX G for the numerical data). The present study finds errors of clitic copying (N=15), and clitic substitution (N=99), clitic omission (N=66) and considerable more errors of clitic repositioning (N=240). The latter consist of repetitions where the error would consist in repositioning the clitic from the original position where it was presented to the alternative. Clitic Repositioning errors were the most frequent types of errors. Interestingly, children moved the clitic to a preverbal position (Forward repositioning = Error 9) much more often that they did the reverse (Backward repositioning = Error 10). This pattern is similar to that reported by previous studies.
In what follows I present statistical analysis of the factors that might affect the likelihood of Forward repositioning (error 9) and Backward repositioning (error 10). Some considerations need to be made before we embark into the specific analyses. It should be noted that the design of the Elicited Imitation task allowed Forward repositioning only in the sentences presented in the Enclisis condition (i.e. 50% of the stimuli), and Backward repositioning was possible only in the sentences presented in the Proclisis condition (i.e. the other 50% of the stimuli). As such, the analysis of the factors that affect the probability of Forward repositioning will be carried out taking into account only the tokens in the Enclisis condition (N=744) and coding each case as to whether there is presence of this repetition error versus no error/other error. Similarly, the
analysis of the factors that affect the probability of Backward repositioning will be carried out
taking into account only the tokens in the Proclisis condition (N=744) and coding each case as to
whether there is presence of this repetition error versus no error/other error.

(B1) Results Child Participants: Forward Repositioning

Analysis

A generalized linear mixed model (GLMM) was fitted to the binary response variable
(Forward repositioning Error vs NO Forward repositioning error) with the following predictor
variables: Age (4:0, 5:0, 6:0)\footnote{Alternative analyses were carried out replicating these results. These analyses replaced though this variable with Age in Months as a continuous variable (F(1,739) = .253, p = .615), with STM as a continuous variable using the composite score (F(1,739) = 2.018, p = .156), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,739) = 1.756, p = .186). All of these measures of Age and of STM proved to be non-significant for Forward Repositioning. Here I report the analysis which included Age in Years in order to keep consistency across studies.}, Animacy (Animate vs Inanimate), and Finite Verb (Ir a, Querer, Tener que). Condition was not included as a fixed effect because this analysis was carried out
only on the tokens belonging to the Enclisis condition (N=744) since these were the only ones
where Error 9 (Forward repositioning) could take place. Participant was added as a random
effect, as in the previous analyses.

Results

The analysis revealed that only one factor significantly affects the likelihood of Forward
repositioning, namely Animacy (F(1,738) = 9.918, p = .002). Neither Age in Years (F(2,738) =
.487, p = .614) nor Finite Verb (F(2,738) = 2.228, p = .108) rendered significant effects on
forward repositioning. The positive effect of Animacy shows that the odds of
Forward repositioning increase with Animate referents (M = .247, SE = .042) compared to Inanimate
referents (M = .150, SE = .030) (Odds Ratio = 1.85, p = .002) (see Figure 26).
Even though no main effect of Finite Verb was found on Forward Repositioning, a quick observation at the direction of the effect follows the prediction. Figure (27) shows how the Forward Repositioning estimated means for *ir* ‘go’ (M = .242, SE = .045) is higher than for *querer* ‘want’ (M = .171, SE = .036) and *tener* ‘have’ (M = .175, SE = .037).
Results child participants: Backward repositioning

Analysis

A generalized linear mixed model (GLMM) was fitted to the binary response variable (Backward repositioning Error vs NO Backward repositioning error) with the following predictor variables: Age (4;0, 5;0, 6;0)
91, Animacy (Animate vs Inanimate), and Finite Verb (Ir a, Querer, Tener que). Condition was not included as a fixed effect because this analysis was carried out only on the tokens belonging to the Proclisis condition since these were the only ones where Error 10 (Backward repositioning) could take place. From those, all tokens with the verb ir ‘go’ (N=248) were excluded from the analysis because Backward Repositioning occurred only twice with this verb. As a result, the following analysis was conducted over 496/744 tokens presented in the Proclisis condition. Participant was added as a random effect, as in the previous analyses.

Results

The analysis revealed main effects of Finite Verb (F(1,491) = 13.136, p = .000) and of Animacy (F(1,491) = 6.481, p = .011) on the likelihood of Backward Repositioning. Age did not turn significant (F(2,491) = 1.243, p = .290). The negative effect of Finite Verb means that the odds of Backward repositioning decrease with querer ‘want’ (M = .043, SE = .013) compared to tener que ‘have to’ (M = .132, SE = .027) (Odds Ratio = .29, p = .000) (see Figure 28).

91 Alternative analyses were carried out replicating these results. These analyses replaced though this variable with Age in Months as a continuous variable (F(1,492) = .014, p = .906), with STM as a continuous variable using the composite score (F(1,492) = .284, p = .594), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,492) = .003, p = .956). None of these measures of Age and of STM proved to be significant for Backward Repositioning. Here I report the analysis which included Age in Years in order to keep consistency across studies.
The negative effect of Animacy means that the odds of Backward Repositioning decrease with Animate referents ($M = .052$, $SE = .015$) compared to Inanimate referents ($M = .110$, $SE = .024$) (Odds Ratio = .44, $p = .011$) (see Figure 29).
3.3.8 Discussion

**Hypothesis 2.1**: Given overall frequency of Proclisis and Enclisis in corpora and previous research (Eisenchlas 2003, p. 201), repetitions of the former will display greater accuracy than repetitions of the latter.

**Hypothesis 2.2**: In agreement with the lexical effect found on variationist studies, the independent variable Condition (Proclisis vs Enclisis) is hypothesized to interact with the independent variable Finite Verb.

The rate of accurate repetition by child participants approximates that reported by Eisenchlas (2003, p. 201), where repetition accuracy was 58%. The slightly lower rate in the present study might be due to the characteristics of the present design which included only ACC clitics, whereas Eisenchlas’ study included also DAT clitics (which have been reported to emerge before accusative ones (Aguado Orea, 2000; Blasco Asnar, 2002; Fantini, 1985; Hernández Pina, 1990; López Ornat et al., 1994; Montrul et al., 2006). Another hypothesis for the slightly lower accuracy rate in the present study is that, even though the present of a referent for the clitic, was assumed to make the task more ecologically valid, it may have added extra (semantic) material to participants memory, making the task more complex.

With respect to Age, whereas Eisenchlas (2003) finds a significant effect on repetition accuracy between younger (3;0-4;6) and older (4;8-6;4) participants only, her study did not find significant differences between the children in the older groups (4;8–5;0, 5;2–5;6, 5;7–6;0, 6;1–6;4). The present study, which only tested children whose ages almost correspond to Eisenchlas’ older group, finds that repetition accuracy improves when age is measured in months.

The significant effect of Condition replicates Eisenchlas’ finding that preverbal clitics are easier for children than postverbal clitics, which may be linked to the greater frequency of Proclisis overall in the input (§ Chapter 2). As anticipated based on the results in the corpus studies reported in the previous chapter, **Condition and Finite Verb display an interaction when considering repetition accuracy.** In particular, the odds of accurate repetitions of sentences with *ir* ‘go’ and *querer* ‘want’ in the Enclisis condition decreased significantly compared to *tener que* ‘have to’. In contrast, the odds of accurate repetitions of sentences with *ir* ‘go’ and *querer* ‘want’ in the Proclisis condition increased significantly compared to *tener que* ‘have to’.

To sum up, repetition accuracy in child participants increases with age as expected based on developmental accounts (Figure 30). Also repetition accuracy is greater with proclisis than
with enclisis, as hypothesized after considering general trends towards proclisis in Modern Spanish (see in Figure (30) how when participants whose accurate imitations fall in one condition, such condition tends to be Proclisis). This effect is noticeable at the level of specific verbs (due to a Condition × Finite Verb interaction). Adults make very few repetition errors, mostly with the verb tener que, which raises questions regarding the peculiar behavior of this obligation construction.

Hypothesis 2.3: Mirroring lexical patterns found in corpora (e.g. Schwenter & Torres Cacoullos 2014, §Chapter 2), Clitic Forward repositioning will be more frequent with ir (a) than with the other two verbs (esp. than tener que ‘have to’) and Clitic Backward repositioning will be more frequent with tener que ‘have to’ and, to a lesser extent with querer ‘want’, than with ir ‘go’).

The analysis of Forward Repositioning does not provide evidence for verb-specific preferences in clitic placement. However, when looking at the direction of the non-significant
effect of Finite verb, one can perceive that Forward Repositioning occurs more often with *ir* ‘go’ than with the other two verbs. The results of Backward repositioning also show that children use information about the verb in variable clitic placement. In particular, these data report virtually no backward repositioning with *ir* ‘go’ (only two cases found). Also, the analysis shows that the odds of making such an error when repeating proclisis is significantly higher for *tener que* ‘have to’, as predicted from corpus data. The fact that when adults make repositioning errors, backward repositioning with this verb is also the most common could be an indication of its Enclisis bias, even when tested in a cognitively non-demanding task.

**Hypothesis 2.4:** In agreement with the semantic effect found on variationist studies (e.g. Myhill 1988, Davies 1995, §Chapter 2), Clitic Forward repositioning will be more frequent with Animate referents mirroring preferences found in corpora. Similarly, and for the same reasons, Clitic Backward repositioning is expected to be more frequent with Inanimate referents.

The significant main effect of Animacy corroborates the expectation based on Myhill (1988) that clitics with animate referents prefer the preverbal position as expected based on the proposal of an animacy scale. This effect corresponds to a similar effect found in adult speakers (§Chapter 2, see also Davies 1995). Animacy of the clitic referent significantly affects Backward Clitic Repositioning. In particular, the likelihood of this repositioning error drops 50% with animate referents which, as shown in §Chapter 2, prefer Proclisis.

Taken together, the results from STUDY 1 and STUDY 2 show that the group of children under consideration (4;1-7;0) exploit lexical (Finite verb) and semantic (referent animacy) constraints when it comes to placing DO clitics in variable contexts in both more and less controlled tasks. This adds to our knowledge of the extent of children’s command of structured syntactic variation in Spanish. A new group of participants was tested in a different Elicited Production task (STUDY 3) that sought to increase the number of variable contexts in child responses at the same time that it added an animacy manipulation, which was not part of STUDY 1. An attempt of replication of the Elicited Imitation task is presented in STUDY 4.
3.4 STUDY 3: Elicited Production Task: Envelopes

3.4.1 Rationale

After analyzing the shortcomings of the Elicited Production Task: Windows (§STUDY 1) and the results from the Elicited Imitation Task (§STUDY 2), a series of changes to that design were introduced to the former design in order to increase the number of target responses (and reduce exclusions), as well as also to test the role of Animacy (detected in STUDY 2) in another elicited production task. The basic idea behind this new task was the same as in the case of STUDY 1, namely animate cartoon characters have something (an animate or inanimate entity) to which they are going to (ir ‘go’), want to (querer ‘want’), or have to (tener ‘have’) do something. Then the participant is asked to tell the experimenter what each character is going to (ir ‘go’), wants to (querer ‘want’), or has to (tener ‘have’) do to it. One critical difference between this new design and that of STUDY 1 is that participants were presented with cards about three characters interacting with a certain entity within a single envelope. In order to answer the experimenter’s question, participants had to take a card from the envelope. Critically, the order of the cards taken out of the envelope by the participant was not controlled for. This made it essential for the participant to start his/her answer with the name of the character (the Subject of the sentence), which was expected to increase in turn the presence of a finite verb and the remaining elements a variable context.

3.4.2 Participants

Seventy-seven middle-class children different from those in STUDIES 1 and 2 were recruited from two different elementary private schools and kindergartens in the city of Cordoba, in the center of Argentina. Ages ranged between 4;0-6;9 (M = 5;4). From them, the responses of five participants ended up out of the analysis due to exclusions, so a total of 72 participants were analyzed (Table 33). Also 20 adults from the same area were tested but, as it will be explained later, data from three adults were excluded, which resulted in data from 17 adult participants in the analysis.
<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4;0 (N=21)</td>
<td>4;4 (0;2)</td>
<td></td>
</tr>
<tr>
<td>5;0 (N=26)</td>
<td>5;4 (0;3)</td>
<td></td>
</tr>
<tr>
<td>6;0 (N=25)</td>
<td>6;3 (0;3)</td>
<td></td>
</tr>
</tbody>
</table>

Table 31 STUDY 3 – AGE Groups for child participants (N=72)

Two new versions of the Short-Term Memory tasks similar to those used in STUDIES 1 and 2 were included here (See APPENDIX H for the complete stimuli). The Word-Recall Task consisted of almost the same words as in the previous version, except for the word *casco* ‘helmet’ which was replaced by *frasco* ‘jar’, as this item proved to be harder for children. A conservative scoring measure was introduced. It consisted of recording the last series of words correctly recalled. A series was considered correctly recalled, if a participant recalled correctly (all words in the right order) at least two of the four sets that made up that series. The mean score for the series correctly repeated for the child participants was $M = 3.42$ (SD = 0.49), and for the adults it was $M = 4.55$ (SD = 0.49). The Digit-Recall Task consisted of a version of the forward digit recall test that is part of the Wechsler Adult Intelligence Scale (WAIS). Administration consisted of the experimenter reading the first set of a series at a rate of one digit per second and not grouped, letting intonation drop with the last digit. Upon successful repetition of that set, the researcher moved up a series. In the case of inaccurate recall of set I, researcher moved to set II. If the participant correctly recalled this set, the researcher moves up to the next series. If a participant fails to correctly recall both sets of a series, testing stopped. The number of the highest series correctly recalled (either in set I or set II) was considered the score for that participant. The mean score for the series correctly repeated for the child participants was $M = 3.92$ (SD = 0.75), and for the adults it was $M = 5.85$ (SD = 1.15). A composite mean value was calculated from the score in the Word-recall and the Digit-recall tasks. Based on the median score, participants were divided in to high- and low-STM group (Tables 34-35).

For two participants (J15.25M and J9.25M), data from STM task words was missing. Their composite score was that of the STM Task Digits.
### Table 32

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>STM Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child – Low STM (N=37)</td>
<td>M = 5;0</td>
<td>M = 3.16 (SD = 0.46)</td>
</tr>
<tr>
<td>Child – High STM (N=35)</td>
<td>M = 5;8</td>
<td>M = 4.32 (SD = 0.31)</td>
</tr>
</tbody>
</table>

Table 32 STUDY 3 – STM Groups based on composite score means and standard deviations for child participants (N=72)

### Table 33

<table>
<thead>
<tr>
<th>Group</th>
<th>STM Composite Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adult – Low STM (N=15)</td>
<td>M = 5.2 (SD = .35)</td>
</tr>
<tr>
<td>Adult – High STM (N=5)</td>
<td>M = 6.2 (SD = .4)</td>
</tr>
</tbody>
</table>

Table 33 STUDY 3 - STM Groups based on composite score means and standard deviations for adult participants (N=20)

An Independent Samples t-test with equal variances shows that the two child subgroups (high and low STM) differed in STM as measured by the composite ($t(70) = -12.205, p = .000$). A second Independent Samples t-test with equal variances shows that the two child subgroups (high and low STM) differed in Age as measured in months ($t(70) = -4.558, p = .000$). An Independent Samples t-test with equal variances shows that the two adult subgroups (high and low STM) differed in STM as measured by the composite ($t(18) = -4.804, p = .000$).

#### 3.4.3 Stimuli

Six envelopes (two for *ir* ‘go’, two for *querer* ‘want’, and two for *tener* ‘have’) displaying images of three cartoon characters and either animate or inanimate entities (eg. a kitten or a piece of paper) with whom these characters were interacting were created. Each envelope contained three cards (one per character) showing one of the characters and a visual representation of an action that such character could perform to the entity (See Figure 31) (See APPENDIX I for the complete set of stimuli). Each participant was expected to produce a total of 18 sentences (3 sentences per envelope).
3.4.4 Procedure

Child participants whose caregivers had previously consented were tested during school hours in a quiet room provided by the school and kindergarten. All participants were eager to take part in the study. This task took place at the beginning of the second testing session with each child participant (preceded only by a Short-Term memory task). The session was digitally audio-recorded to facilitate manipulation and transcription. Adult participants were tested in one session in a quiet room. Participants were told that they were going to hear about some characters who have some things and that they would have to search in envelopes to answer questions about those characters. The envelopes were provided in the same order to all participants (from 5 to 1) because pilot data showed that the use of *ir* ‘go’ at the beginning of the experiment triggered continuation with this verb even when the critical question asked by the experimenter changed later on. However, starting with *tener* ‘have’, the *querer* ‘want’ and ending with the *ir* ‘go’ trials did not result in overuse of *tener* or *querer*. (See 3.39)

(3.39) Experimenter: *Yo te voy a mostrar unos personajes que tienen algo. Vos tenés sacar tarjetas de un sobre y contarme qué hace cada personaje con eso que tiene.*

‘I will show you some characters that have something. You have to take cards from the envelope and tell me what each carácter does with the thing they have.’
Ben 10, Timón and Barney tienen un dibujo cada uno.
‘Ben 10, Timón and Barney have a drawing each.‘

Ellos quieren hacer algo con el dibujo.
‘They want to do something with the drawing.

Pero yo no sé qué quieren hacer con el dibujo.
‘But I don’t know what they want to do with the drawing.‘

Contame: ¿Qué quiere hacer cada uno con el dibujo?
‘Tell me: what does each of them want to do with the drawing?‘

Yo no miro.
‘I won’t look’. 

Participant: (The participant takes out a card)

Barney quiere doblarlo/lo quiere doblar
‘Barney wants to fold it’

(Then the participant proceeds to take the other two cards from this envelope)

3.4.5 Predictions

Hypothesis 3.1: The rate of child participants’ responses containing full variable contexts is expected to be greater than in STUDY 1 (56% = 405/720).

Hypothesis 3.2: Participant’s responses are expected to show a significant effect of Finite Verb. At the very least, ir ‘go’ is expected to appear in Proclisis more than tener ‘have’. 

Hypothesis 3.3: Participant’s responses are expected to show a significant effect of Animacy. In particular, clitics with animate referents are expected to favor Proclisis.
Hypothesis 3.4: Based on the results of the previous studies, no effect of Age is expected.

3.4.6 Results

(A) Results Adult Participants

Coding

The twenty adult participants produced N=360 sentences. Of those, I excluded n=3 cases coded as Other (3.40), and n=9 cases of invariable contexts (3.41).

(3.40) Shrek, no sé, parece que también, … poner al hombre. (Participant 102)

Shrek NEG know.PRS.1SG seem.PRS.3SG that also put the man

(3.41) Shrek lo alza. (Participant 100)

Shrek it.ACC.M3SG picks up

‘Sherk picks it up’

Of the remaining N=348 cases of utterances containing variable contexts, I excluded n=133 cases of Full NP DOs (3.42), as well as n=1 case with a missing DO (3.43).

(3.42) Barney quiere doblar el dibujito por la mitad.

Barney want.PRS.3SG fold the drawing by the half

‘Barney wants to fold the little drawing in half.’ (Participant 118)

(3.43) Barney tiene que doblar. (Participant 100)

Barney have.PRS.3SG to fold

‘Barney has to fold.’
The remaining N=214 cases contained variable constructions with clitics. From these n=6 were excluded as they contained clitic clusters (3.44). So, the total number of tokens included in the analysis of adult data was N=208. As the result of data cleaning, data from three adults\(^{93}\) were excluded from the analysis. So, the statistical analysis included 17 adult participants. (See APPENDIX J for number of responses by participant).

(3.44) Aladín se lo va a comer.

Aladdin himself it.ACC.M3SG go.PRS.3SG to eat

‘Aladdin is going to eat it himself.’ (Participant 112)

**Analysis**

A generalized linear mixed model (GLMM) was fitted to the binary response variable (Proclisis vs Encisis) with the following predictor variables: STM (high vs. low)\(^{94}\), Animacy (Animate vs Inanimate), and Finite Verb (Ir a, Querer, Tener que). Participant was added as a random effect.

**Results**

Adult participants produced 47% of Proclisis (99/208). The analysis\(^{95}\) revealed no effect of Animacy (F(1,203) = .335, p = .563) or STM (F(1,203) = 3.128, p = .078), even though STM approaches significance. However, Finite Verb significantly affects the placement of the clitic (F(2,203) = 18.802, p = .000). In particular, the odds of Proclisis are greater with *ir ‘go’* (M = .794, SE = .109) than with *tener ‘have’* (M = .049, SE = .038) (Odds Ratio = 74.33, p = .000). Additionally, the odds of Proclisis are greater with *querer ‘want’* (M = .207, SE = .124) than with *tener ‘have’* (Odds Ratio = 5.03, p = .020). Figure (32) below shows the estimated means of Proclisis for *ir ‘go’* (I), *querer ‘want’* (Q), and *tener ‘have’* (T).

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\(^{93}\) Participants 118, 119, and 120.

\(^{94}\) A separate Analysis using STM as a continuous variable also shows a significant effect of Finite verb (F(2,203) = 18.842, p = .000), but no significant effect of STM (F(1,203) = 2.303, p = .131) or Animacy (F(1,203) = .349, p = .555).

\(^{95}\) I used an alpha level of .05 for all statistical tests.
Figure 32 STUDY 3 – Estimated means for Finite Verb in adult productions

(B) Results Child Participants

Coding
Child participants produced N=1386 sentences. Of those, I excluded n=41 cases coded as Other (3.45), and n=187 cases of invariable contexts (3.46).

(3.45) *Quiere que pintar=lo. (Participant P1.25M)
    want.PRS3SG to color=it.ACC.M3SG
    ‘[He] wants to color it.’

(3.46) El cazador mata al mosquito. (Participant P13.25M)
    the hunter kill.PRS.3SG the mosquito
    ‘The hunter kills the mosquito.’

The remainder N=1158 corresponded to variable contexts. From those, I excluded n=262 cases of Full NP DOs (3.47), n=66 cases missing DOs (3.48), and n=38 cases of Clitic Doubling (3.49).

(3.47) Timón quiere cortar el dibujo. (Participant 10.ST)
    Timon want.PRS3SG cut the drawing
‘Timon wants to cut the drawing.’

(3.48) Mickey tiene que cocinar. (Participant P9.25M)
Mickey have.PRS3SG to cook
‘Mickey has to cook.’

(3.49) Donald mañana lo va a lavar al perro. (Participant 22.25M)
Donald tomorrow it.ACC.M3SG go.PRS.3SG to wash the dog
‘Donald is going to wash [it] the dog tomorrow.’

The remainder N=792 corresponded to variable contexts where clitics were used. From those, I excluded n=14 cases of clitic clusters (3.50), n=9 cases of le/s (DAT) (3.51), n=7 cases of la (ACC.F3SG) (3.52), n=5 cases of los (ACC.M3PL) (3.53), and n=4 cases of Clitic Copying, where the clitic occupies both positions simultaneously (3.54).

(3.50) Aladín se lo va a comer.
Aladdin himself it.ACC3SG go.PRS3SG to eat
‘Aladdin is going to eat it himself.’ (Participant 4.ST)

(3.51) Elsa quiere dar=le un beso. (Participant 7.ST)
Elsa want.PRS3SG give=him.DAT3SG a kiss
‘Elsa wants to give him a kiss.’

(3.52) El gallo tiene que atrapar=la. (Participant P5.ST)
The rooster have.PRS3SG to catch=her.ACC.F3SG
‘The rooster has to catch her.’

(3.53) Maléfica tiene que pisarlos. (Participant 19.25M)
Maleficent have.PRS3SG to crush=them.M3SG
‘Maleficent has to crush them.’
(3.54) Pluto lo tiene que poner=lo en la heladera.

Pluto it.ACC.M3SG have.PRS3SG to put=it.ACC.M3SG in the fridge

‘Pluto [it] has to put it in the fridge.’ (Participant 3.25M)

As a result of data cleaning, I was left with N=753 tokens of variable contexts with the clitic lo. Of those, I excluded n=13 cases of poner ‘can’ + Infinitive (3.55) and n=19 cases of estar ‘be’ + Gerund (3.56) because no specific predictions were made for these verbs. Nevertheless, the former shows 42% of Proclisis (8/19), whereas the latter displays 100% of Proclisis (13/13).

(3.55) Ben10 lo puede dibujar. (Participant P7.25M)

Ben10 it.ACC.M3SG can.PRS3SG draw

‘Ben10 can draw it.’

(3.56) Minnie lo está cortando. (Participant 8.25M)

Minnie it.ACC.M3SG be.PRS3SG cut.GER

‘Minnie is cutting it.’

After all exclusions, a total of N= 721 were entered into the statistical analysis. Data cleaning resulted in five participants\(^9\) being excluded because all their productions were excluded, so data from N=72 participants was included in the analysis. (See Figure 33 and APPENDIX J for details on each participant’s responses).

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\(^9\) Participants (ages in parentheses): P11.ST (4;7), J8.25M (5;3), 22.25M (6;8), 8.ST (6;5), and 6.ST (6;5).
Analysis

A generalized linear mixed model (GLMM) was fitted to the binary response variable (Proclisis vs Encisis) with the following predictor variables: Age (4;0, 5;0, and 6;0), Animacy (Animate vs Inanimate), and Finite Verb (Ir a, Querer, Tener que). Participant was added as a random effect.

Results

Child participants produced 66% of Proclisis (476/721). The analysis revealed no effect of Age (F(2,715) = 1.509, p = .222). However, Finite Verb (F(2,715) = 48.641, p = .000) and Animacy (F(1,715) = 7.771, p = .005) significantly affect the placement of the clitic.

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Alternative analyses were carried out replacing this variable with Age in Months as a continuous variable (F(1,716) = .421, p = .517), with STM as a continuous variable using the composite score (F(1,716) = .116, p = .733), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,716) = .575, p = .449). None of these measures of Age or STM proved to be significant. In consequence, I report the analysis which included Age in Years in order to keep consistency across studies.

I used an alpha level of .05 for all statistical tests.
In particular, the odds of Proclisis are much greater with *ir* ‘go’ (M = .973, SE = .011) than with *tener* ‘have’ (M = .377, SE = .083) (Odds Ratio = 59.58, p = .000). Additionally, the odds of Proclisis are greater with *querer* ‘want’ (M = .676, SE = .076) than with *tener* ‘have’ (Odds Ratio = 3.45, p = .000). Figure (34) below shows the estimated means of Proclisis for *ir* ‘go’ (I), *querer* ‘want’ (Q), and *tener* ‘have’ (T).

![Finite verb](image)

**Finite verb**

Figure 34 STUDY 3 – Estimated means for Finite Verb in child productions

A new analysis using the same model but excluding the *tener* ‘have’ tokens replicates the Animacy (F(1,462) = 8.467, p = .004) and, importantly, shows a main effect of Finite Verb on clitic placement (F(1,462) = 50.556, p = .000) where the odds of Proclisis are greater with *ir* ‘go’ (M = .959, SE = .016) than with *querer* ‘want’ (M = .615, SE = .074) (Odds Ratio = 14.49, p = .000). This difference reaches significance. Figure (35) below shows the estimated means of Proclisis for *ir* ‘go’, and *querer* ‘want’.
Finite verb

Figure 35 STUDY 3 – Estimated means for Finite verb (ir vs querer) in child productions

With regard to Animacy, the analysis shows that the odds of Proclisis are greater when clitics have an Animate referent ($M = .833$, $SE = .047$) than when clitics have an Inanimate referent ($M = .719$, $SE = .067$) (Odds Ratio $= 1.94$, $p = .005$). Figure (36) below shows the estimated means of Proclisis for sentences with Animate (A), and Inanimate (I) referents.

Animacy

Figure 36 STUDY 3 – Estimated means for Animacy in child productions
3.4.7 Discussion

**Hypothesis 3.1:** The rate of child participants’ responses containing full variable contexts is expected to be greater than in STUDY 1 (56% = 405/720).

In STUDY 1 participants produced 56% of variable contexts (405/720) and, as a result of further data cleaning 42% (304/720) of all responses were entered into the statistical analysis. In STUDY 3, the rate of variable contexts produced as the result of the manipulation climbed to 83% (1158/1386). Similarly, the rate of tokens that finally entered the statistical analysis was 52% (721/1386), also greater than in STUDY 1. This implies that the present design improved the elicitation task by providing a greater bulk of usable data for all child participants, but especially for the 4;0- and 5;0-year-olds where the number of children excluded dropped dramatically from STUDY 1 to STUDY 3.

**Hypothesis 3.2:** Participant’s responses are expected to show a significant effect of Finite Verb. At the very least, *ir* ‘go’ is expected to appear in Proclisis more than *tener* ‘have’.

STUDY 3 shows that not only does the finite verb impacts clitic placement in the expected direction, but also that *querer* ‘want’ triggers more Proclisis than *tener* ‘have’ (a result that was not found in the previous studies). This result is coherent with the corpus data that reports a continuum between *ir* > *querer* > *tener* (§Chapter 2). Interestingly, this result was consistent between the child and the adult groups.

**Hypothesis 3.3:** Participant’s responses are expected to show a significant effect of Animacy. In particular, clitics with animate referents are expected to favor Proclisis.

Animacy of the referent significantly impacted clitic placement in children in the expected direction. The likelihood of Proclisis increased with animate clitics. This suggests that children are sensitive not only to information about the verb, but also about the pronoun referent, and importantly, that they use this information to determine the position of the clitic. This result is supported by the corpus data on Argentine Spanish reported in §Chapter 2.

**Hypothesis 3.4:** Based on the results of the previous studies, no effect of Age is expected.

As in the previous two studies, no effect of Age was found in STUDY 3. This suggests that by 4;0 years of age the acquisition of legal clitic positions (cf. Eisenchlas 2003) and of
specific constraints on variable clitic placement has stabilized reaching adult patterns of variation.
3.5 STUDY 4: Elicited Imitation Task: Animacy

3.5.1 Rationale

The significant effect of animacy on clitic placement variation found in STUDIES 2 and 3 could suggest that children are indeed using the distinction between animate and inanimate entities in variable clitic placement. It is not clear, however, what exactly this means in terms of what specific knowledge of the clitic referent children are accessing to constrain this variation. On the one hand, it could be assumed that this is a matter of the attribution of life to an entity (following the animism tradition started by Piaget 1929). This basic information could be assumed to be encoded in the linguistic form (the name of the referent) as an intrinsic part of its meaning. If children access animacy information understood in this way (i.e. contained in a lexical entry) when dealing with variable clitic placement, then regardless of any temporary modifications to the visual stimuli in the experimental design, entries associated with non-living entities should favor Enclisis. Even though I do not hypothesize this to be the case, it is a valid hypothesis.

On the other hand, it could be that the concept of animate vs inanimate might emerge from the functions of animate entities as experienced in the world (as agents, and salient entities in human experience), and that what the child needs to learn are the ways in which language encodes those (as subjects, fronting, Proclisis, etc). If what we have been calling “animacy” is more an issue of which entities tend to receive more agent-like treatment and salience in language, then “animacy” could be a matter of degree, and affected by relative agentivity/salience even by the experimental design itself. One hypothesis drawn out if this would be that visual animation (personification) of inanimate entities (by adding eyes, nose, and mouth) in the experimental stimuli could lead children to treat those entities as more agent-like or salient, in ways that could trigger linguistic devices associated with marking such kind of participants (e.g. Proclisis). In short, the prediction here would be that animism (which could even be interpreted by participants as anthropomorphism99) of inanimate referents in the particular testing situation would neutralize the effect of “animacy” reported in STUDY 2.

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99 The “tendency to ascribe not only life but also reasoning, feelings, desires and human capabilities to non-human beings and inanimate objects” (Kallery & Psillos, 2004, p. 291).
3.5.2 Participants

Sixty-eight middle-class children and twenty adults (from the ones who participated on STUDY 3) that participated in STUDY 3 participated in this study. The children were randomly assigned to one of two groups: a Control group (N=34, ages 4;0-6;4, M = 5;3, SD = 0;7) and an Experimental group (N=33, ages 4;0-6;10, M = 5;4, SD = 0;8). Data from one child was excluded due to experimenter error (See Table 36).

<table>
<thead>
<tr>
<th>Control Group</th>
<th>Age</th>
<th>STM Composite Score</th>
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<tbody>
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<td>M = 4;4 (SD = 0;2)</td>
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<td>6;0 (N=10)</td>
<td>M = 6;2 (SD = 0;1)</td>
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<table>
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<th>STM Composite Score</th>
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</tr>
<tr>
<td>5;0 (N=13)</td>
<td>M = 5;3 (SD = 0;2)</td>
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</tr>
<tr>
<td>6;0 (N=10)</td>
<td>M = 6;4 (SD = 0;2)</td>
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</tr>
</tbody>
</table>

Table 34 STUDY 4 – Children’s age subdivisions within groups (N=67)

Taking the Median off the composite score for the STM tasks (the stimuli appears in APPENDIX H as it coincides with the STM tasks described for STUDY 3), participants were divided in high and low STM groups. An Independent Samples t-test with unequal variances shows that the two child subgroups (high and low STM) differed in STM as measured by the composite \( (t(747.038) = -55.412, p = .000) \). A second Independent Samples t-test with equal variances shows that the two child subgroups (high and low STM) also differed in Age as measured in months \( (t(802) = -19.063, p = .000) \). An Independent Samples t-test with equal variances shows that the two adult subgroups (high and low STM) differed in STM as measured by the composite \( (t(18) = -4.804, p = .000) \). (See Tables 37-38).

<table>
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<tr>
<th>Control Group</th>
<th>Age</th>
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</thead>
<tbody>
<tr>
<td>Child – Low STM (N=20)</td>
<td>M = 5;6 (SD = 0;6)</td>
<td>M = 3.22 (SD = 0.24)</td>
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<td>Child – High STM (N=14)</td>
<td>M = 4;8 (SD = 0;6)</td>
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<table>
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<th>Experimental Group</th>
<th>Age</th>
<th>STM Composite Score</th>
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</thead>
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<tr>
<td>Child – Low STM (N=15)</td>
<td>M = 4;9 (SD = 0;6)</td>
<td>M = 3.23 (SD = 0.24)</td>
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<tr>
<td>Child – High STM (N=18)</td>
<td>M = 5;8 (SD = 0;7)</td>
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</table>

Table 35 STUDY 4 – Children’s STM subdivisions within groups (N=67)
<table>
<thead>
<tr>
<th>Group</th>
<th>STM Composite Score</th>
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</thead>
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<tr>
<td>Adult – Low STM (N=6)</td>
<td>$M = 4.8 (SD = 0.23)$</td>
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<tr>
<td>Adult – High STM (N=14)</td>
<td>$M = 5.7 (SD = 0.41)$</td>
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</table>

Table 36 STUDY 4 – Adult’s STM subdivision (N=20)

3.5.3 Stimuli

Twelve experimental sentences and five filler sentences were presented to participants auditorily. The stimuli consisted of sentences similar to those used in STUDY 2 (see APPENDIX K for a complete list of the stimuli). Unlike STUDY 2, in this case there was only once sentence per cell (e.g., one sentence with *ir a ‘go to’* in Enclisis with an inanimate referent). As in STUDY 2, each trial was introduced by a preamble read by the experimenter after the participant had selected a card. Whereas a Control group saw cards of Animate entities and Inanimate entities (Figure 37), an Experimental group saw the same cards, except faces (eyes, nose, mouth) had been added to all the drawings of Inanimate referents (Figure 38).

Figure 37 STUDY 4 – Example of Animate trial and Inanimate trial for Control group

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100 The number of items in this study is much lower than the number of items in STUDY 2. The reason for this is that, even though STUDY 4 originally contained 24 items, only the items tested in the second session with each child were included in the present analysis due to experimenter error during the first session.

101 Some changes were introduced, however, in order to either better control for number of syllables, or to avoid characters that resulted less familiar. So, some familiar proper names replaced character names in the present version of this task.
3.5.4 Procedure

The procedure was exactly the same as the one described for STUDY 2. Also, the procedure was kept exactly the same for both groups (Control and Experimental).

3.5.5 Scoring

The transcription and scoring took place following the same criteria as in STUDY 2. The adult participants performed at ceiling in their repetitions. Only four inaccurate repetitions (out of a total of N=240 trials) were produced by adult participants: one clitic change into le ‘him.DAT’, one case of Backward Repositioning with querer ‘want’, and two cases of Forward Respositioning with ir ‘go’. So, in this section I will only report on repetition errors by children; first in terms of repetition accuracy across groups, and then in terms of the repositioning errors in the Control group on the one hand and in the Experimental group on the other. Given that individual examples of each type of repetition errors have been provided before, below I just report on the number of cases per repetition error type (see Table 39 below) (For number of errors by participant, see APPENDIX M). These data will be discussed below when I analyze accuracy.
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<td></td>
<td>N/144</td>
<td>5:0 N/144</td>
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<td></td>
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<td>N/156</td>
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<td>3</td>
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<td></td>
<td>stimulus sentence.</td>
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<td>Change into double cl.</td>
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<td>Leismo or “se”</td>
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<td>7n</td>
<td>Change into plural</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Addition of Intervening Material</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>9-10</td>
<td>Clitic Repositioning</td>
<td>60</td>
<td>14</td>
</tr>
<tr>
<td>9)</td>
<td>Change into Proclisis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10)</td>
<td>Change into Enclisis</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>Change in verb tense, person or number</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>115</td>
<td>38</td>
</tr>
</tbody>
</table>

Table 37 STUDY 4 – Scoring child participants’ responses by group and age group

N=144 correspond to the total number of stimuli (sentences) repeated by the 4:0-year-olds in the Control group.
N=120 correspond to the total number of stimuli (sentences) repeated by the 4:0-year-olds in the Experimental group.
3.5.6 Predictions

**Hypothesis 4.1:** Repetitions of Proclisis will display greater accuracy than repetitions of Enclisis across groups.

**Hypothesis 4.2:** Clitic Forward Repositioning will be more frequent with *ir* ‘go’ across groups.

**Hypothesis 4.3:** Clitic Backward Repositioning will be more frequent with *tener que* ‘have to’ and *querer* ‘want’ across groups.

**Hypothesis 4.4:** The Animacy effect found in STUDY 2 should be evident only in the Control group, but it should be neutralized in the Experimental group.

3.5.7 Results

(A) Results Child Participants: Accuracy

**Analysis**

A generalized linear mixed model (GLMM) was fitted to the binary response variable (repetition accuracy vs inaccuracy) for all the children combined. The following predictor variables were included: Age (4;0, 5;0, 6;0)\(^{104}\), Condition (Enclisis vs Proclisis), Animacy (Animate vs Inanimate), and Finite Verb (*Ir a*, *Querer*, *Tener que*). Participant was added as a random effect. Due to previous data on verb preferences, the interaction between Condition × Finite Verb was also tested.

\(^{104}\) Alternative analyses were carried out replicating these results. These analyses replaced this variable with Age in Months as a continuous variable (F(1,796) = 20.810, p = .000), with STM as a continuous variable using the composite score (F(1,796) = 23.758, p = .000), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,796) = 16.683, p = .000). All of these measures of Age and of STM proved to be significant for Repetition Accuracy. Here I report the analysis which included Age in Years in order to keep consistency across studies.
Results

The percentage of accurate repetitions by child participants was 63% (507/804). The analysis\textsuperscript{105} revealed that two factors significantly affect repetition accuracy, namely Age (F(2,795) = 9.948, p = .000) and Condition (F(1,795) = 106.353, p = .000). Animacy (F(1,795) = 2.187, p = .140) or Finite Verb (F(2,795) = 1.184, p = .307) did not render significant effects on repetition accuracy. No significant interaction was found between Condition × Finite Verb (F(2,795) = .235, p = .791). First, the predicted positive effect of Age was significant, where the odds of making an accurate repetition decreases at 5;0 years of age (M = .619, SE = .060) (Odds Ratio = 0.25, p = .001) and even more at 4;0 years of age (M = .521, SE = .068) (Odds Ratio = 0.16, p = .000) compared to 6;0 years old (M = .867, SE = .036). Figure (39) shows the estimated means of Proclisis for the three age groups. A follow-up analysis excluding 6;0-year-olds showed no difference between the other two younger age groups (F(1, 556) = 1.124, p = .290).

Second, Condition showed a significant main effect. The odds of making an accurate repetition decreases with Enclisis (M = .465, SE = .044) compared to Proclisis (M = .855, SE = .025) (Odds Ratio = 0.17, p = .000).\textsuperscript{106}

\textsuperscript{105} I used an alpha level of .05 for all statistical tests.

\textsuperscript{106} Analyses of Accuracy for each of the two participant groups (Control and Experimental) taken separately show that these results hold for the most part. \textbf{When AGE is included in the model as a categorical variable (4;0, 5;0,}
Clitic related-errors added up to 203/297 (68% of all imitation errors). (See Figure (40) below and APPENDIX L for numerical data). The present study finds errors of clitic copying (N=26), and clitic substitution (N=6), clitic omission (N=30) and considerable more errors of clitic repositioning (N=141). The latter consist of repetitions where the error would consist in repositioning the clitic from the original position where it was presented to the alternative. Clitic Repositioning errors were the most frequent types of errors. Similarly to STUDY 2, in this case children also moved the clitic to a preverbal position (Forward repositioning = Error 9) much more often that they did the reverse (Backward repositioning = Error 10). This pattern is similar to that reported by previous studies.

6;0), it turns significant in the Control group (showing that accuracy decreases at 4;0 compared to 6;0, but not at 5;0 compared to 6;0. An alternative analysis excluding 6;0-year-olds shows that accuracy also decreases significantly at 4;0 compared to 5;0). In the Experimental group, however, AGE turns non-significant. When AGE is included as a continuous variable, unlike the Experimental group which shows the same effect as the overall results, the Control group shows a negative effect (which would mean that with age, participants get worse at accurately imitating). When STM was included as a categorical variable, the results show significant negative effects of STM with accurate imitations decreasing in the low STM group. These analyses also replicate the main effect of condition. When STM was included as a continuous variable, it shows a positive main effect, meaning that the greater the STM composite score, the greater the rate of imitation accuracy.
A division of the imitation errors by group (see APPENDIX M) shows similar distributions of inaccurate imitations. It could have been expected that as a result of dealing with animate and animated entities, certain imitation errors (such as the change of the clitic to le (71) which overlaps with the dative and may be used with animate DOs) would be more likely in the Experimental group. There is no evidence for this though.

Imitation errors by participant age (see Figures 41 and 42 below) indicate that over 50% of participants in each subgroup accurately imitated sentences with clitics in both positions. Within the child groups, some participants imitated accurately sentences containing clitics in just one position. In these cases, accurate repetitions were consistently found in the proclisis condition. In other words, no participant accurately imitated only sentences with enclisis. Now, it
is interesting to look deeper into the participants who did not imitate Enclisis accurately at all\textsuperscript{107}. Regardless of their age, the most frequent error within their Enclitic repetitions was Forward repositioning (error 9), which could help explain for the most part the lack of accurate enclitic repetitions.\textsuperscript{108}

![Figure 41](image-url)

Figure 41 STUDY 4 – Classification of participants in the Control group by age group (%/N) according to the distribution of correct imitations

\textsuperscript{107} This includes participant 9.ST who did not repeat accurately any stimulus sentence.

\textsuperscript{108} However, other errors were also attested.
In what follows I present statistical analysis of the factors that might affect the likelihood of Forward repositioning (error 9) and Backward repositioning (error 10) for each of the two groups of children (Control and Experimental). As in the case of STUDY 2, the design of the Elicited Imitation task allowed Forward Repositioning only in the sentences presented in the Enclisis condition (i.e. 50% of the stimuli), and Backward Repositioning was possible only in the sentences presented in the Proclisis condition (i.e. the other 50% of the stimuli). In consequence, for the Control group, out of N=408 repetitions, Forward Repositioning could only happen in n=204, so the corresponding analysis was only performed on these cases. Backward Repositioning could only happen on the other n=204 items, so the corresponding analysis was only performed on these items. Given that the Experimental group had one child less than the control group (33 vs. 34, respectively), in the Experimental group out of N=396 repetitions, Forward Repositioning could only happen in n=198, so the corresponding analysis was only performed on these cases. Backward Repositioning could only happen on the other n=198 items, so the corresponding analysis was only performed on these items.
(B1) Results Child Participants Forward Repositioning

Analysis

A generalized linear mixed model (GLMM) was fitted to the binary response variable (Forward repositioning Error vs NO Forward repositioning error) with the following predictor variables: Age (4;0, 5;0, 6;0), Animacy (Animate vs Inanimate), and Finite Verb (Ir a, Querer, Tener que). Condition was not included as a fixed effect because this analysis was carried out only on the tokens belonging to the Enclisis condition (N=204 in the Control group and N=198 in the Experimental group) since these were the only ones where Error 9 (Forward repositioning) could take place. Participant was added as a random effect, as in the previous analysis.

Results

Control Group:

The analysis revealed that only no factor significantly affected the likelihood of Forward repositioning in the Control group \(^{109}\). Nevertheless, the direction of effects was the expected one. Forward repositioning was favored by Animate referents (M = .277, SE = .065) compared to Inanimate referents (M = .178, SE = .051) (See Figure 43). Finite verb also showed that Forward repositioning is more likely with *ir* ‘go’ (M = .288, SE = .075) than with *querer* ‘want’ (M = .220, SE = .065), than with *tener que* ‘have to’ (M = .173, SE = .057) (See Figure 44).

\(^{109}\) Alternative analyses were carried out replicating the results reported in this section. Such alternative analyses replaced the categorical variable AGE with Age in Months as a continuous variable (F(1,199) = 2.405, p = .123), with STM as a continuous variable using the composite score (F(1,199) = 2.540, p = .113), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,199) = 2.276, p = .133). None of these measures of Age and of STM proved to be significant for Forward repositioning (error 9). Here I report the analysis which included Age in Years in order to keep consistency across studies.
Surprisingly, Age in years approximated significance ($F(2,198) = 2.562, p = .080$). A look at Figure (45) shows the increment in Forward repositioning after 4;0 years of age.
Figure 45 STUDY 4 – Estimated means for Age (n/s) in Forward Repositioning in children’s imitations – Control group

Experimental Group:

The analysis revealed that only Finite verb significantly affected the likelihood of Forward repositioning in the Experimental group (F(2,192) = 4.187, p = .017). The odds of Forward repositioning increase with ‘ir’ ‘go’ (M = .299, SE = .073) compared to ‘tener que’ ‘have to’ (M = .142, SE = .049) (Odds Ratio = 2.586, p = .035). The odds of Forward repositioning also increase with ‘querer’ ‘want’ (M = .368, SE = .079) compared to ‘tener que’ ‘have to’ (Odds Ratio = 3.535, p = .005). Figure (46) shows the estimated means for Forward repositioning with the three verbs. A follow-up analysis excluding ‘tener’ showed no difference between ‘ir’ ‘go’ (M = .302, SE = .072) and ‘querer’ ‘want’ (M = .370, SE = .077) (F(1,127) = .613, p = .435).

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110 Alternative analyses were carried out replicating the results reported in this section. Such alternative analyses replaced the categorical variable AGE with Age in Months as a continuous variable (F(1,193) = .147, p = .702), with STM as a continuous variable using the composite score (F(1,193) = .335, p = .564), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,193) = .914, p = .340). None of these measures of Age and of STM proved to be significant for Forward repositioning (error 9). Here I report the analysis which included Age in Years in order to keep consistency across studies.
(B2) Results Child Participants for Backward Repositioning

Analysis

A generalized linear mixed model was fitted to the dependent variable (Backward repositioning Error vs NO Backward repositioning error) with the following independent variables: Age (4;0, 5;0, 6;0)\(^{111}\), Animacy (Animate vs Inanimate), and Finite Verb (Ir a, Querer, Tener que). Condition was not included as a fixed effect because this analysis was carried out only on the tokens belonging to the Proclisis condition since these were the only ones where Error 10 (Backward repositioning) could take place. Participant was added as a random effect, as in the previous analyses.

\(^{111}\) Alternative analyses were carried out replicating the results reported in this section. Such alternative analyses replaced the categorical variable AGE with Age in Months as a continuous variable (F(1,199) = 2.744, p = .099), with STM as a continuous variable using the composite score (F(1,199) = .605, p = .438), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,199) = 1.124, p = .290). None of these measures of Age and of STM proved to be significant for Backward repositioning (error 10). Here I report the analysis which included Age in Years in order to keep consistency across studies.
Results

Control Group:

The analysis revealed that no factor significantly affected the likelihood of Backward repositioning in the Control group. Nevertheless, the direction of effects was the expected one. To begin with, Animacy showed that Backward repositioning is more likely with Inanimate referents (M = .067, SE = .028) than Animate referents (M = .030, SE = .017) (See Figure 47). Finite verb showed that Backward repositioning is at least twice as likely with querer ‘want’ (M = .071, SE = .034) and with tener que ‘have to’ (M = .048, SE = .026) than with ir ‘go’ (M = .027, SE = .018) (see Figure 48).

Figure 47 STUDY 4 – Estimated means for Animacy (n/s) in Backward Repositioning in children’s imitations – Control group
Age in years showed that at age 4:0 children were more likely to produce Backward repositioning errors (M = .109, SE = .049) than at ages 5:0 (M = .031, SE = .022), and 6:0 (M = .027, SE = .022) (See Figure 49).
Experimental Group:

The analysis revealed that no factor significantly affected the likelihood of Backward repositioning in the Control group\textsuperscript{112}. Nevertheless, the direction of effects was the expected one for Finite verb. Backward repositioning is more likely with *tener que* ‘have to’ (M = .079, SE = .033) than with *querer* ‘want’ (M = .067, SE = .031), than with *ir* ‘go’ (M = .045, SE = .025) (see Figure 50).

![Finite verb (n/s) in Backward Repositioning in children’s imitations – Experimental group](image)

3.5.8 Discussion

**Hypothesis 4.1: Repetitions of Proclisis will display greater accuracy than repetitions of Enclisis across groups.**

The results of this task show that sentence repetitions in the Proclisis condition children are twice as accurate (321/402) than in the Enclisis condition (186/402). This replicates not only the results of STUDY 2, but also those reported by Eisenchlas (2003).

\textsuperscript{112} Alternative analyses were carried out replicating the results reported in this section. Such alternative analyses replaced the categorical variable AGE with Age in Months as a continuous variable (F(1,193) = .772, p = .381), with STM as a continuous variable using the composite score (F(1,193) = 1.625, p = .204), and with STM Groups (high vs low) divided around the median for STM composite scores (F(1,193) = .203, p = .653). None of these measures of Age and of STM proved to be significant for Backward repositioning (error 10). Here I report the analysis which included Age in Years in order to keep consistency across studies.
Hypothesis 4.2: Clitic Forward Repositioning will be more frequent with *ir* ‘go’ across groups.

The effect of Finite verb was only significant for the Experimental group, where not only *ir* ‘go’ but also *querer* ‘want’ triggered more forward repositioning errors than *tener que* ‘have to’. The Forward repositioning error should be hard to find given Spanish preference for Proclisis. That may be why forward repositioning was not significant in STUDY 2, and in the present study it only reached significance in the Experimental group, whose stimuli was hypothesized to visually increase the animacy status of inanimate referents. Despite the lack of statistical significance of Finite verb in Forward repositioning, the patterns found go in the predicted direction.

Hypothesis 4.3: Clitic Backward Repositioning will be more frequent with *tener que* ‘have to’ and *querer* ‘want’ across groups.

Backward repositioning was did not reach significance for any of the two participant groups. However, especially in the Experimental group Backward repositioning with *ir* ‘go’ had the lowest rate.

Hypothesis 4.4: The Animacy effect found in STUDY 2 should be evident only in the Control group, but it should be neutralized in the Experimental group.

The animacy of the referent did not reach significance in any of the repositioning errors regardless of group. This means that the manipulation did not work as it was hypothesized. That being said, it should be noted that the Control group’s data for Forward repositioning are in the right direction (i.e. more Forward repositioning with Animates and more Backward repositioning with Inanimates). On the other hand, the Experimental group shows no clear pattern in Forward repositioning and a surprising direction of the (non-significant) effect in Backward repositioning. The Experimental group shows more Backward repositioning with true Animates than with Personified Inanimates. Based on the assumptions made for animacy (Myhill, 1988), it is not clear why children would move clitics with animate referents to a postverbal position more than clitics which only in the context of the experiment became personified. Going back to the hypotheses put forward in the rationale of STUDY 4, I can say that even though a significant effect was not found, the direction of effects in the Experimental group vs the Control group do not suggest that children go by the lexical entry, as it seems that the manipulation had an effect on the Experimental group (esp. Backward repositioning). In relation to the second hypothesis, it
would seem to be the case that the manipulation somehow impacted clitic placement. The first piece of evidence for this is the effect of Finite verb on Forward repositioning only significant in the Experimental group. As noted earlier, this effect was not present in STUDY 2 as it is assumed to be very difficult to uncover given the overall tendency of Modern Spanish toward Proclisis. Nevertheless, it could be the case the as a result of shifting the Inanimate referents more towards the Animate end of the continuum (through the manipulation) participants would be forced to make distinctions elsewhere resorting to fine-tuned distinctions in other constraints (such as Finite verb). The second finding that seems to indicate some impact caused by the manipulation is that in Backward repositioning, which showed significant effects in STUDY 2, here showed an inverse direction of the (non-significant) effect. In this study, participants moved true Animates to the Enclitic position more than Personified Inanimates. So, it was not only that the manipulation neutralized the trend, but that the direction of the effect is the opposite.
3.6 Overall Discussion

This chapter investigated the acquisition of variation by concentrating on Spanish variable clitic placement as an instance of syntactic variation. The specific question had to do with whether children constrain this instance of variation by resorting to lexical and semantic information, and if so whether there is continuity with the adult pattern (described in §Chapter 2). I will organize this discussion drawing on the inventory of learning accomplishments that I assumed to be necessary (but not exhaustive or chronologically ordered) for adult-like mastery of variable clitic placement (§3.10.1). Then I will discuss what this research has to offer to the study of L1 acquisition of variation (§3.10.2). I will finish each section with what in my opinion should be the focus of future research in this area.

3.6.1 The learning task

Such learning task starts off with (1) the acquisition of the components that make up the variable context (finite verb, infinitival complements, and clitic). The results obtained in the four studies reported here indicate clearly that children did not have any difficulties with comprehending or producing these variable contexts. So, I conclude that in order to get patterns of use, testing children 4;0 years old and older was important to make sure that participants were past this initial stage. By the time of testing, the participants in the present studies had been using finite auxiliary verbs in some periphrastic constructions for over a year, at the very least. These were reported to emerge between 1;9 (Aguirre 2003, p. 14) and 2;6 (López Ornat, 1990, p. 64). Also, they have been using clitics for at least two years and are past the period in which omissions have been attested (Fujino & Sano 2002; Castilla, Pérez-Leroux & Eriks-Brophy 2008; Castilla & Pérez-Leroux 2010).

Second, I assume that (2) children need to learn the legal (grammatical) positions clitics can take. The data I presented before showed zero instances of clitics in ungrammatical positions (e.g. *quiero=lo comprar ‘want=it to buy’). The only non-standard configuration (non-standard for the Argentine dialect) found in some of children’s responses and repetitions were cases of Clitic Copying (e.g. lo quiere comprar=lo), where children allowed the clitic to appear in both legal positions. This has been reported in Eisenchlas (2003, p. 204-205) together with the fact that children know the grammatical positions of clitics by 3;0 years old. Even bilingual children do not make atypical word orders (Pérez-Leroux et al., 2011, p. 8). Here children also
need to acquire the overall distribution in variable contexts. What this means is that children need to know that their language holds a strong preference for Proclisis.\textsuperscript{113} Participants in STUDIES 2 and 4 made more repetition errors when asked to imitate sentences with Enclisis (cf. Eisenchlas, 2003, p. 202). The most frequent repetition error was clitic repositioning, especially Forward Repositioning. This also found by Eisenchlas (2003) seems to be indicative of a preference in line with corpus studies reported in §Chapter 2. Additionally children fail to imitate the three elements that make up a variable context (Error 1) more often in the Enclisis condition.

It is not clear why Enclisis would trigger no imitation more than Proclisis. This might be connected with another imitation error, namely Clitic > NP Substitution (Error 11) especially in STUDY 2 where Enclisis shows more NP substitution than proclisis. This could be due to the preference of lexical DOs in Spanish over pronominal ones (60\% versus 40\%, respectively) (Ashby & Bentivoglio 1993). Overall, the enclitic configuration is triggering children in repetition tasks to switch to Proclisis, fail to imitate variable contexts more, and substitute Enclisis with lexical DOs.

Interestingly, in STUDY 2 Condition significantly interacts with Finite Verb when considering repetition accuracy. In particular, the odds of accurate repetitions of sentences with \textit{ir} ‘go’ and \textit{querer} ‘want’ in the Enclisis condition decreased significantly compared to \textit{tener que} ‘have to’. In contrast, the odds of accurate repetitions of sentences with \textit{ir} ‘go’ and \textit{querer} ‘want’ in the Proclisis condition increased significantly compared to \textit{tener que} ‘have to’. This leads to the last element in the learning task which consists of the (3) acquisition of the variable constraints previously reported for adult speakers. Here I will discuss the two variable constraints (Finite verb and Animacy of the referent separately).\textsuperscript{114}

\textit{The Finite verb}

Both elicited production tasks (STUDIES 1 and 3) showed that when children construct utterances containing variable contexts, the placement of the clitic is affected by the finite (auxiliary/modal/etc.) verb in the direction predicted by studies of corpora (§Chapter 2). When tested via elicited imitation, this effect was found only in Backward Repositioning. It reached

\textsuperscript{113} Although, it could alternatively be the case that this level of abstraction at the level of the whole language does not necessarily exist, and that just the aggregate frequencies of the very frequent verbs favoring proclisis gives the impression of a language preference. This could be tested by designing new experiments using nonce verbs. However, given the nature of the finite verbs in question (aspectuals, auxiliaries, modals, etc), it is very challenging to create experiments where nonce verbs with those meanings would easily be taught to children.

\textsuperscript{114} It is important to stress here that I do not wish to reduce the variation to any single factor, given the myriad of factors involved and the complex interactions among them.
significance in STUDY 2 but not in STUDY 4, despite the effect going in the right direction. It is not surprising that this effect does not appear in Forward repositioning since it could be overshadowed by the overall preference for Proclisis in Modern Spanish. However, in the Experimental group of STUDY 4, the added animacy of the manipulation rendered a significant effect of Finite Verb, where Forward Repositioning decreased from *ir* ‘go’ > *querer* ‘want’ > *tener que* ‘have to’, as predicted. I can hypothesize that the presence of a Finite verb effect in this participant group could be due to the fact that the animacy manipulation made the stimuli more homogeneous by neutralizing animacy (between real animates and personified inanimates) thus leaving more room for other constraints to be exploited. However, this is pure conjecture and further research would be needed to propose quick adjustments of constraint relevance in experimental settings.

Overall, is clear that children operate information about the finite verbs when placing clitics. As I have reported previously, if children have been using auxiliaries and complex tenses since around age 2;0, it assumed that by age 4;0 they should exploit auxiliary selection for expressing shades of meaning such as aspectual meanings (e.g. the progressive), future meanings (e.g. *ir a* ‘go to’ + Infinitive), among others. Now, in the case of variation children are confronted with cases in which for each of these auxiliary constructions they can choose between a Proclisis construction [e.g. Cl + V + Complement] and an Enclisis construction [V=Cl] (cf. Goldberg, 1995). Children could make a random choice, however, as I have shown, from age four children display knowledge of the distribution with which each particular verb appears in a construction in the input and consequently children reflect that distribution in their own production.

The Animacy of the referent

An elicited production task (STUDY 3) found that children seem to consider information about the clitic referent when placing clitics in variable contexts, in the direction hypothesized based on considering the animacy hierarchy (Myhill, 1988). This effect of animacy of the referent was replicated in both types of repositioning errors (Errors 9 and 10) reported in STUDY 2. Animate referents favor Proclisis, whereas Inanimate referents favor Enclisis. This supports the corpus data presented in §Chapter 2. The effect was not significant for the Control group in STUDY 4, but in the expected direction. The Experimental group, however, showed a non-significant effect in the opposite direction, where Enclisis was favored by clitics real
Animate referents (compared to personified Inanimate ones). Further research would need to explore the relative importance of animacy and further experimental evidence can help uncover whether a variable constraint may be neutralize and how speakers react to it.

3.6.2 L1 acquisition of variation

The research presented in this chapter shows that by 4;0 years of age, monolingual Spanish-speaking children can operate the two main variable constraints found in the literature to impact variable clitic placement, namely the finite verb and the animacy of the referent. This implies that by this age children have reached “maturity” in the sense alluded by Smith et al. (2013:286). Recall that variation in Spanish phonology has been found to be adult-like by 4;5 Díaz-Campos (2001), between 4;0 and 5;0 (Miller 2013), which serve to highlight how after age 4;0 children can show adult-like distribution of variants and command of variable constraints. Unlike studies of word order in French questions (Zuckerman 2001, Zuckerman and Hulk 2001), I have not found evidence of children strategically preferring one position of the clitic over another (as reported for children <3;0 in Westergaard 2008) and disregarding frequency in the input. Also, I have not found it to be the case that children have acquired the preferences of one of the verbs, but not of the other (as could be hypothesized by differential construction acquisition reported in Westergaard and Bentzen 2007). Even though I do not discard the possibility that any of these patterns could be present in earlier stages, it is clear that by 4;0 children behave adult-like with respect to variable clitic placement. Early acquisition of word order without prolonged periods of overgeneralization as well as sensitivity to information structure in Norwegian (Westergaard 2003) seem to also support the fact that by 4;0 children are able to master variation.

Even though I have not dealt with discourse constraints on clitic placement (such as Topicality), I would expect them to be acquired later than the lexical and semantic constraints operative by age 4;0 (Shin and Smith Cairns 2009, 2012). Earlier (§3.3) I predicted that if the acquisition of factors conditioning this variation follows a predictable sequence (Shin and Erker 2015), and variable contexts emerge by 2;5 (Blazco Aznar 2002, Aguado Orea 2000:82ff.

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115 This may be because Westergaard and Bentzen (2007) studied two low frequency constructions.
Thomas 2007, Rodríguez-Mondoñedo, Snyder and Sugisaki 2006), then the predictable sequence would look like Figure (51) below (following Shin and Erker 2015).

<table>
<thead>
<tr>
<th>ADULTS</th>
<th>CHILDREN</th>
</tr>
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<tbody>
<tr>
<td>Finite verb</td>
<td>Finite verb</td>
</tr>
<tr>
<td>Animacy of referent</td>
<td>Animacy of referent</td>
</tr>
<tr>
<td>Topicality</td>
<td>Topicality (?)</td>
</tr>
</tbody>
</table>

Figure 51 Ranking of constraints on Spanish variable clitic placement in adults and children (Based on Shin and Erker 2015, p. 174)

The findings presented in this Chapter suggest that between 2;0 and 4;0 children acquire at least the two major (stronger) constraints on the clitic placement variation in adults speakers, in line with previous evidence on children’s “sensitivity to probabilistic information in variable linguistic input in general and to patterns of morphosyntactic variation” (Shin and Erker 2015, p. 184). Further research should examine the time window between 2;0 and 4;0 years old in order to answer when and how each constraint is acquired and whether Shin and Erker’s (2015) hypothesized predictable order of acquisition holds for clitic placement.
Chapter 4 Methodological Considerations

4.1 Introduction

This chapter focuses on two methodological challenges encountered when working in the preceding chapters. The first challenge (§4.2) has to do with the implications that frequency as a construct has on practical aspects of conducting research on variation from a Usage-based perspective. The role of frequency in shaping language structure has been one of the foundations of Usage-based linguistics (Bybee, 2006; Beckner et al., 2009). When it comes to operationalize what can be considered frequent in discrete terms (such as high vs. low frequency), researchers are faced with a number of methodological decisions that could affect the results and their interpretation (e.g. what to measure, how to go about measuring it). One very important decision implies some sort of operationalization of what frequent is, or in other words, the selection of a threshold beyond which forms will be considered to be frequent within a particular study.

Decisions like that one are very important because they have consequences for the interpretation of results, and ultimately for the extent to which they inform and/or allow to test theories. For example, in the case of variable clitic placement, the grammaticalization accounts predict that with increased frequency grammaticalizing units should favor proclisis. However, as Chapter 2 has shown, this does not hold for the construction tener que ‘have to’+ Infinitive, which is not only frequent but has also grammaticalized into an expression of obligation. But one big assumption in the previous sentence is that tener que is a frequent verb. Even though it might sound like an easy thing to determine, as the review I will present below will hopefully show, determining if a form has high-frequency is a rater complex (or “arbitrary”, as some will put it) issue. After reviewing some literature on the role of frequency in Usage-based linguistics and approaches to distinguishing frequent from non-frequent forms in various areas of linguistics, I will turn to my own proposal of variable clitic placement (presented in Chapter 2) and present the operationalization of frequency that I employed.

The second challenge (§4.3) pertains how to get children to produce the forms under investigation, especially if this implies their use of complex syntactic structures (Finite verb + Non-finite verb periphrases, subjunctive mood, conditional sentences, etc.) which are not frequent in child language. In the case of the studies of variable clitic placement presented in
Chapter 3 of this dissertation, the challenge consisted of eliciting accusative clitics in verbal periphrases. This is assumed to impose additional demands on the experimental design given that the finite verb in these constructions may encode futurity, desire, and deontic modality, for example (which are assumed to be harder to elicit compared to more concrete lexical verbs). To approach this discussion I present the challenge in the context of my Elicited Production study and the improvements that I implemented to increase quantity of usable data. Section §4.3 is much shorter than the previous one.

The aim of this chapter is not to provide any easy ways out of these challenges at all, but rather to acknowledge their existence and to hopefully present some discussion on ways of dealing with them that other researchers might find helpful as well.

4.2 Challenge 1: How frequent are high-frequency forms?

It is almost widespread the understanding that frequency plays some role in language. This is particularly evident within Functionalist or Usage-based approaches which assign a major role to it. The reason for this is found in the ways frequency has been found to affect cognitive mechanisms other than language, which are also sensitive to repetition (e.g. category formation of visual stimuli, Medin & Schaffer, 1978; Haiman, 1994). As any other (domain-general) cognitive mechanism, usage-based linguists claim that language is affected by these frequency effects (Bybee, 2012). In an introduction about this topic I find appropriate to mention at least some specific effects of frequency on language, as these (as well as others) will surface at some point in the literature review presented later. So, I will focus on one type of frequency known as Token frequency or “…the number of times a unit or string appears in running text” (Bybee 2007, p.9) and I will mention two effects associated with it.

Hand-in-hand with increased token frequency\textsuperscript{116} come specific effects. Bybee and Thompson (1997) refer to them as the Reducing Effect and the Conserving Effect. Despite their antagonistic nature towards markedness and faithfulness, they can both appear in the life of a construction.

Reducing Effect: it is a reductive change which is evident in grammaticalization (See Chapter 2) and includes for example phonetic reduction, loss of internal constituency, semantic

\textsuperscript{116} Here I do not deal with the issue of whether frequency is the cause or the result of cognitive effects (Bybee 2007, pp. 17-8).
bleaching, among other processes which start to appear in highly frequent units (e.g. going to > gonna). Bringing back an example mentioned in Chapter 2, tener que ‘have to’ is a case of recent grammaticalization, which has evolved from possession to obligation as it increased in frequency taking over uses of other expressions of obligation (Bauman 2013). As it has happened with other well-established grammaticalized constructions (i.e. ir a ‘go to’ + Infinitive future), this highly frequent construction is also expected to keep moving in a direction marked by the Reducing Effect.

Conserving Effect / Entrenchment: On the other hand, the conserving effect makes “…high-frequency sequences take on a life of their own and resist change…” (e.g. English pronouns conserving grammatical Case distinctions unlike nouns, Bybee & Thompson, 1997, p. 381). Tener que ‘have to’ also constitutes an example of this effect. In terms of clitic placement, I have also shown in Chapter 2 how the tener que construction favors enclisis, which could be considered evidence of a Conserving Effect, which is holding strong to a clitic placement preference which is not favored in Modern Spanish overall (but see Davies 1998 for diachronic data of Spanish indicating how Enclisis was prevalent in earlier periods).

Another effect identified in the literature, and which could be mentioned as an example of the “…various ways of counting frequency, various units upon which to base the count, and various ways in which frequency has cognitive effects” (Bybee 2007, p.9) is Grammatical relation probability (Brown & Rivas 2012), through which the probability of a unit used in a syntactic function outside of the construction under analysis accounts for its use within the construction being investigated. This would imply that a unit contains (and carries at all times) information about syntactic preferences, which could impact its behavior even in the absence of the context where the unit (through frequency) adopted such information as part of its nature. Another effect of token frequency reported in the construction grammar literature is Construction template extension (Goldberg 1995). When a template (or schematic construction) rises in token frequency, its meaning becomes so internalized by speakers that it grows in type frequency as it attracts other lexical items which could not fill its slots before. For instance, in the sentence She sneezed the napkin off the table, sneezed has been attracted by the highly frequent causative construction. And there are other effects, such as the non-orthogonal effect of frequency on constraints of variation, where frequency has been proposed to function as an enabler or potentiator of the effects of variable constraints (Erker & Guy, 2012).
But frequency as an explanatory factor has also been challenged. Whereas Roeper (2007) argues against the impact frequency is assumed to have on mental representation, others consider frequency to behave like a Cheshire cat “appearing fully in some studies, faintly in others, and not at all in still others” (Bayley, Greer, & Holland, 2013, p. 29). In other cases, the lack of suitability of frequency is argued to lie in the basic assumptions of the theoretical framework followed. When studying markedness, for instance, Greenberg (1966) found frequency to play a role as he showed how unmarked members of categories tend to be more frequent than marked ones. This has later been considered a myth about markedness as “…the purpose of markedness theory is to explain the properties of meaning that are invariant, not to justify a system based upon statistical frequency, which, by definition is a context-specific phenomenon” (Andrews, 1990, p. 137). Nevertheless, Andrews (op cit) acknowledges that as “a general tendency”, unmarked forms are more frequent than marked ones, even though the whole idea of the opposition marked/unmarked does not work with rules about relationships between (several) variants, what is evident in non-binary complex oppositions, such as masculine/feminine/neuter, etc. (p.138). So, as stated at the beginning, frequency effects are more appropriately framed within a perspective of language which does not start off with categories defined a priori, but with one which looks at use in order to extract patterns and regularities which may eventually be accounted for by more abstract generalizations, usage-motivated categorization, etc. This is the reason why I am discussing this challenge at some length in a dissertation which has drawn on many tenets of Usage-based grammar.

4.2.1 Critical question

At some point in quantitative linguistic research, frequency counts need to be either included as a continuous variable, or turned into discrete measures (high vs low frequency). One critical methodological question about discrete measures of frequency is **where to place the cutoff point(s) in order to make it discrete**. This issue is of major importance because of the many phenomena in language research which are being accounted for by assuming frequency effects (some of which I will review below) and whose interpretation might change depending on this operationalization challenge. At some point, explicit mentions of this issue are found in the literature, such as Halpermath’s (2008) closing comment in a study of the superiority of frequency of use over iconicity to account for grammatical asymmetries:
Another question is how big the frequency difference should be to be reflected in the grammar. The answer is: significant. Perhaps one should see bigger differences in form where the frequency differences are bigger, but this is an issue that I do not pursue in this paper. (p. 9)

Unfortunately, even though Haspelmath (op cit) provides evidence for the superiority of frequency as an explanatory factor, as in many other studies in the literature, the practicalities of how to measure it in practice remains unclear. Similarly, for example, when discussing the role of frequency in first language acquisition, Greenbaum (1976) says

The child presumably acquires a syntactic construction after a period of exposure to hearing it. We do not know the experiential frequency that constitutes the saturation level for passive and then active acquisition of a construction. (p. 104)

Again, even as the frequency effect is acknowledged, how to decide what a reasonable “saturation level” should be reached in order to be considered a cutoff point has remained more a matter of researchers choice.117

At this point, it seems important to note that the question of how frequent an item must be in order to have an impact on cognition (the grammar) cannot, by definition, have a single and easy answer. This is so because of some points that Bybee (2007, pp. 16-7) makes about the study of token frequency. The goals of a particular research study (e.g what is the particular phenomenon that frequency is being hypothesized to impact) and the domain of language under investigation (e.g. frequency effects in syntax may be harder to spot, Ambridge, Kidd, Rowland, & Theakston, 2015, p. 260) may determine different cutoff points, as well as the sources consulted to draw information about frequency distributions may restrict these methodological decisions (e.g. the size of the available corpora may limit researchers’ options of measurement).

117 Frequency effects could be considered the building blocks of probabilistic models of language. The need for a cutoff point beyond which qualitative effects in word learning has been approached by Marchman & Bates (1994), and is later reported in Plunkett and Marchman (1996, p.306) and Dixon and Marchman (2007, p.192). These researchers mention the requirement of a “critical mass” of necessary vocabulary for overgeneralizations to take place. When discussing this, Tomasello (2003) points out that this being true, “…the nature of this critical mass (for example, verb types versus verb tokens) is not known at this time; there’s no research” (p. 166). I do not discuss this in the body of the chapter, because it corresponds mainly with type frequency, and I will be dealing with other effects of frequency for the most part.
Besides there are different counts of frequency (token, type, etc.) and different ways of measuring frequency effects depending on sample sizes (Manilla et al 2013, pp. 337-360). Two other points which add to this methodological challenge are mentioned by Bybee (2007, p. 16-17), namely the fact that even lower frequency items may have a cognitive effect (such as very low frequency words in English expressions, Bybee, 1998), as well as the interaction of frequency with other factors (as a “potentiator or enabler” of other factors constraining language variation, Erker and Guy, 2012).

After having introduced the importance of frequency for Usage-based research by looking at two well-documented effects of token frequency, I have presented the critical question of where to locate cutoff points in order to categorize instances as high or low frequency. In what follows I will focus on three areas (language processing, language acquisition and language variation) and briefly review frequency effects reported for each area and some methods used to arrive at cutoff points. I end up revisiting the topic of variable clitic placement and motivating my categorization of tener que ‘have to’ as a frequent verb, which has implications for the understanding of how Spanish speakers use distributional information.

4.2.2 Frequency effects across language domains

4.2.2.1 Language processing

Higher frequency items have been found in language processing as facilitatory of lexical access and production in a number of tasks (see Rivera, Bates, Orozco-Figueroa, & Wicha, 2010, p. 49, Monsell, 1991, and also Ellis, 2002 for SLA). Also frequency effects are used in determining verb subcategorization biases with monolingual speakers (e.g. Garnsey, Pearlmutter, Myers, & Lotocky, 1997; Dietrich & Balukas, 2012) as well as with bilingual speakers (e.g. Dussias & Cramer, 2006, Dussias, Marful, Gerfen, & Molina, 2010) in order to test models of sentence processing. One question researchers ask when approaching verb biases is how high a rate of a pattern, e.g. pattern (A), must be in order to consider that verb to have an (A) bias. The methods and sources used to determine the bias of a verb (e.g. bias towards a Direct Object continuation vs. toward a Sentential Complement continuation) have been found to

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118 Of course, I need to acknowledge here the advancement of knowledge in this direction by studies of novel construction learning such as Casenhiser and Goldberg (2005).
119 But see Bayley, Greer, and Holland (2013) for diverging results.
impact the resulting categorization (Gahl, Jurafsky, & Roland, 2004; Roland et al., 2000; Roland & Jurafsky, 1998, 2002). For example, recent studies have followed traditional methodologies which assign bias A to a particular verb if such verb is followed by continuation (A) twice as frequently as in continuation B and there is at least a 15% difference between the rate of (A) and (B) for that verb (see Chapter 3 of Dietrich, 2014). Thus, one way of operationalizing a bias or preferential pattern has been to look for a distinguishable higher relative frequency.

4.2.2.2 L1 acquisition

In First language acquisition, frequency has been characterized as ubiquitous and pervasive in studies of lexical, morphological and syntactic development (for a recent and thorough revision see Ambridge, Kidd, Rowland, & Theakston, 2015). The relevance of frequency in this field is given by the fact that it is often times used to account for unpredictable effects. As part of their discussion about the unclear falsifiability of the Generative and Constructivist theories in language acquisition, Ambridge and Lieven (2011) note that within the latter

If one fails to find an effect that the account would seem to predict (e.g. if children do not show significantly better performance with a slot-and-frame pattern that is frequent in the input than one that is rare),… [linguists working within constructivist theories can still go around the problem by suggesting that] there may be a threshold rather than a linear frequency effect… (p. 376).

This quote points to the importance that has been assigned to frequency effects and thresholds within Usage-based linguistics as an explanatory factor. This is why it is important to consider how researchers operationalize frequency in their studies of vocabulary, morphology and syntax development, just to mention some examples.

In vocabulary learning, for example, Goodman, Dale, and Li (2008) find that the effect of frequency changes with development and that it interacts with word category (e.g. nouns vs others) and modality (production vs comprehension). Their study does not find support for the claim that more frequent words (mostly prepositions and other function words) are acquired first when taking into account all the data. However, within each word category (common nouns, verbs, etc.) the more frequent the word, the earlier its acquisition in production. As in other cases, this study treated input frequency as continuous and thus, categories containing high and
low frequency words were not created. Anyways, it was the first attempt to study the relationship between input frequency and age of acquisition for a large number of words from different categories.

In morphology, Aguado-Orea and Pine (2015) report that even though children’s errors in verb inflection are infrequent, whenever they are further scrutinized, a consistent pattern of error emerges. In particular, more errors are found in low frequency contexts and with low frequency verbs. In order to determine verb frequencies, the cutoff point was after the three most frequent verbs sampled (p. 10). This was done due to a limitation imposed by the fact that in one of the contexts studied (3pl) one of the children only produced three verbs more than once.

In syntax, the effect of frequency has been found at the level of multi word strings as well as in simple constructions (verbs, verb+argument combinations, abstract cues to cord order, such as information status) and complex constructions (such as questions, relative clauses, and passives) (Ambridge et al., 2015, pp. 248-60; Diessel, 2015). The research I will review here has to do with simple constructions of argument structure (e.g. intransitive verbs vs. verbs that require a DO), finite sentential complementation (e.g. I think+S), and canonical word order (e.g. SVO). One well-known finding is that children allow overgeneralizations early on. For example, they can use Intransitive verbs as disappear in transitive constructions, such as I disappeared it. It is puzzling then how children are able to acquire language in the absence of negative evidence that would let them know the limits of these generalization patterns. Two proposals of how children get information to help them retreat from overgeneralizing, namely entrenchment and statistical preemption, have been widely discussed. Both could be considered types of frequency effects, but providing negative evidence in different ways. In entrenchment the strength of the negative evidence is given by token frequency (i.e. if a form does not occur, that makes it unacceptable) (Brooks et al., 1999). In statistical preemption, token frequencies are also considered but also “…the frequency of a verb in functionally comparable constructions (not just in any alternative construction) that predicts the strength of the negative evidence that is provided.” (Boyd & Goldberg, 2011, p. 61; see also Goldberg, 2006, Ch. 5). In this way, the fundamental effect of token (and relative) frequency is assumed to play a major role in the acquisition of the grammar as well.

Developmental researchers investigating the acquisition of syntactic structures, however, do not escape the challenge that poses the operationalization of frequency. I will now exemplify
this by mentioning five studies that set out to test the hypotheses put forward by entrenchment and other relative frequency effects. Brooks et al. (1999) found that children are more likely to overgeneralize verbs that have been acquired later in development and which are less frequent than early acquired and frequent ones. The results are taken as supporting the entrenchment hypothesis that over time the use of a verb in a particular construction becomes less prone to innovation. This study did not calculate frequencies, but instead selected from existing studies which identify those verbs acquired by most kids by 2;5 those verbs categorized as early-acquired. Then researchers came up with semantically similar verbs not present in child data before age 2;5 as members of the set of later-acquired verbs.

The next two studies constitute a step forward toward measuring verb frequency, as they look at corpora of child directed speech and divide verbs into two (high and low) or three sets (high, mid, low) based on aggregate token frequency. Theakston (2004) employed acceptability judgements of sentences with ungrammatical argument structure errors with either high- (e.g. She came me to school) or low-frequency verbs (e.g. She arrived her to the park). The child data showed that children judged the latter more grammatical than the former (and this result was stronger for 5;0-year-olds than for 8;0-year-olds). The study found this to be true for adults as well. These results were interpreted as evidence for speakers’ sensitivity to relative frequencies of use of lexical items. In order to identify high and low frequency verbs, a corpus of parental input was used to extract the aggregate frequency for each verb in the mothers’ speech. In relation to the methodology used to divide verbs into two sets on the basis of frequency, a look at the frequencies of types in both groups (which I reproduce in Figure 52 below) shows that even though the mean difference between the groups is massive, the separation between high from low frequency items remains arbitrary. This arbitrariness, as I have mentioned before not uncommon in studies of frequency, is clear by looking at the least frequent verb in the high-frequency set (disappear, N=49) versus the most frequent verb in the low-frequency set (squeeze, N=66).  

120 Goldberg (2006) has explained their effects in terms of statistical preemption.

121 The assumed frequency relationship connecting verb types seems to be between a verb and its semantically analogous (but less or more-frequent) counterpart (i.e. in the horizontal direction in Figure 52).
In another study, Matthews, Lieven, Theakston, and Tomasello (2005) introduced an action (e.g. *This is called dragging.*) and with the help of videos, they modelled its use four times in the ungrammatical SOV word order (e.g. S + DO + *dragged*). After some trials in which the experimenter always produced the construction, the experimenter showed another enactment and asked the child *What's happening?* (or *What happened there?*, if no answer was provided to the first question). Critically, the frequency of the verbs (e.g. *drag*) was manipulated. The results showed that 2;9-year-olds were more likely to respond using the non-cannonical SOV word order with low-frequency verbs and to revert to the canonical SVO order with mid- and high-frequency verbs. Older children (age 3;9) mostly reverted to SVO. In terms of the methodology used to split verbs into sets based on frequency, the authors resorted to a corpus of child directed speech and divided the types in three sets (see the distribution reproduced as Figure 53). These bands seem to capture differences in frequency, given that the least frequent item of each set has at least twice as many tokens as the most frequent item of the lower-frequency set.\textsuperscript{123}

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\textsuperscript{122} Mid-frequency verbs, when reverted were used in conjunction with only one argument.

\textsuperscript{123} In this way, the present methodology starts to resemble what at least some researchers working on verb bias do, namely to also apply a percentage difference between frequency bands as one requisite for establishing preference in one direction.
One observation which pertains the selection of the verb types in Matthews et al. (2005) is the fact that two of the verbs in the low-frequency condition do not appear at all in the corpus study of parental input. This, which is also true in the next study I will discuss, makes me think about whether these verbs are low frequency or novel for the children. In any way, this study was taken to show a significant effect of frequency on the knowledge of word order that younger children have for each verb.

Before closing this review of frequency effects in first language acquisition, I would like to comment on a different measure of frequency: Relative frequency. In a couple of studies I will refer to Kidd, Lieven, and Tomasello (2006, 2010) who explored the impact of verb frequency on the acquisition of sentential complements (e.g. *Mickie says/thinks [Minnie is wearing a lovely dress]*) through elicited imitation tasks. Both studies show improved performance in sentences with high frequency verbs. Verb frequency was established by resorting to corpora (CHILDES) from which the frequency of a given verb used within the construction was divided by the number of instances of that verb in the analyzed sample of each corpus (see Figure 54). This measure of relative frequency provides further information as it contains data about the frequency of a verb surfacing in sentential complementizer constructions as well. Nevertheless, the challenge of drawing the cutoff point remains, as in the previous cases, since not only are there verbs with higher token frequency (Frequency count) which have been categorized as low-frequency (e.g. *know*), but also because there is a verb in the high-frequency set (*see*) with a lower Relative frequency in constructions with sentential complements (compared to verbs in the low-frequency group).

In the Kidd et al. (2010) study, the verb *think* was excluded due to children using it very frequently (over 70% of the imitations) including the accurate imitations for this verb as well as many imitation errors having to do with verb substitution in the (2006) study. Besides, *see* was
also excluded on the grounds that it is not exclusively used with finite sentential complements. The result of these exclusions was that two low-frequency verbs in the (2006) study (say and know), were recategorized as high-frequency in the (2010) study (Figure 55). (See authors’ comments in Kidd et al 2010, p. 135). In my view, this constitutes a clear example of the arbitrariness in the operationalization of frequency.

<table>
<thead>
<tr>
<th>HF CTV</th>
<th>Frequency count</th>
<th>Relative frequency</th>
<th>LF CTV</th>
<th>Frequency count</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Think</td>
<td>365/528</td>
<td>.69</td>
<td>Pretend</td>
<td>35/63</td>
<td>.56</td>
</tr>
<tr>
<td>Bet</td>
<td>36/51</td>
<td>.71</td>
<td>Say</td>
<td>173/474</td>
<td>.28</td>
</tr>
<tr>
<td>Hope</td>
<td>17/30</td>
<td>.57</td>
<td>Know</td>
<td>78/1668</td>
<td>.05</td>
</tr>
<tr>
<td>See</td>
<td>222/3036</td>
<td>.07</td>
<td>Hear</td>
<td>0/177</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 54 Item relative frequencies of high frequency (HF) and low-frequency (LF) verbs in parental input
(Reproduced from Kidd et al 2006, p. 96)

<table>
<thead>
<tr>
<th>HF CTV</th>
<th>Frequency count</th>
<th>Relative frequency</th>
<th>LF CTV</th>
<th>Frequency count</th>
<th>Relative frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bet</td>
<td>36/51</td>
<td>.71</td>
<td>Wager</td>
<td>0/0</td>
<td>0</td>
</tr>
<tr>
<td>Hope</td>
<td>17/30</td>
<td>.57</td>
<td>Feel</td>
<td>0/32</td>
<td>0</td>
</tr>
<tr>
<td>Say</td>
<td>173/474</td>
<td>.28</td>
<td>Claim</td>
<td>0/0</td>
<td>0</td>
</tr>
<tr>
<td>Know</td>
<td>78/1668</td>
<td>.05</td>
<td>Believe</td>
<td>0/1</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 55 Item relative frequencies of high frequency (HF) and low-frequency (LF) verbs in parental input
(Reproduced from Kidd et al 2010, p. 135)

My aim in pointing out the various ways of splitting high and low frequency verbs in these studies is just to illustrate how due to the pervasiveness of frequency effects and the multiplicity of methods for operationalizing their measurement researchers interested in Usage-based phenomena bump into the challenge of appropriately identifying of thresholds regardless of the specific area of language under investigation.

4.2.2.3 Language variation and change

Studies of language variation and language change have also widely explored the effect of lexical frequency. These studies have mainly explored, however, phonological processes (intervocalic /d/, Bybee, 2002; Díaz-Campos & Gradoville, 2011; coronal stop deletion, Bayley & Loudermilk, 2008; Bybee 2001, 2002; Walker 2012; lenition of Spanish syllable final /r/,
Díaz-Campos, 2005, 2006; syllable final /s/ Brown, 2009; Fife-Muriel, 2009). In terms of lexical diffusion, for example, a paradoxical effect hypothesizes reductive changes to take place first in high-frequency words, whereas analogical leveling (or regularizations) would be found first in low-frequency words (Hopper 1976 in Bybee 2002, p. 263). Even though the effect of frequency has been noted in studies of vowels (on vowel shift, Labov 1994; on vowel reduction, Fidelholtz 1975; van Bergem 1995; Hopper 1976), in what follows I will briefly review four studies on consonants which I will use to illustrate the variability in the operationalization of the cutoff point between high and low frequency items.

Bybee (2000) reported that /t/ and /d/ deletion in [Consonant + /t/ or /d/] contexts in American English occurred more with high-frequency regular past tense verbs (e.g. They match’ [matched] my eyes). In the operationalization of frequency the researcher chose a cutoff point of 35 times per million words because this was the median for regular past tense verbs. Hence a measure of central tendency within the category of words under investigation was used. In a study of the weakening/deletion of /d/ > /ð/ > Ø, Bybee (2002, p. 64) reports how the obstruent deletion affects first highly frequent items. Elsewhere, Bybee (2002b) notes “[t]he cutoff point between high and low frequency was arbitrarily chosen to make the number of tokens in the high and low groups approximately equal” (pp. 265-6). Despite the fact that an effect of token frequency was found, Bybee (2007, p. 16) discusses a shortcoming of this technique, as well as of its alternative. Figure (56) below graphically illustrates the two methods as applied to the data on variable clitic placement (§Chapter 2). A cutoff point (dotted line) which attempts to have equal number of the tokens on each side will result in a high frequency-group with very few types compared to the low-frequency group (A). Alternatively, a cutoff point which attempts to have equal number of types on each side will result in a high-frequency group with many more tokens than the low-frequency one (B).
These problems are the reason why “[m]ost studies take a compromise between these two position[s] by looking for a natural gap in the frequency ranks that puts about 30 to 50% of the tokens in one group and 50 to 70% of the tokens in the other.” (Bybee, 2007, p. 16). For example, Jurafsky, Bell, Gregory, and Raymond (2001) also studied /t/ and /d/ deletion in monosyllabic content words and found that /t/ and /d/ were shorter in high-frequency words. Now, interestingly, in order to split groups of words according to frequency, the authors considered the words in the 95th percentile as frequent, and the words in the 5th percentile as infrequent. This methodology leaves a big gap between groups, which will make them further distinguishable. However, it is worth noting the major drawback posed by the exclusion of so many centrally-distributed data.

Even though I mentioned the unbalanced amount of research on frequency outside phonology, I will briefly review now variationist studies in syntax which will not only illustrate the same concerns mentioned so far, but also which motivated my own variationist study presented in Chapter 2. I will first discuss frequency effects found in subject personal pronoun (SPP) expression (Erker & Guy, 2012), then an effect found in Spanish presentative construction with haber ‘there be’ (Brown & Rivas, 2012), and finally frequency effects reported in variable clitic placement in European Portuguese (Leal de Andrade, 2010) and in Spanish (Schwenter & Torres Cacoullos, 2014).

The thought-provoking results of Erker and Guy's (2012) study on Spanish subject pronoun expression were taken as indicative of intricate and complex effects of frequency which
I have not described so far. In the case of structured variation, frequency would work as a “potentiator” and “enabler” for other constraints on the variation. In this case, frequency past a certain threshold activates or boosts the effects of variable constraints which in turn would favor the selection of one variant (e.g. the expression of a subject pronoun). The authors deal at length with the presence in their data of a threshold “below which pronoun rates are not well differentiated” (p. 550). The discrete measure of frequency that turned to modulate the effects of well-attested constraints was 1% of all the data. In connection with the cutoff point challenge in SPP expression I am dealing with in this section, Wilson (2014) concludes that

Where to set the frequency threshold remains one of the unanswered questions of studies dealing with lexical frequency. Since each data set has a unique distribution of percent SPP expression by log frequency [...], it appears that the cutoff for distinguishing frequent from infrequent verbs is relative and arbitrary (p. 113) …frequency still merits exploration, as little is understood as to why it affects certain constraints and not others. Specifically, increased attention must be given to the “threshold” or “inflection point” and what consequences manipulating this mark has upon the significance of constraints. (p. 115).

As I have mentioned before, many are the reasons that seem to motivate specific methodologies, and sometimes it could be the case that just arbitrariness wins over other more theory-motivated reasons. In any case, the need for further exploration of possible frequency thresholds by comparing multiple alternative measures cannot be underestimated. “Given the conflicting results in SPP frequency studies, we might want to explore different ways of measuring frequency in syntax (by lemma, form, collocation?)” (Martínez-Sanz & van Herk, 2013, slide 35).

In a very different frequency measure Brown and Rivas (2012) looked in corpora at the frequency of the lexical items (nouns in this case) in a different construction than the one they were investigating. The rationale for this smart measure is the assumption that lexical items also carry information about probability of use in particular constructions (or syntactic functions). Thus their behavior in variable constructions might be related to their distribution elsewhere in

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124 Studies supporting Erker and Guy’s (2012) results can be found in (Wilson, 2014) and in a study of SLA (Linford & Shin, 2013). Contradicting results have been offered by Bayley et al. (2013).
the language. Motivated by previous accounts which hypothesized that when native speakers of Spanish pluralize the presentative construction (which prescriptively should take 3sg), they are treating the plural following NP as the subject, Brown and Rivas included a frequency measure of the probability of that following noun being used as Subject in spoken corpora. In order to calculate this measure they termed “grammatical relation probability” they divided the number of tokens of a noun as Subject in corpora by the total number of tokens of that noun in any function. The result was a proportion (%) of that noun as Subject versus other uses. When it came to determine a cutoff point to separate nouns with high and low probability as S, the researchers sorted them in ascending order based on the proportion previously calculated and divided the 190 tokens in three frequency groups/sets (high, mid, and low). The nouns in the low-frequency-as-S group displayed proportions of use as S raging between 0-7%; the mid-frequency-as-subject group, a frequency range between 8-15%, and the high-frequency-as-S group, 16%+ (Brown, p.c.). The results showed that mid- and high-frequency-as-S nouns favored the pluralization of haber. This was taken to mean that speakers keep track of information about syntactic probabilities of use in the language.

In a recent study of pluralization of haber inspired in Brown & Rivas (2012), Díaz-Campos, Hoff, and Piqueres Gilabert (2014) replicated Brown and Rivas’ effect only for the nouns categorized as high-frequency in their use as Subject. The method for splitting nouns into three frequency groups (high, mid, and low) consisted of calculating the relative frequency of a noun being used as subject in the corpus and then dividing them into low (1-10), medium (11-100), and high (101+) frequency.

Last, but not least, researchers testing grammaticalization hypotheses (Bybee, 2003; Myhill, 1988) based on effects of token frequency in the study of variable clitic placement have approached the issue of determining cutoff frequency points in different ways. For example, Leal de Andrade's (2010) study of European Portuguese found that proclisis was more common with frequent verbs (37.4%) than with less frequent verbs (18.8%). The method for splitting verbs by frequency resulted from dividing the amount of data (N=913) by the number of lexical entries (N=26). As a result, verbs with more than 35 tokens were considered among the most frequent. The challenge with this measure is that the higher the number of types, the less strict the threshold point will be.125

125 The effect of frequency was also reported for EP by Washington (2014).
A more straightforward approach was taken by Schwenter and Torres Cacoullos (2014) in a study of variable clitic placement in Spanish. A look at the aggregate frequency counts of the verbs in their study (which I reproduce in Figure 57), it is possible to appreciate an existing gap already between *ir* + Gerund (N=28) and *ir a ‘go to’ + Infinitive (motion) (N=56). The researchers, appropriately took advantage of this break in the continuum of counts and established a cutoff point at N=30. As a result, types with an aggregate frequency of N= <30 formed the low-frequency group and those with frequency N= >50 formed the high-frequency groups. Among other effects, the multivariate analysis carried out showed that enclisis was favored by low frequency verbs, in accordance with the grammaticalization hypothesis.

<table>
<thead>
<tr>
<th>Construction</th>
<th>% enclitic</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>ir a + Infinitive (future)</em></td>
<td>7%</td>
<td>120</td>
</tr>
<tr>
<td><em>poder + Infinitive</em></td>
<td>26%</td>
<td>105</td>
</tr>
<tr>
<td><em>estar + Gerund</em></td>
<td>13%</td>
<td>62</td>
</tr>
<tr>
<td><em>tener que + Infinitive</em></td>
<td>30%</td>
<td>61</td>
</tr>
<tr>
<td><em>querer + Infinitive</em></td>
<td>37%</td>
<td>59</td>
</tr>
<tr>
<td><em>ir a + Infinitive (motion)</em></td>
<td>32%</td>
<td>56</td>
</tr>
<tr>
<td><em>ir + Gerund</em></td>
<td>0%</td>
<td>28</td>
</tr>
<tr>
<td><em>volver a + Infinitive</em></td>
<td>6%</td>
<td>18</td>
</tr>
<tr>
<td><em>saber + Infinitive</em></td>
<td>39%</td>
<td>18</td>
</tr>
<tr>
<td><em>tratar de + Infinitive</em></td>
<td>83%</td>
<td>18</td>
</tr>
<tr>
<td><em>deber (de) + Infinitive</em></td>
<td>29%</td>
<td>14</td>
</tr>
<tr>
<td><em>venir a + Infinitive</em></td>
<td>46%</td>
<td>13</td>
</tr>
<tr>
<td><em>andar de + Infinitive</em></td>
<td>22%</td>
<td>9</td>
</tr>
<tr>
<td><em>haber de + Infinitive</em></td>
<td>0%</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>52%</td>
<td>62</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>27%</strong></td>
<td><strong>652</strong></td>
</tr>
</tbody>
</table>

Figure 57 Rate of enclisis for 3p sing. Direct Object clitics (in descending order of frequency) (Reproduced from: Schwenter & Torres Cacoullos, 2014, p. 12)

Taking as point of departure Schwenter and Torres Cacoullos (2014), and coming back to data I presented in Chapter 2 from the Argentine Spanish corpus Habla Culta del Español de Buenos Aires (Barrenechea, 1987), I would like to note how the Argentine data also shows a gap similar to that found in the Mexican data (see Table 40 below).
Interestingly for the grammaticalization argument, *tener que* ‘have to’ is a high-frequency verb which appears in a recently grammaticalized construction of obligation in both studies\(^{126}\). However, it favors enclisis as shown in the multivariate analysis which included construction as a variable. Now, the non-uniform behavior of the highest-frequency items (also referred to as lack of one-to-one correspondence has been reported in a number of studies testing frequency (Erker & Guy, 2012; Brown & Torres Cacoullos, 2003; Schwenter & Torres Cacoullos, 2014). This shows that neither considering *tener que* as a frequent verb, nor the fact that it tends to favor enclisis are totally foreign findings in variationist studies. Even though some analyses may discover some effects at the expense of others (e.g. the effect of aggregate frequency at the expense of the idiosyncratic behavior of *tener que* in Schwenter & Torres Cacoullos, 2014), this discussion about methodological considerations has hopefully provided a panorama of the need to keep exploring the effects of frequency from as many angles and using as many methods as possible until we better understand the complex effect of frequency.

In closing, I would like to mention some questions about frequency effects that come up for the study of variable clitic placement and which, in my opinion, should be addressed in future studies. Within diachronic studies of Spanish, *tener que* offers a perfect site for testing the conserving effect of token frequency. Following Bauman (2013) who showed that as *tener que* grammaticalized, it increased in frequency taking up uses of the other expressions of obligation, one could ask, for example, is it possible to find a point in the development of *tener que* where it started to consistently favor enclisis? Also, is there a threshold (similar to Brown and Rivas’

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\(^{126}\) In my study, however, I did not include this measure of frequency, but used relative frequencies in a Usage-based proposal to try to account for the behavior of *tener que* ‘have to'.
2012 “grammatical relation probability”) between the use of verbs in transitive constructions with Full NPs and variable clitic placement preferences? Initial evidence (for the verb *deber* ‘must’ which is low frequency according to the criterion discussed before, Table 40) suggests that such a threshold could exist, but this needs to be tested in all verbs found in the corpus. Another interesting question is, how does the significant overall (aggregate) frequency effect (Schwenter & Torres Cacoullos, 2014) interact with individual verb type effects (such as the one I described in Chapter 2)? Could two types of frequency interact, such that non-orthogonal aggregate frequency (Erker & Guy, 2012) would boost type frequency effects (like the one of *tener que*) for certain types, just in a similar way in which it interacts with other variable constraints in SPP?

4.3 Challenge 2: How to elicit analyzable (usable) data?

Since knowledge of language (competence) cannot be accessed directly, linguists try to tap onto it by resorting to a number of methodologies (Hoff, 2011, 2013). Ambridge and Lieven (2011), however, remind us that “no methodology (even simply recording children’s spontaneous speech) provides a ‘pure’ measure of linguistic knowledge.” (p. 6) Despite this, naturalistic observation has provided very important data, as evidenced for example by the proliferation of studies using and databases collecting recorded spontaneous speech (e.g. CHILDES). Despite the richness of information provided by naturalistic observation methods, the truth is that nothing can be inferred about competence when a structure does not appear in production (Meisel, 1992, p. 18). This means that if, for example, a particular structure is absent in a sample of naturalistic language, it would be wrong to assume it is not part of his or her linguistic knowledge.

In this section I will focus on the Elicited Production technique used in STUDIES 1 and 3 (§Chapter 3). I will start mentioning two reasons which motivated the use of controlled data elicitation techniques in the study of variable clitic placement and then I will show the limitations of the first task (STUDY 1) and the improvements introduced later (STUDY 3).
**Frequency of the construction in child language**

Clitic + verb combinations are frequent since they appear around the second year of age. However, the topic of this dissertation is clitics in very specific contexts (verbal periphrases). Having piloted child corpus data myself, it quickly became evident how scarce tokens of clitics used in constructions such *ir a* ‘go to’, *querer* ‘want to’, or *tener que* ‘have to’ + Infinitive are\(^{127}\). This may be so, due to the number of elements involved in these more complex constructions (for more details see point (A) in the learning task outlined in §3.1.4). In a chapter about a comparability measurement (Mean Length of Utterance) in corpus data, Larrañaga and Guijarro-Fuentes, (2012) add that

…if one is studying the acquisition of clitics together with their position within a particular structure, and the child one is studying, does not produce many utterances with clitics and/or different word orders, it may be a good idea to supplement the naturalistic corpus data with some more controlled elicited data employing other elicitation techniques, including, but not limited to picture naming, word/sentence completion, sentence repetition and so on. […] …language competence is best assessed by a multiple combination of pinpointing methodologies… (p.17).

Apart from suggesting data triangulation with different methodologies, the comment above also mentions an important advantage of experimental designs, namely the ability to control for as many variables as possible adding power to the results obtained. This is the second motivation for the use of experimental elicitation techniques.

**Need to control variables in order to test hypotheses**

Especially in studies of language variation\(^{128}\), the confluence of several variables reported in studies of adult speakers is one reason for the efforts to tease apart the acquisition of some of

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\(^{127}\) The low number of tokens in child language might not be interpreted as any significant developmental discontinuity, as these constructions are not that frequent in adult language as other simpler verbal constructions.  
\(^{128}\) I mention the confluence of variables in the context of variationist studies not because other types of studies would be less complex in terms of the number of factors impacting structure, but because within language variation those factors are brought to the foreground and have been attempted to be described as fully as possible.
the heavier constraints. One very well-studied case of variation in Spanish is SPP expression. Continuity of reference has been identified as one of the most powerful variables affecting the expression of a pronominal subject (Otheguy, Zentella, & Livert, 2007). In particular, pronoun use shows that native Spanish speakers use overt subject pronouns more in clauses that change the subject that has been active as subject in previous clauses (switch-reference). However, a number of other factors have also been attested (e.g. the person/number; tense/mood/aspect; and semantic content of the finite verb, just to name a few). Even though a large enough corpus can provide a significant number of SPPs even in child language (Shin & Erker, 2015), through an experimental study conducted with adults and children Shin and Smith Cairns (2009) have been able to isolate continuity of reference. The task consisted of participants hearing stories and then a set of two possible last sentences, for participants to choose “which one sounded better” (p. 157). The design also permitted to restrict the stimuli by controlling for verbal morphology (only present indicative verbs in the 3p singular form). The results not only replicated the results of adult Spanish corpora, but also found more powerful effects as a result of further control on the other variables. Importantly for language acquisition, the results also showed that between 7:0 and 9:0 years of age children become sensitive to referent continuity.

4.3.1 Critical question

It is a fact that data usually have to be excluded from a study for various reasons. In their book on this issue McKnight, McKnight, Sidani, & Figueredo (2007) explain that missing data can take several forms, such as missing “…for entire ‘cases’ (e.g. individuals), for single items, for variables, for an occasion of measurement, and so on.” (p. 6). So, one critical methodological question about the issue of missing data is how can we increase the number of clitics elicited in variable contexts. The critical value of this challenge is given by the many child participants that end up being excluded as the result of the failure to elicit the target language in experiments with such a reduced number of trials. For example, in the experiments reported in Chapter 3, whenever all the trials for a given participant were excluded, then the participant was excluded.

129 At present, SPP expression is also a hot site to test frequency effects, as I have mentioned before (see references Erker & Guy, 2012; Bayley et al., 2013; Wilson, 2014).
As it can be appreciated on Table (41), some participants ended up being unrepresented in the analysis due to exclusions and other factors.¹³⁰

<table>
<thead>
<tr>
<th></th>
<th>Adults</th>
<th>Children</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
</tr>
<tr>
<td>STUDY 1: EP Windows</td>
<td>1/11</td>
<td>9%</td>
</tr>
<tr>
<td>STUDY 2: EI</td>
<td>2¹³¹/11</td>
<td>18%</td>
</tr>
<tr>
<td>STUDY 3: EP Envelopes</td>
<td>3/20</td>
<td>15%</td>
</tr>
<tr>
<td>STUDY 4: EI Animacy</td>
<td>0/20</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 39 Missing data (participants) in experimental studies (§Chapter 3)

4.3.2 The challenge for the present dissertation

In the studies I reported in §Chapter 3, for example, missing data during the implementation stage of the experiment took the form of a number of trials not reaching the minimum criteria for use in the analysis. Table (42) below shows the number of trials excluded from each study, mostly as the result of data cleaning.

In STUDY 1 over half of the trials (58%) did not elicit what was expected and, were thus excluded. Upon further examination, as it was reported in the Scoring section of STUDY 1 (in §Chapter 3), the most frequent reason for exclusion was the absence of a variable context (N=311). A closer look at those 311 cases shows that 87% (271/311) correspond to responses containing an infinitive and no finite verb (e.g. limpiarlo ‘clean it’). This makes complete sense and shows that children have developed pragmatic/discourse competence at least to the extent that they know where the new information is located in their answer and in these [finite verb + non-finite form] constructions. They are showing communicative competence to in answering this way (despite the experimenter’s expectation to elicit full variable contexts). From those cases of infinitive 39% (106/271) contained a subject (e.g. Daisy limpiarlo ‘Daisy clean it’),

¹³⁰ The participants from STUDIES 1 and 2 (tested in 2013) are different from those in STUDIES 3 and 4 (tested in 2014).
¹³¹ These two adult participants (Participant 126 and 127) were excluded due to technical difficulties with audio recording.
¹³² One participant (J15.25M) missed the second session. The data reported in STUDY 4 was collected during the second session.
sometimes followed by a short intervening pause\textsuperscript{133} as they the character (e.g. Daisy) at all times, but needed time to open the folded ‘window’ in the printed stimuli in order to see the action (e.g. cleaning).

<table>
<thead>
<tr>
<th></th>
<th>Adults</th>
<th></th>
<th>Children</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>STUDY 1: EP Windows</td>
<td>51/132</td>
<td>39%</td>
<td>416/720</td>
<td>58%</td>
</tr>
<tr>
<td>STUDY 2: EI</td>
<td>63/264</td>
<td>24%</td>
<td>694/1488</td>
<td>47%</td>
</tr>
<tr>
<td>STUDY 3: EP Envelopes</td>
<td>152/360</td>
<td>42%</td>
<td>665/1386</td>
<td>48%</td>
</tr>
<tr>
<td>STUDY 4: EI Animacy</td>
<td>4/240</td>
<td>2%</td>
<td>297/804</td>
<td>37%</td>
</tr>
</tbody>
</table>

Table 40 Missing data (trials) due to participant exclusion in experimental studies (§Chapter 3)

These observations suggested that maybe the high rate of missing data could be lowered if the experimental design would introduce communicative demands for mentioning the Subject at the beginning of the utterance. I hypothesized that this would trigger more use of finite verbs together with the informationally important presence of the infinitive, thus contributing the building blocks that make up variable contexts. STUDY 3 was the result of this reasoning. By introducing three characters (as opposed to just two) the need for overt mentions of the grammatical subject of the sentences produces by the participants was assumed to be greater. Besides the fact after reaching into an envelope and taking a card, both the image of the character (Subject-agent) and the image of the action (which should be encoded by the infinitive, i.e. informationally important) were presented at the same time. Participants could then plan/structure/produce their utterances with all the necessary information in front of their eyes.

Going back to Table (42) once more, one can note how in STUDY 3 the amount of missing data for child participants was 10\% less than in STUDY 1. Unlike STUDY 1, in STUDY 3 the highest rate of exclusions was not due to non-production of variable contexts (28\%, N=187/665), but due to NP use instead of (or in conjunction with) a clitic (39\%, N=262/665). It is not clear, however, why more adult participants ended up being excluded in STUDY 3 compared to STUDY 1. I assume that adult’s performance on tasks designed for children has to be interpreted with caution because of several metalinguistic awareness issues.

\textsuperscript{133} This is an informal observation not empirically measured, but evident in child responses, even by a rising intonation at the end of the character’s name (which coincided with participants’ need for time as they opened the ‘windows’).
4.4 A (non-conclusive) Conclusion

This short and peripheral chapter to the dissertation is added as a reflection on two challenges that were at the heart of the methods used in the core chapters of this dissertation. On the one hand (Chapter 2), the challenge of how to operationalize what is a frequent form for corpus data coding and analysis. This has great impact on the way results are interpreted within grammaticalization accounts. On the other hand (Chapter 3), the challenge was evident after data from STUDY one were transcribed and coded. As efficient communicators, children can successfully perform a task without necessarily using the structure the experimenter is seeking to elicit. This has a major impact on statistical power, as many trials (and participants), end up being thrown out of the analysis. I considered the first challenge by presenting different approaches to making frequency discrete and by motivating my understanding of tener que ‘have to’ as a frequent verb based on previous literature and my own study of Argentine Spanish. I considered the second challenge by showing the effect of an improved design on the amount of elicited data. Far from reaching any conclusions, I have only identified these two challenges and provided some thoughts on some literature I considered while approaching methodological decisions for the studies reported in this dissertation.
Chapter 5 Discussion and Conclusion

This dissertation has dealt with a case of morpho-syntactic variation in Spanish: variable DO clitic placement. I have approached the use of Proclisis vs Enclisis in Argentine Spanish by ascribing to a framework that views language as shaped by actual instances of use. The two main chapters of this dissertation (Chapters 2 and 3) attempt to answer a specific question each:

1. How can a Usage-based model of grammar account for Spanish variable clitic placement? (Chapter 2)

2. Do children show sensitivity to lexical and semantic constraints on clitic placement in experimental tasks? (Chapter 3)

This final chapter is structured into two sections, based on these two questions. Section §5.1 reviews and discusses the main findings of the corpus study of Argentine Spanish presented in Chapter 2, which shows that a lexical effect, but also that semantic, and discourse variables constrain clitic placement in this dialect as it has been shown by others. Then I review and discuss the proposal I put forward for the lexical effect in the light of previous proposals for grammaticalization. I conjecture its potential significance especially in the hypotheses it makes for language acquisition, and assess its limitations. Section §5.2 reviews and discusses the main findings of the four studies conducted with Argentine children between 4;0-7;0 years old presented in Chapter 3. The results suggest that lexical and semantic constraints on this variation tested here are operative in children of these ages. This has implications for our understanding of the acquisition of variable clitic placement in the first place, but also for the acquisition of variation and the acquisition of the first language, in general.
5.1 Question 1: How can a Usage-based model of grammar account for Spanish variable clitic placement? (Chapter 2)

5.1.1 Discussion of corpus study of adult speakers

Making use of methodology from variationist studies (Bayley, 2013; Sankoff et al., 2005; Tagliamonte, 2006) in the study of grammaticalization (Bybee, 2010, Ch. 6), Chapter 2 has sought to add to our understanding of variable clitic placement by contributing data from adult Argentine Spanish speakers to the previous literature on other dialects, most of whose results are replicated in this dissertation.

5.1.1.1 Enclisis is disfavored overall

The corpus study presented in Chapter 2 reports a distribution of Enclisis (35%) which when compared to the spectrum of rates reported for other dialects (see Table 43), is located towards the higher end. As Table (43) shows, there is some degree of variability between the dialects reviewed. Such variability might indeed be due to dialectal variation or to methodological reasons (such as the particular features of the corpora used, e.g colloquial versus educated registers). In the spoken section of his multi-corpora study of this phenomenon, Davies (1995) reports a 25% difference between the rates of Enclisis between the dialects at the two extremes in the continuum (Mexico, 34% vs. Perú, 59%). Within the range reported by Davies (op cit) for the dialects, the rate of Enclisis in Argentina (41%) was found to fall around the mean. In the Argentine data reported in Chapter 2 of this dissertation (based on the same corpus used by Davies, op cit) the rate of Enclisis (35%) is lower than the one reported in Davies’ study. A main difference between the method of token extraction from the corpus might account for the difference in the rate of Enclisis. Whereas Davies (op cit) extracted all instances of clitics (DAT and ACC) used with a set of 32 preselected verbs, the present study extracted all 3p ACC clitics used with any verb.

When considering the studies I reviewed in Chapter 2 of this dissertation and taking just the overall average for Davies (1995), the range of Enclisis across studies is 27% and the present Argentine data fall toward the higher end of a Enclisis continuum (see highlighting on Table 43). Even if these dialectal differences exist (which, as I have shown, can place one dialect at different points in the continuum depending on the dialects used as points of comparison), the
general tendency holds as the data from Argentine Spanish presented here replicate the well-established finding that Enclisis is disfavored in Modern Spanish (for diachronic studies, see Davies, 1998; Torres Cacoullos, 1999).

<table>
<thead>
<tr>
<th>Study</th>
<th>Dialect</th>
<th>% Enclisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Davies, 1995)</td>
<td>several (10)</td>
<td>44%</td>
</tr>
<tr>
<td>(Requena, present study)</td>
<td>Argentina</td>
<td>35%</td>
</tr>
<tr>
<td>(Sinnott &amp; Smith, 2007)</td>
<td>Bogotá</td>
<td>32%</td>
</tr>
<tr>
<td>(Navarro, 1990)</td>
<td>Valencia, (Venezuela)</td>
<td>32%</td>
</tr>
<tr>
<td>(Schwenter &amp; Torres Cacoullos, 2014)</td>
<td>Mexico</td>
<td>27%</td>
</tr>
<tr>
<td>(Troya Déniz, 2003)</td>
<td>several (12)</td>
<td>26%</td>
</tr>
<tr>
<td>(Zabalegui, 2008)</td>
<td>Caracas</td>
<td>20%</td>
</tr>
<tr>
<td>(Sinnott &amp; Smith, 2007)</td>
<td>Madrid</td>
<td>18%</td>
</tr>
<tr>
<td>(Troya Déniz &amp; Pérez Martín, 2011)</td>
<td>Las Palmas de Gran Canaria</td>
<td>17%</td>
</tr>
<tr>
<td><strong>AVERAGE OF AVERAGES</strong></td>
<td></td>
<td><strong>27%</strong></td>
</tr>
</tbody>
</table>

Table 41 Rate of Enclisis in variationist studies of several Spanish dialects

As it has been observed in previous studies, it seems that the overall pattern found reflects the fact that Proclisis is spreading (Schwenter & Torres Cacoullos, 2014, p. 533; Davies 1995). If this is the case, it would be assumed, as predicted within exemplar-based models, that frequent types would affect less frequent ones. In this context one could ask: What is the role of a frequent construction entrenched in Enclisis (such as tener que)? Does tener que spread Enclisis? Why? Why not? What effect could steady increase of Proclisis have on the language as a whole in terms of language change? One effect could be expected in the discourse-pragmatic functions associated with the use of the two variants (i.e. in the present study, Proclisis is associated with animate referents which are highly topical135, but if it continues to spread and rise in frequency, it might lose the ability to encode such meaning/function). Just by means of an example, if one follows the first aprioristic postulate for scientific and comprehensive analyses of variation posed by Aijón Oliva (2011) which states that “Todas las formas expresivas de una

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134 This rate corresponds to Infinitival periphrases only. The study reported separately 8% of Enclisis for Gerund periphrases. Given that the periphrases I have dealt with in this dissertation are for the most Infinitival, I decided to report only on those for Navarro (1991).

135 This has been suggested by the results of the multivariate analysis and replicated in this dissertation (but see Schwenter & Torres Cacoullos, 2014 for different effect of animacy).
variedad lingüística poseen cierto valor de significado que les es único y no exactamente equiparable al de ninguna otra forma” / ‘All communicative forms of a linguistic variable possess some unique semantic value, not exactly equated with any other form’ (p. 26), the spread of Proclisis would also mean the increase in frequency of this particular way of encoding information by means of this construction. So, if it is true that Proclisis is spreading, which are the uses/constructions which give in first to its spreading force? One could then ask about the effect that this could have on the constraints that speakers are shown to now operate in order to refer to specific types of objects with particular verbs. It has been put forward that the impact of discourse-pragmatic factors should recede as Enclisis recedes, which means that for certain constructions with very extreme rates of Enclisis, topic continuity may not operate anymore (Schwenter & Torres Cacoullos, 2014, p. 533). Another question which needs to be addressed is the variability in the rates of Enclisis between dialects (“quite slight” in Davies, 1995, p. 373; but significant in Sinnott and Smith, 2007). This is particularly difficult when corpora are so scarce and so heterogeneous in nature. In this regard, the Proyecto para el estudio sociolingüístico del español de España y de América (PRESEA) corpora will enable the analysis of comparable data. This and other general questions not addressed in this dissertation are very important issues which would require extensive examination elsewhere.

5.1.1.2 Enclisis and Proclisis place constructions (verbs) in a continuum

At this point I will consider the distribution of verbs in an Enclisis – Proclisis continuum (initially reported in large spoken corpora by Davies, 1995). The lexical aspect of Spanish clitic placement has been explored in different ways, starting with the initial categorization of verbs allowing Proclisis (CC) or not (Aissen & Perlmutter, 1976, Rizzi, 1978\textsuperscript{137}), to studies running statistical analysis by verb lexeme (Gudmestad, 2014), to discrete categorization (high- vs low-frequency verbs) based on aggregate frequencies (Davies, 1998; Schwenter & Torres Cacoullos, 2014), to relative frequencies (see Torres Cacoullos, 1999, p. 165; Schwenter & Torres

\textsuperscript{136} As well as the addition of data to the Corpus del Español (CORDE) announced by Davies in 2015.

\textsuperscript{137} Whereas Aissen and Perlmutter (op cit) divided verbs into those triggering and those non-triggering proclisis, Rizzi (op cit) identified that proclisis can occur in verbs with aspectual, modal, and motion meanings.
Now I will discuss the results of Finite verbs studied in § Chapter 2 as individual constructions.

The Finite verbs in the Argentine Spanish corpus (Table 44) show that the bulk of the data clusters in very few frequent types (e.g. poder ‘can/may’ is more frequent than the least six types on the table). This bears resemblance to the type of distribution found by Zipf (1949), namely one in which when words are ranked in decreasing order of frequency, the frequency of a word is inversely proportional to its rank (see arrows).

<table>
<thead>
<tr>
<th>Rank</th>
<th>Finite verb</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>poder ‘can/may’ + Inf</td>
<td>77</td>
</tr>
<tr>
<td>2</td>
<td>ir a ‘go to’ + Inf</td>
<td>68</td>
</tr>
<tr>
<td>3</td>
<td>tener que ‘have to’ + Inf</td>
<td>39</td>
</tr>
<tr>
<td>4</td>
<td>querer ‘want’ + Inf</td>
<td>18</td>
</tr>
<tr>
<td>5</td>
<td>estar ‘be’ + Ger</td>
<td>17</td>
</tr>
<tr>
<td>6</td>
<td>deber ‘must’ + Inf</td>
<td>13</td>
</tr>
<tr>
<td>7</td>
<td>empezar (a) ‘start’ + Inf</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>seguir ‘keep’ + Ger</td>
<td>6</td>
</tr>
<tr>
<td>9</td>
<td>venir (a) ‘come’ + Inf</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 42 Token distribution of verbs in Argentine Corpus

Since Proclisis has been assumed to characterize more grammaticalized forms (Myhill, 1988), and grammaticalization has been found to correlate with increased frequency (Bybee, 2010, p. 112-13; Hopper & Traugott, 2003), token frequency of individual verbs has been used to study clitic placement (Davies, 1998; Torres Cacoullos, 1999; Schwenter & Torres Cacoullos, 2014; and for European Portuguese see Leal de Andrade, 2010). The correlation between lower frequency and Enclisis has been confirmed by Schwenter and Torres Cacoullos (2014) who compared low- vs. high-frequency verbs (see Chapter 4 for a discussion on different ways of operationalizing grouping based on frequency). Nevertheless, Schwenter and Torres Cacoullos (op cit) acknowledge the lack of one-to-one correspondence between the frequency of a

138 Leading, with specific reference multivariate analyses showing that the Finite verb is the variable with the greatest statistical impact (Schwenter & Torres Cacoullos, 2014, p. 524).
particular verb and its rate of Enclisis (p. 525). A similar lack of correspondence has been mentioned in Chapter 4 to apply to language acquisition, specifically to how the most frequent forms in the language (prepositions) are not necessarily the earliest to be learned (§Chapter 4). The Argentine results reported in Chapter 2 provide support for such lack of one-to-one correspondence between frequency and Enclisis. Evidence of a high-frequency and grammaticalized construction which favors Enclisis (tener que ‘have to’) is the perfect example of that. A critical observation is that such idiosyncratic behavior of tener que seems to be at odds with the grammaticalization hypothesis and, to the best of my knowledge, has not received more attention in the literature apart from passing acknowledgement. I will come back to this when I discuss the proposal through which I have attempted to account for the behavior of the high-frequency verbs including tener que (§5.1.2).

Before closing this section, evidence for grammaticalization and frequency is found in the data reported in Chapter 2 in that the more grammaticalized use of ir a ‘go to’ (i.e. future meaning) disfavors Enclisis, whereas less grammaticalized use (i.e. motion) favors it (also found by Schwenter & Torres Cacoullos, 2014). The data also show that the former use is more frequent overall than the latter, also as predicted by grammaticalization based on semantic bleaching which shifts meaning in the direction of more frequent meanings of Time, Aspect, or Mood (in this case, future time).

5.1.1.3 Inanimate referents favor Enclisis

The direction of the effect of Animacy found in the Argentine data replicates previous studies (e.g. Davies, 1995; Myhill, 1988). In particular, results show that Inanimate referents favor Enclisis. This finding is consistent with the predictions based on the Animacy Hierarchy (AH) (Comrie, 1981) which was interpreted as relative topicality impacting grammaticalization by Myhill (op cit). Myhill suggests that a verb whose accompanying clitic is more animate (i.e. more topical) than the subject of the sentence lacks a vital grammatical relation with the subject and can be assumed to be a less prototypical accusative verb. As a result, it is more likely to undergo grammaticalization (p. 360). In the Argentine data reported in Chapter 2, the effect of

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139 Similarly, lack of one-to-one correspondence between clitic placement (CC) and the semantics of the verb (lexical vs. grammatical) has been reported in Torres Cacoullos (1999, p. 147).
animacy finds statistical support in that Enclisis is favored with Inanimate referents. Conversely, Enclisis is disfavored with Animate referents.

However, the results for Animacy in the Argentine data reported here are exactly the opposite as those reported by Schwenter and Torres Cacoullos (2014) for Mexican Spanish, where animate referents favor Enclisis. A question that remains unanswered is whether Mexican Spanish, and/or colloquial registers would explain Schwenter and Torres Cacoullos' (2014) effect of Animate favoring Enclisis. Unlike the present study which only used the *Corpus de Habla Culta de Buenos Aires* (Corpus of Educated Spanish) (Barrenechea, 1987), their study of Mexican Spanish included data from three corpora: the Mexican *Habla Culta* (Educated Spanish) corpus, a similar corpus of *Habla Popular* (colloquial Spanish), and twelve younger speakers (20-34 years old and “middle” level of education) from the *Corpus sociolingüístico de la ciudad de México* (CSCM) (see Figure (58) I reproduce below). The motivation for this seems to have been the need for a larger sample in number of tokens\textsuperscript{140} as well as representation of the whole community of speakers. Even though the authors report a significant difference in the rate of Enclisis in the CSCM corpus compared to the *Habla Culta* corpus (p. 519) probably reflecting register differences in terms of less formal/educated language in the CSCM\textsuperscript{141}, it is not clear whether (and, more importantly, why) animacy would also vary across corpora and what could motivate this.

<table>
<thead>
<tr>
<th>Corpus</th>
<th>% enclitic</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habla culta (Lope Blanch, 1971)</td>
<td>31%</td>
<td>70/228</td>
</tr>
<tr>
<td>Habla popular (Lope Blanch, 1976)</td>
<td>27%</td>
<td>61/230</td>
</tr>
<tr>
<td>CSCM — Nivel medio/Jóvenes (Martín Butragueño &amp; Lastra, 2012)</td>
<td>20%</td>
<td>27/137</td>
</tr>
<tr>
<td>TOTAL</td>
<td>27%</td>
<td>174/652*</td>
</tr>
</tbody>
</table>

\* Totals include tokens from interviewer speech (N=57).

Figure 58 Rate of Enclisis by corpus (Reproduced from: Schwenter & Torres Cacoullos, 2014, p. 519)

\textsuperscript{140} It is interesting to note that the number of tokens extracted in the Argentine Corpus (N=252) (Chapter 2) is not so different from the overall Ns reported by Schwenter and Torres Cacoullos (2014, p. 519) for each of the corpora (Habla Culta = 228, Habla Popular = 230, and CSCM = 137).

\textsuperscript{141} Davies (1995) reported register differences between different modalities (writing and spoken corpora).
Klein-Andreu (2000, p. 150) mentions some studies of laísmo, and leísmo\textsuperscript{142} in Spain which report age differences, but also recognizes the possible impact of the recency of formal education in younger generation and how that might affect the data from younger speakers in the direction of the more prestigious variety. With regard to variable clitic placement in Asturian, González López (2013) also reported age differences. However, these results were associated with socio-political factors. Studies like these could suggest that clitic use might be sensitive to changes in the language which would distinguish the speech of older and younger generations. Nevertheless, another study which included college students reports no effect of stylistic of social factors on clitic placement variation (Troya Déniz & Pérez Martín, 2011). Assuming that there was no differences in animacy between the three corpora used in Schwenter and Torres Cacoullos (2014), some methodological procedures followed in the present study (such as the inclusion of non-human animates) should be compared to the ones used in theirs before explaining the divergent results form to dialectal variation.

Twenty-seven years ago when Myhill (1988) conducted his corpus study on variable clitic placement (which he referred to as Clitic Climbing or CC), he concluded that

\begin{quote}
…there are a number of cases where neither relative topicality nor the semantics of the verbs can be responsible for the application or non-application of CC, even when the verb favors CC and the clitic is higher than the subject on the A[nimacy] H[ierarchy], CC still does not apply 9% of the time, and this suggests that there are still more factors affecting the likelihood of grammaticalization. (p. 361)
\end{quote}

What Myhill noted is that there are some data which cannot be accounted for just by the degree of grammaticalization of the verbs and the relative animacy of clitic vs. Subject. He thus suggests the presence of “more factors”. Drawing on different measures, linguists have begun to explore new ways of measuring topicality operationalizing it separately from animacy (e.g. in terms of topic persistence or continuity).

\textsuperscript{142} Laismo describes to the use of the personal object pronoun \textit{la} instead \textit{le} with feminine indirect objects. Leismo describes the use of \textit{le} for direct objects instead of \textit{lo(s)/la(s)}. 
5.1.1.4 Referents persistent to a large extent favor Enclisis

In the study of Mexican Spanish mentioned before, Schwenter and Torres Cacoullos (2014) had special interest in testing whether the clitic placement variation is sensitive to discourse factors, and provided two measures of Topicality, namely a backward- and a forward-looking measures (following Givón, 1983). The study shows no effect of the backward-looking measure of Previous Mention. However, the results show that, as expected, Enclisis is favored with non-persistent referents (i.e. referents that are not highly topical). Additionally, an interesting interplay between Animacy with both measures of topicality is advanced and backed up with data. In a few words, the authors suggest that proclisis is being used to bring to the foreground referents that would otherwise remain largely unnoticed. These referents would be Inanimate and not-highly-topical ones (in that they are previously mentioned as DOs and not as Subjects). In this way, Schwenter and Torres Cacoullos (op cit) are able to successfully account for the patterns in their data.

That interpretation could be connected to a proposal put forth by Klein-Andreu (2000, p. 117, 226ff.) when trying to account for innovative patterns in clitic use in several regions for the Spanish Peninsula. The proposal consists of a semantic-pragmatic relationship centered on the relative prominence assigned to the clitic referent. In a nutshell, the prominence of those objects which are able/likely to stand out gets reanalyzed from being Activation-based (in terms of those referents active in a particular utterance as IOs, or in more general terms, those referents more active because they are more animate) to being Individuation-based (discrete referents that are individualized, e.g. a clitic might signify a particular type of DO with a particular function).

Without entering in much detail about the proposal per se, I find appealing the ideas behind it. In particular, the notion of clitics entering into a semantic-pragmatic relationship in which prominence plays a role and which might lead to further specification of the signified encoded by the clitic. Following the specification provided by Schwenter and Torres Cacoullos (2014, p. 533)\textsuperscript{143}, after reviewing the results of my corpus study, I identify what a preverbal clitic refers to in the present data.

In my study of Argentine Spanish, Topic Persistence was coded as in the Mexican study (i.e. counting as persistent tokens with more than one mention in upcoming ten clauses, Myhill,

\textsuperscript{143} "‘clitic climbing’ can signal prototypical DO referents in non-prototypical use, i.e. topical inanimates.” (p. 533)
2005, p. 473). This factor group was not selected as significant in the present study. It was noted, however, that the direction of the effect was the expected one, with more enclisis (39%) with non-persistent referents, than with persistent ones (28%). Nevertheless, a second measure of forward-looking topicality was included: Extent of Persistence (EP). This independent measure of persistence over the ten clauses following a token divided those clauses into two groups (1st – 5th and 6th – 10th). A referent that was persistent only in the following 1st – 5th clauses (but not in the 6th – 10th following clauses) was considered to have Short topic maintenance. A referent that showed persistence across both groups of following clauses was considered to have Short topic maintenance. The results showed that Enclisis is favored only in tokens with Short topic maintenance, which is consistent with Schwenter and Torres Cacoullos’ (2014) findings for Topic Persistence).

5.1.2 Discussion of proposal to account for the lexical effect

After having presented data from Argentine Spanish showing the presence of lexical, semantic and discourse effects on clitic placement variation, Chapter 2 ended with a proposal of how constructional behavior could be motivated within a Usage-based approach to language. The proposal is not completely new, as every component and assumption is found in the Usage-based, Grammaticalization, and Construction Grammar literature. I believe my contribution to be to expand on those ideas and test them in order to answer Question 1 above, which originated from the study of the idiosyncratic behavior of tener que. In this section I will summarize and discuss the proposal. I end up considering its limitations and future directions of work in this area.

5.1.2.1 Building blocks of the proposal

The proposal put forward in Chapter 2 is one attempt to account for the lexical effect found in variable clitic placement by resorting to principles and assumptions of Usage-based grammar, Construction Grammar, and our present understanding of grammaticalization. Other ways of linking clitic placement with grammaticalization have been proposed. However, as I will briefly review here, tener que could be described as a stumbling stone for most of them. One important thing to remember is that this proposal has not been extensively tested so as to fully
assess its effectivity. What I can say, however, is that it seems promising after being tested with the most frequent constructions in the Argentine corpus.

One account to grammaticalization is purely semantic and hypothesizes that Enclisis should be favored by verbs with more basic meanings (Aissen & Perlmutter, 1976; Rizzi, 1978; Suñer, 1980; Napoli, 1981; Myhill, 1988, p. 353; Davies, 1995, p. 375). \textit{Tener que}, however, constitutes a recent case of grammaticalization into obligation (Bauman, 2013, p. 147), so in Modern Spanish it already has a less “basic” meaning. A second approach to grammaticalization would hypothesize that Enclisis should be favored by less frequent verbs given that increased frequency leads to grammaticalization (Bybee, 2010; see also Aijón Oliva & Borrego Nieto, 2013, p. 106; Schwenter & Torres Cacoullos, 2014). Nevertheless, in almost all studies which report individual construction rates of Enclisis \textit{tener que} can be found among the most frequent verbs. For example, Schwenter and Torres Cacoullos (2014) constructions seem to have been divided (probably unintentionally) around the 8% as the cutoff point between high- vs low-frequency ones. If we apply that to other corpora, in almost every case, \textit{tener que} falls within the most frequent verbs (see for example Troya Déniz & Pérez Martín, 2011, p. 17). The same finding is true for the Argentine data reported here. As it become clear, none of the approaches mentioned above (based on meaning or aggregate token frequency) seems to readily account for the behavior of \textit{tener que}.

The approach I proposed draws on relative frequencies of use outside of the construction. It is consistent with tenets of Usage-based grammar in that it assumes speakers to take heed of concrete forms used in language (exemplars/actual tokens) (Hopper, 1987, p. 3) which are pairings of form and meaning (constructions, Goldberg, 1995) which contain rich information not only about meaning, but also about distributions, frequencies of use in particular contexts, collocations, grammatical relations probabilities (Brown & Rivas, 2012), etc. These units keep ties with other units and form hierarchical networks of constructions. In these networks there can be constructions which are bigger and some which are smaller (such as sub-units of a bigger construction). One important element in this proposal is the assumption of a speaker who is endowed with rich memory and domain-general cognitive mechanisms which allow them to store concrete tokens (Bybee, 1985) as well as all the specific information encoded in the construction. These rich memory and cognitive abilities are coupled with powerful effects of
frequency (repetition) (Bybee, 2003; Bybee & Thompson, 1997) which are assumed to help the speaker construct the ever-changing grammar of their language.

5.1.2.2 Testing the proposal with variable clitic placement

Specifically, the proposal states that knowledge of relative frequency of the verb in other contexts of use outside of the construction (eg. V + DO) might provide useful information so as to that verb’s bias/preferences toward either Proclisis or Enclisis. I tested this proposal for *ir* ‘go’, *poder* ‘can/may’, *querer* ‘want’, and *tener* ‘have’. The results showed that frequencies of a verb in transitive use (V+DO) could be a good indicator of these verbs’ preferences for Enclisis or Proclisis. In particular, *tener* shows the highest rate of postverbal DOs. When these results were compared to the frequency of each verb with a preverbal clitic (Cl+V) in order to show the extent to which the general bias of Spanish toward Proclisis could be ruled out, it was shown that *tener que* has the lowest rate of proclisis overall. Finally, the study of unithood between the finite verb and the infinitive (V+Inf) showed that *tener que* has the lowest rate of unithood. Motivated by this last finding, I assumed that as a recent case of grammaticalization, *tener que* could keep some of its compositionality, so that the same rationale exposed so far should hold for its sub-units. It was hopefully clearly shown that if both components of this construction (*tener* and *que*) can keep ties to other constructions, and if speakers can keep ties between constructions, both would point in the direction of an Enclisis bias.

5.1.2.3 Advantages and limitations

The proposal fits within Usage-based proposals of speakers keeping track of probabilities even to make decisions across constructions, in the realm of morphology (Brown & Rivas, 2012) and clitic placement, as in the present case. One clear advantage of this proposal is that, it being valid, it seems to be able to capture the behavior not only of those constructions who comply with the predictions of grammaticalization without any trouble (e.g. *ir a* ‘go to’), but also it seems to capture idiosyncratic behavior such as that of *tener que*, by means of a very simple logic. In this way the proposal ranks high in learnability (i.e. it easily accounts for native language acquisition, Roberts, 2005, p. 155). This has implications for language acquisition as it suggests early learning, given the high exposure to use of these verbs in the input.
Limitations at this point have to do with the fact that only high-frequency verbs have been tested. Pilot evidence coming from the analysis of *deber* ‘must’ seem to indicate that the proposal may not work for less frequent verbs. Even though any limitation in the validity of a proposal or model is a limitation, in this case it should not necessarily discard the proposal right away as untenable. The reason for this is that within the Usage-based literature, some of the effects of linguistic constraints have been suggested to be evident and/or potentiated only beyond a certain threshold (Erker & Guy, 2012). This seems to be what Schwenter and Torres Cacoullos’ (2014) study has tapped onto by finding an effect of aggregate frequency. So, the present proposal is not at odds with their work, as it could be the case that they complement each other. However, it might be the case that instead of being an explanatory factor, aggregate frequency would potentiate the effects of relative frequencies and other conditioning factors.

Several aspects of this proposal still remain to be investigated. For example, all the remaining verbs should be tested in order to try to establish how generalizable the proposal is across constructions. If it were found not to hold across constructions, then it could be explored whether there is a threshold for such an effect of frequency. In this case, the challenge presented in Chapter 4 about determining cutoff points will need to be addressed, preferably using a larger data set. Should this proposal prove useful to account for all the data, it is assumed to have implications for first language acquisition and I will mention some hypotheses it makes in that respect in the next section when I discuss the second research question.

5.2 Question 2: Do children show sensitivity to lexical and semantic constraints on clitic placement in experimental tasks? (Chapter 3)

The results of STUDIES 1 to 4 show that in the different manipulations and elicitation methods used, children show sensitivity to the two main constraints of variable clitic placement. Even though these results were discussed in Chapter 3, here I would like to revisit them and discuss what they mean as well as what they cannot say about the acquisition of variable clitic placement. These limitations will motivate questions that constitute future research endeavors.

A summary of the findings for each of the two variables investigated appears in Table (45) below. A main finding of these studies is that children seem to approach clitic placement by
drawing on very specific information encoded in the verb. They seem to know the distributions of verbs in the input and could be assumed to have already stored such distributional information into the particular verbs. As such whenever participants were prompted to use *tener que* ‘have to’, they placed clitics postverbally much more often than with *querer* ‘want’ and *ir* ‘go to’ (STUDIES 1 and 3). Similarly, whenever they repeated sentences they repositioned the clitic to a postverbal position more often with *tener que* (STUDY 2) but they forward-repositioned postverbal clitics with *ir* and *querer* more often than with *tener que* (STUDY 4, Experimental group).

<table>
<thead>
<tr>
<th></th>
<th>STUDY 1</th>
<th>STUDY 2</th>
<th>STUDY 3</th>
<th>STUDY 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finite verb</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√144</td>
</tr>
<tr>
<td>Referent animacy</td>
<td>not tested</td>
<td>√</td>
<td>√</td>
<td>X</td>
</tr>
</tbody>
</table>

Table 43 Summary of results STUDIES 1 – 4

The semantic variable studied here, Referent animacy, also impacted clitic placement in the direction predicted by the corpus study in Chapter 2 as well as in previous literature (Davies, 1995). The fact that the effect of animacy has been found to be significant in an elicited imitation (STUDY 2) and elicited production (STUDY 3) is indicative of the strength of this effect. In STUDY 4, however, no effect of animacy was found. This is interpreted as a result of the manipulation of animacy in the design. This result needs to be interpreted with caution since there were fewer trials in this study and because the control group did not show any effects, which was very surprising. It could suggest that what we have called “animacy” might correspond to something encoded in the word for the referent and not so much in the contextual information. This should be explored further in order to better understand this effect, see up to what extent experimental manipulations can be used to study constraints which rank lower in the probability weights in corpus studies.

What do these results mean for the acquisition of clitic placement? In the first place, they provide what up to the best of my knowledge is the first experimental approach at discovering the presence of target-like constraints for variable clitic placement in child language. Other studies of morpho-syntactic variation, such as Shin and Erker (2015), have pinpointed at what

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144 This corresponds to the Experimental group in Forward-repositioning.
age certain constraints are acquired and to propose a developmental sequence in their acquisition. Even though the present data do not provide such information (recall the lack of age effects), this dissertation has been able to show that by (or around) 4;0 children seem to be sensitive (and use in their production) the lexical and semantic patterns which result from probabilistic distributions present in the input. Crucially, the results show continuity between the child age-groups tested and adult use in corpora (see Chapter 2). Specifically, children and adults may resort to the same information when using clitics in production, information that I assumed to be part of the lexical entry of the verb.

Based on the proposal I put forward in Chapter 2, a number of hypotheses can be made for language acquisition. For example, if a great part of the acquisition of clitic placement variation comes down to learning basic verb (subcategorization) biases (Qi, Yuan, & Fisher, 2011), then acquisition of variable clitic placement would have to be explained in terms of item-based / exemplar-based learning. This predicts that one position (Proclisis or Enclisis) is not necessarily expected to appear before the other one, which is consistent with previous research (Mondoñedo et al., 2004). Also, if biases toward Enclisis or Proclisis are a byproduct of learning such frequent and basic patterns, these preferences should be evident right from the outset of production in child language. If learning these basic biases is still probabilistic and based on overall patterns of use, what should be explored is what happens in the case of variable constructions with some verbs which, in contexts outside of the constructions only allow one of the schemas (V+DO or Cl+V), but which allow Enclisis and Proclisis in variable contexts. It is these cases (such as ir ‘go’ which only allows CL+V, but not *V+DO) which would allow to test the proposal, because in the absence of evidence in the basic patterns, children would have no evidence of the variation early on – except for the variable contexts present in the input. These and other implications (and hypotheses) would have to be researched in further detail.

For language acquisition in general, the present results provide at least partial support for exemplar-based, piecemeal learning models (Bybee, 2013; Tomasello, 2003), as they show that children are treating each verb differently when it comes to clitic placement preferences. What these results do not show is when or how the lexical and semantic variables came into play reaching degrees of impact comparable to those in the target adult language. Following Shin and Erker (2015), it might be the case that the most robust constraint (Finite verb) would emerge first, followed by animacy. This could be expected based on my proposal of how the lexical
effect could be traced back to very basic constructions which are frequently used with a particular verb (e.g. transitive construction, V+DO). In such a case, not long after (or probably together with) the acquisition of the verb, all the specific information about frequencies of use, collocational probabilities would be acquired as well.

5.2.5 Future directions

Even though a number of questions for future study have been posed already throughout the text, in this closing section I would like to mention two main directions in which future research could move. One pertains to question 1 and the ideas I put forward in Chapter 2. In particular, the proposal needs to be tested with infrequent verbs and, if possible, in a larger data set. In the case of question 2, i.e. the acquisition research presented in Chapter 3, a myriad of questions still remains to be answered. We now know that it should be between the acquisition of both positions (at around 2;6) and the age of the youngest group tested here (4;0 years old) that children need to learn to constrain clitic placement in variable contexts resorting to lexical and semantic information. So, the same learning task/trajectory proposed in Chapter 3 could be applied to this younger age group. The pursuit of such research would imply major methodological changes, if experimental tasks were to be used. However, if corpora were used, some of those challenges will be overcome, provided that enough number of tokens are found.
Appendices

APPENDIX A Exclusions from corpus study

The following cases were not extracted:

- lo/los/la/las + Noun / Adjective (eg. la taza ‘the cup’, la grande ‘the big [one]’)
- lo/los/la/las + Prepositional Phrase (eg. la del banco ‘the [one] from the bank’)
- lo/los/la/las + que…/cual… (eg. Lo que quiere es... ‘What [he/she] wants is…’)
- Unclear cases in which it was not possible to distinguish a clitic Pronoun from a Determiner (eg. Dame la ‘Give me it/the’)

Exclusions as part of Data cleaning

a) Tokens with (DAT + ACC) clitic clusters such as me, te, se, or nos followed by lo, los, la, las (A1) and (A2). (N=198).

(A1) Me lo h-ic-e de un color sepia,

me-DAT.1SG it-ACC.M.3SG do-PRET.1SG of a-M.SG color sepia,

oscur-it-o, (XXVII, 325:20)
dark-DIM-M.SG,
‘I did it (for myself) on darkish sepia’

(A2) esa observación [...] me la han- - - hecho

that-F.S observation [...] me-DAT.1SG it-ACC.M.3SG have-3PL do-PTCP

much-isim-a-s… (XXXI, 454:3)
many-SUP-F-PL
‘many have made that observation to me’
b) Tokens with *ser* ‘be’ + adjective + Infinitive, which show invariable enclisis (A3). (N=3)

(A3) en una mujer... esté... es más fácil--- entender-*lo*. (IX, 140:2)

in a-F woman... hm... is more easy--- understand-*it-ACC.M.3SG*

‘It is easier to understand it in a woman’

c) Tokens with *haber que* ‘have to’ + Infinitive, which also show invariable enclisis (A4). (N=46)

(A4) Hay que hacer-*lo* con precision (XIV, 223:1)

have-PRS.3SG to do-*it-ACC.M.3SG* with precision

‘One has to do it with precision’

d) Tokens of clitics used in juxtaposed or coordinated constructions (A5). (N=7)

(A5) puede adquirir ese cuadr-*it-o-* -- y tener-*lo--* -- y

can-3SG purchase that-M.SG painting-DIM-M and have-*it-ACC.M.3SG* and

disfrutarlo (IX, 150:3)

enjoy-*it-ACC.M.3SG*

‘can purchase that little painting and gave it, and enjoy it’

e) A token that appeared as truncated (A6) (N=1)

(A6) porque *lo* tiene que... (XXIX, 383:19)

because *it-ACC.M.3SG* have-3.sg to...

‘because (s)he has to…’

f) Tokens for which the referent of the clitic could not be identified. (N=7)
Méjico va a tener mucho más auténticamente americano que nosotros (XXX, 414:6)

‘Mexico is going to have it more authentically American than us’

g) Tokens in which there was intervening material between the finite and non-finite verbs. (N=3)

(A8) no podemos... los trabajos ésos ahí en el I des exponerlos en mitades. (XXI, 17:10)

we can’t…the Works those there at the I des expose-them.ACC.M.3PL in halves.

Other cases were extracted, but excluded for the analysis because they either display no variation in clitic placement, or because very few tokens were found of a given construction. In what follows we exemplify such cases.

ENCLISIS ONLY

- All constructions consisting of a single non-finite form of a verb which in present day Spanish can only take the clitic postverbally. This also includes imperatives. (N=165)

- [gustar ‘like’ + Infinitive-Clitic] constructions (N=9)

(A9) me gustaría hacerlo (XXIV, 210:9)

- [tratar de ‘try to’ + Infinitive-Clitic] constructions (N=6)

(A10) El trata de solucionarlos en lo más posible (V, 93:1)

- Expressions with [vale la pena/da pena ‘it’s a pity’+ Infinitive] (N=2)

(A11) A mí me da mucha pena- - - dejarlo, abandonarlo (XXIX, 387:17)

- [dejar de ‘stop’ + Infinitive-Clitic] constructions (N= 2)

(A12) así dejás de--- llamarlo. (XXIV, 203:11)

- [entrar a ‘begin’ + Infinitive-Clitic] constructions (N=2)
entraría a respetarla (X, 157:1)

- [andar ‘go’+ Gerund-Clitic] (N=2)


no estoy en edad de hacerlo tampoco (XIV, 216:5)

no hay forma de aprenderlo (XXII, 88:11)

Quedé en irla a visitar el miércoles. (XXXII, 474:7)

Desde chico me acuerdo haberlo visto (XXVII, 323:3)

¿Te animás a escucharlo de nuevo? (IV, 69:1)

Es que uno no se atreve a dejarlos a ver qué pasa. (IX, 154:7)

Cada cual se comprometió en su país a seguirlos trabajando... (XXI, 17:20)

si ese juicio me conviene conciliarlo o no (XXIII, 114:3)

intentar criarlo allí (VIII, 128:5)

no logro localizarlo (XXIV, 203:2)

do molestaba hacerla (VII, 114:3)

se negaba a ponerlos en la mesa (IV, 82:9)

así que piensa emplearlo en un... Un empleo comercial nomás. (V, 88:2)

un día me pongo a hacerla (V, 93:7)

me propuse- - - hacerlo hasta--- un momento determinado... (XXI, 57:19)
como él pretendió hacerlo ver (XXIV, 140:6)
a fuerza de escucharlas terminarán por corearlas junto a nosotros (XIX, 285:1)

PROCLISIS ONLY
- All cases of a clitic used with a single finite verb were excluded as they only allow the clitic to appear preverbally. (N=1265).
- [Clitic + hacer ‘make’ + Infinitive] constructions (to make someone do something) (N=12)
  (A32) El lo hizo correr (XXVIII, 371:12)
- [Clitic + ir ‘go’ + Gerund] constructions (N=11)
  (A33) Yo las fui guiando (XI, 169:11)
- [Clitic + llegar a ‘get to’ + Infinitive] (N=6)
  (A34) un poco lo llego a dominar y me aburre después (I, 24:18)
- [Clitic + dejar ‘stop’ + Infinitive] (N= 4)
  (A35) Te está diciendo que lo dejes pensar
- [Clitic + volver a ‘do…again’ + Infinitive] (N=3)
  (A36) la he vuelto a hacer (XXIV, 212:5)
- [Clitic + haber ‘there be’ de + Infinitive] constructions (N=2)
  (A37) No la ha de saber manejar (XXII, 102:4)
- [Clitic + ver ‘see’ + Infinitive] (N=2)
  (A38) los veo manejarse en coche (XXIII, 131:11)
- [Clitic + deber de ‘must’ + haber ‘have’+ Participle] constructions (N=2)
  (A39) Pero él la debe de haber presentido a traves de las sombras (XXIX, 396:1)
- [Clitic + invitar a ‘invite to’+ Infinitive] (N=2)
  (A40) de tanto en tanto la invite a salir (X, 158:1)
- Constructions occurring only once in the corpus with proclisis: [Clitic + dar a entender ‘suggest’] (A41), [Clitic + obligar a ‘force to’+Infinitive] (A42), [Clitic + mandar (a) ‘have
something done’ +Infinitive] (A43), [Clitic + saber ‘know’+Infinitive] (A44), and [Clitic + terminar de ‘finish’ + Infinitive] (A45).

(A41) como lo dan a entender sus títulos (XX, 294:1)

(A42) Por eso, los obligó a leer. (XI, 177:12)

(A43) No los mandé hacer todavía. (XXIV, 144:7)

(A44) no lo sé hacer (XXIV, 158:5)

(A45) Todavía no lo terminamos de- - - elaborar (XIV, 213:3)
APPENDIX B Stimuli short-term memory tasks in STUDIES 1 and 2

**Word Recall Task:**
Script: *Ahora yo te voy a decir palabras que vos tenés que repetir en el orden que yo las digo. Primero va a ser de a una, pero luego van a ser más. ¿Estás listo?* [Translation: Now, I am going to say words that you need to repeat in the same order as I say them. First it will just be one word. Then there will be more. Are you ready?]

Stimuli:
One-word sets: *gato* [cat] / *casa* [house] / *mesa* [table] / *tapa* [lid]
Two-word sets: *pato mano* [duck hand] / *verde grande* [green big] / *chico palo* [small stick] / *alto rojo* [tall red]
Three-word sets: *nene pieza fruta* [boy room fruit] / *cara silla papa* [face chair potatoe] / *perro chica boca* [dog girl mouth] / *leche piso pelo* [milk floor hair]
Four-word sets: *dedo agua media casco* [finger water sock helmet] / *loro dulce pierna olla* [parrot jelly leg pot] / *sopa rata cama ola* [soup mouse bed wave] / *pasto vaso caja arroz* [grass glass box rice]
Five-word sets: *hoja plato auto pera maní* [leaf plate car pear peanut] / *libro queso bici lobo uña* [book cheese bike wolf nail] / *masa fuego sapo río papel* [dough fire frog river paper] / *torta fibra mueble taza dado* [cake marker furniture cup dice]

**Digit Recall Task:**
Script: *Ahora yo te voy a decir números que vos tenés que repetir en el orden que yo los digo. Primero va a ser un solo número, pero luego van a ser más. ¿Estás listo?* [Translation: Now, I am going to say numbers that you need to repeat in the same order as I say them. First it will just be one number. Then there will be more. Are you ready?]

Stimuli:
One-digit sets: 1 / 5 / 3 / 8
Two-digit sets: 2 4 / 1 7 / 6 3 / 8 10
Three-digit sets: 9 3 1 / 6 5 2 / 4 7 9 / 10 8 1
Four-digit sets: 5 7 2 9 / 4 6 8 3 / 1 10 9 2 / 7 5 8 3
Five-digit sets: 1 5 9 3 7 / 2 6 10 4 8 / 3 7 1 5 9 / 4 8 2 6 10
### APPENDIX C Stimuli STUDY 1: Elicited production task: Windows

<table>
<thead>
<tr>
<th>Card</th>
<th>Characters / Verb depicted</th>
<th>Referent</th>
<th>Preamble</th>
<th>Critical Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chilindrina ((bañar 'bathe'))</td>
<td>perrito ('puppy')</td>
<td>La Chilindrina y el Chavo van a tener un perrito. Contame qué van a hacer con el perrito. ‘Chilindrina and Chavo are going to have a puppy. Tell me what they are going to do with the puppy.’</td>
<td>¿Qué va a hacer la Chilindrina con el perrito? ‘What is Chilindrina going to do with the puppy?’</td>
</tr>
<tr>
<td></td>
<td>Chavo ((secar 'rinse'))</td>
<td></td>
<td></td>
<td>¿Qué va a hacer el Chavo con el perrito? ‘What is Chavo going to do with the puppy?’</td>
</tr>
<tr>
<td>2</td>
<td>Chilindrina ((abrir 'open'))</td>
<td>frasco ('jar')</td>
<td>La Chilindrina y el Chavo van un frasco. Contame qué van a hacer con el frasco. ‘Chilindrina and Chavo see a jar. Tell me what they are going to do with the jar.’</td>
<td>¿Qué va a hacer la Chilindrina con el frasco? ‘What is Chilindrina going to do with the jar?’</td>
</tr>
<tr>
<td></td>
<td>Chavo ((romper 'break'))</td>
<td></td>
<td></td>
<td>¿Qué va a hacer el Chavo con el frasco? ‘What is Chavo going to do with the jar?’</td>
</tr>
<tr>
<td>3</td>
<td>Mickey ((pegar 'glue'))</td>
<td>papel ('piece of paper')</td>
<td>Mickey y Minnie tienen un papel. Contame qué quieren hacer con el papel. ‘Mickey and Minnie have a piece of paper. Tell me what they want to do with the paper.’</td>
<td>¿Qué quiere hacer Mickey con el papel? ‘What does Mickey want to do with the piece of paper?’</td>
</tr>
<tr>
<td></td>
<td>Minnie ((cortar 'cut'))</td>
<td></td>
<td></td>
<td>¿Qué quiere hacer Minnie con el papel? ‘What does Minnie want to do with the paper?’</td>
</tr>
<tr>
<td>4</td>
<td>Mickey ((abrir 'open'))</td>
<td>tesoro ('treasure')</td>
<td>Mickey y Minnie tienen un tesoro que está un poquito abierto. A Mickey le da curiosidad, pero a Minnie le da miedo encontrar una araña. Contame qué quiere hacer con el tesoro. ‘Mickey and Minnie have a treasure that is a little bit open. Mickey is curious, but Minnie is afraid there might be spiders inside. Tell me what they want to do with the treasure.’</td>
<td>¿Qué quiere hacer Mickey con el tesoro? ‘What does Mickey want to do with the treasure?’</td>
</tr>
<tr>
<td></td>
<td>Minnie ((cerrar 'close'))</td>
<td></td>
<td></td>
<td>¿Qué quiere hacer Minnie con el tesoro? ‘What does Minnie want to do with the treasure?’</td>
</tr>
<tr>
<td>5</td>
<td>Donald ((arreglar 'fix'))</td>
<td>auto roto y sucio ('broken and dirty car')</td>
<td>Donald y Daisy tienen un auto que está roto y sucio. Contame qué tienen que hacer con el auto. ‘Donald and Daisy have a broken and dirty car. Tell me what they have to do with the car.’</td>
<td>¿Qué tiene que hacer Donald con el auto? ‘What does Donald have to do with the car?’</td>
</tr>
<tr>
<td></td>
<td>Daisy ((lavar 'wash'))</td>
<td></td>
<td></td>
<td>¿Qué tiene que hacer Daisy con el auto? ‘What does Daisy have to do with the car?’</td>
</tr>
<tr>
<td>6</td>
<td>Donald ((abrir 'open'))</td>
<td>libro ('book')</td>
<td>Donald y Daisy tienen un libro. La mamá deja que Donald lea el libro, pero no deja que Daisy lea el libro. Contame qué tienen que hacer con el libro. ‘Donald and Daisy have a book. The mom lets Donald read the book, but not Daisy. Tell me what they have to do with the book.’</td>
<td>¿Qué tiene que hacer Donald con el libro? ‘What does Donald have to do with the book?’</td>
</tr>
</tbody>
</table>
Donald and Daisy have a book. Mom lets Donald read the book, but she does not let Daisy read the book. Tell me what they have to do with the book.

¿Qué tiene que hacer Daisy con el libro?
“What does Daisy have to do with the book?”

| Daisy (cerrar ‘close’) | ‘Donald and Daisy have a book. Mom lets Donald read the book, but she does not let Daisy read the book. Tell me what they have to do with the book.’ | ¿Qué tiene que hacer Daisy con el libro? | “What does Daisy have to do with the book?” |
APPENDIX D Participant data STUDY 1

<table>
<thead>
<tr>
<th>Adult Participant</th>
<th>STM Group</th>
<th>Proclitic Responses</th>
<th>Enclitic Responses</th>
<th>Total Responses Included (out of 12 trials)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 121</td>
<td>2</td>
<td>3</td>
<td>7</td>
<td>10/12</td>
</tr>
<tr>
<td>Participant 122</td>
<td>1</td>
<td>7</td>
<td>-</td>
<td>7/12</td>
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<td>Participant 123</td>
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<td>5</td>
<td>3</td>
<td>8/12</td>
</tr>
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<td>Participant 124</td>
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<td>12</td>
<td>-</td>
<td>12/12</td>
</tr>
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<td>Participant 126</td>
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<td>3</td>
<td>9/12</td>
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<td>Participant 127</td>
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<td>3</td>
<td>3</td>
<td>6/12</td>
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<td>Participant 128</td>
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<td>4</td>
<td>1</td>
<td>5/12</td>
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<td>Participant 129</td>
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<td>3</td>
<td>4/12</td>
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<td>Participant 130</td>
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<td>8</td>
<td>3</td>
<td>11/12</td>
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<tr>
<td>Participant 131</td>
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<td>1</td>
<td>8</td>
<td>9/12</td>
</tr>
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</table>

STUDY 1 - Distribution of Proclisis and Enclisis in Adult Responses (shaded cells correspond to participants who categorically used only one clitic position)

<table>
<thead>
<tr>
<th>Child Participant</th>
<th>Age</th>
<th>STM Group</th>
<th>Proclitic Responses</th>
<th>Enclitic Responses</th>
<th>Total Responses Included (out of 12 trials)</th>
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</thead>
<tbody>
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<td>Participant 1</td>
<td>6;6</td>
<td>2</td>
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<td>8</td>
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<td>-</td>
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STUDY 1 - Distribution of Proclisis and Enclisis in child (N=51) responses (shaded cells correspond to participants who categorically used only one clitic position)
## APPENDIX E Stimuli STUDY 2 - Elicited imitation task

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<td><strong>Práctica_SAPO</strong><em>El sapo es verde y se esconde en las plantas.</em></td>
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<td>Practice_TOAD_The toad is Green and hides in the plants.</td>
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<td><strong>Práctica_CANO</strong><em>Cuando el caño se rompe, mi mamá se preocupa mucho.</em></td>
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<td>Practice_PIPE_When the pipe breaks, my mum worries a lot.</td>
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<td><strong>Práctica_LIBRO DE FANTASIA</strong><em>La señora Cari lee un libro de cuentos de fantasía.</em></td>
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<tr>
<td><strong>Distractor_BICHO</strong><em>Ayer encontré a un bicho escondido debajo de mi silla.</em></td>
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<tr>
<td>Distractor_BUG_Yesterday I found a bug hiding under my chair.</td>
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<tr>
<td><strong>Distractor_CUBO</strong><em>Mi juguete favorito es un cubo mágico de muchos colores.</em></td>
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<td>Distractor_CUBE_My favorite toy is a magic cube of many colors.</td>
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<tr>
<td><strong>Distractor_POLICIA</strong><em>El papá de mi vecino Javier es policía de Córdoba.</em></td>
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<tr>
<td>Distractor_POLICE OFFICER_The dad of my neighbor Javier is a police officer of Cordoba.</td>
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<tr>
<td><strong>Distractor_FIBRON</strong><em>En la cartuchera siempre tengo un fibrón de color negro.</em></td>
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<td>Distractor_MARKER_In my pencil case I always have a black marker.</td>
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<tr>
<td><strong>Distractor_PAYASO</strong><em>En el cumpleaños de Patricio había un payaso bien divertido.</em></td>
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<td>Distractor_CLOWN_At Patricio’s birthday party there was a very funny clown.</td>
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<tr>
<td><strong>Distractor_ZAPATO</strong><em>El domingo pasado ensucié mi zapato con barro.</em></td>
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<tr>
<td>Distractor_SHOE_Last Sunday I got my shoe dirty with mud.</td>
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<tr>
<td><strong>Distractor_DOCTOR</strong><em>Cuando me lastimé el dedo, el doctor vino a curarme.</em></td>
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<tr>
<td>Distractor_DOCTOR_When I hurt my finger, the doctor came to cure me.</td>
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<td><strong>Distractor_MARTILLO</strong><em>Para clavar ese clavo hace falta un martillo bien grande.</em></td>
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<tr>
<td>Distractor_HAMMER_To pound that nail it is necessary a very big hammer.</td>
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APPENDIX F Participant data STUDY 2

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</tr>
<tr>
<td>Participant 122</td>
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<tr>
<td>Participant 123</td>
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<td>100% (24/24)</td>
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<td>Participant 124</td>
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<tr>
<td>Participant 125</td>
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<tr>
<td>Participant 128</td>
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<tr>
<td>Participant 129</td>
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<td>100% (24/24)</td>
</tr>
<tr>
<td>Participant 130</td>
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<tr>
<td>Participant 131</td>
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STUDY 2 – Accurate repetitions by Adult participants (N=9)

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\[145^\text{Due to experimenter error, a trial had to be excluded.}\]
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**STUDY 2 – Rate of accurate repetitions by child participant (N=62)**
APPENDIX G Overview of imitation errors by children STUDY 2

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APPENDIX H Stimuli Short-term Memory Tasks in STUDIES 3 and 4

**Word Recall Task:**

Script: *Ahora yo te voy a decir unas palabras. Escuchá bien y, cuando yo termine, repetílos en el orden que yo los digo. Primero va a ser de a una, pero luego van a ser más. ¿Estás listo/a?* [Translation: Now, I am going to say words that you need to repeat in the same order as I say them. First it will just be one word. Then there will be more. Are you ready? ]

Stimuli:

SERIES
(1)  *gato* [cat] / *casa* [house] / *mesa* [table] / *tapa* [lid]
(2)  *pato mano* [duck hand] / *verde grande* [green big] / *chico palo* [small stick] / *alto rojo* [tall red]
(3)  *nene pieza fruta* [boy room fruit] / *cara silla papa* [face chair potatoe] / *perro chica boca* [dog girl mouth] / *leche piso pelo* [milk floor hair]
(4)  *dedo agua media frasco* [finger water sock jar] / *loro dulce pierna olla* [parrot jelly leg pot] / *sopa rata cama ola* [soup mouse bed wave] / *pasto vaso caja arroz* [grass glass box rice]
(5)  *haja plato auto pera maní* [leaf plate car pear peanut] / *libro queso bici lobo uña* [book cheese bike wolf nail] / *masa fuego sapo río papel* [dough fire frog river paper] / *torta fibra mueble taza dado* [cake marker furniture cup dice]

**Digit Recall Task:**

Script: *Ahora yo te voy a decir unos números. Escuchá bien y, cuando yo termine, repetí en el orden que yo los digo. Primero van a ser solo tres números, pero luego van a ser más. ¿Estás listo/a?*” [Translation: Now, I am going to say numbers. listen carefully and when I finish, repeat in the same order I tell them to you. First they will be only three numbers, but then there will be more. Are you ready?]  

Stimuli adapted from the Wechsler Adult Intelligence Scale (WAIS):

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<th>SET II</th>
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APPENDIX I Stimuli STUDY 3: Elicited production task: Envelopes

6 – Mickey, Minnie y Pluto tienen un sándwich cada uno. Ellos tienen una obligación. Tienen que hacer algo con el sandwich. Pero yo no sé qué tienen que hacer con el sándwich. Contame: ¿Qué tiene que hacer cada uno con el sándwich? / Mickey, Minnie and Pluto have a sandwich each. They have an obligation. They have to do something with the sandwich. But I don’t know what they have to do with the sandwich. Tell me: What does each one have to do with the sandwich?

5 – La reina malvada, el Cazador y el Gallo Claudio tienen un mosquito cada uno. Ellos tienen una obligación. Tienen que hacer algo sí o sí con el mosquito. Pero yo no sé qué tienen que hacer con el mosquito. Contame: ¿Qué tiene que hacer cada uno con el mosquito? / The wicked queen, Elmer Fudd/the hunter and Foghorn Leghorn/the rooster have a mosquito each. They have an obligation. They have to do something with the mosquito. But I don’t know what they have to do with the mosquito. Tell me: What does each one have to do with the mosquito?

4 – Ben 10, Timón y Barney tienen un dibujo cada uno. Ellos quieren hacer algo con el dibujo. Pero yo no sé qué quieren hacer con el dibujo. Contame: ¿Qué quiere hacer cada uno con el dibujo? / Ben 10, Timon and Barney have a drawing each. They want to do something with the drawing. But I don’t know what they want to do with the drawing. Tell me: What does each one want to do with the drawing?

3 – La Cenicienta, Shrek y Elsa tienen un gatito cada uno. Ellos quieren hacer algo con el gatito. Pero yo no sé qué quieren hacer con el gatito. Contame: ¿Qué quiere hacer cada uno con el gatito? / Cinderella, Shrek and Elsa have a kitten each. They want to do something with the kitten. But I don’t know what they want to do with the kitten. Tell me: What does each one want to do with the kitten?

2 – Aladín, Tinkerbell y La Sirenita tienen un alfajor de chocolate cada uno. Ellos mañana a la mañana van a hacer algo con el alfajor. Pero yo no sé qué van a hacer mañana con el alfajor. Contame: ¿Qué van a hacer cada uno con el alfajor mañana? / Aladdin, Tinkerbell and The Little Mermaid have a chocolate cookie each. Tomorrow morning they are going to do something with the cookie. But I don’t know what they are going to do with the cookie. Tell me: What is each one going to do with the cookie?

1 – Donald, Daisy y Bugs Bunny tienen un perrito cada uno. Ellos mañana a la mañana van a hacer algo con el perrito. Pero yo no sé qué van a hacer con el perrito mañana. Contame: ¿Qué van a hacer cada uno con el perrito mañana? / Donald, Daisy and Bugs Buny have a puppy each. Tomorrow morning they are going to do something with the puppy. But I don’t know what they are going to do with the puppy. Tell me: What is each one going to do with the puppy?
APPENDIX J Participant data STUDY3

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STUDY 3 - Distribution of Proclisis and Enclisis in Adult Responses (shaded cells correspond to participants who categorically used only one clitic position).

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<td>11</td>
<td>16/18</td>
</tr>
<tr>
<td>P5.25M</td>
<td>4;4</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>3/18</td>
</tr>
<tr>
<td>P5.ST</td>
<td>4;5</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>7/18</td>
</tr>
<tr>
<td>P6.ST</td>
<td>4;2</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>1/18</td>
</tr>
<tr>
<td>P7.25M</td>
<td>4;0</td>
<td>1</td>
<td>9</td>
<td>1</td>
<td>10/18</td>
</tr>
<tr>
<td>P7.ST</td>
<td>4;9</td>
<td>1</td>
<td>5</td>
<td>11</td>
<td>16/18</td>
</tr>
<tr>
<td>P8.ST</td>
<td>4;3</td>
<td>1</td>
<td>3</td>
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<td>5/18</td>
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<td>P9.25M</td>
<td>4;0</td>
<td>1</td>
<td>15</td>
<td>-</td>
<td>15/18</td>
</tr>
<tr>
<td>P9.ST</td>
<td>4;4</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>1/18</td>
</tr>
</tbody>
</table>

STUDY 3 - Distribution of Proclisis and Enclisis in child (N=72) responses (shaded cells correspond to participants who categorically used only one clitic position).
APPENDIX K Stimuli STUDY 4: Elicited imitation task: Animacy

<table>
<thead>
<tr>
<th>CONDITION</th>
<th>ANIMACY</th>
<th>FINITE VERB</th>
<th>STIMULI</th>
</tr>
</thead>
<tbody>
<tr>
<td>IR (A)<em>Matching+CC</em> RESCATAR_Animate</td>
<td>Proclisis</td>
<td>Animate</td>
<td>Ir a</td>
</tr>
<tr>
<td>IR (A)<em>Matching+CC</em> BUSCAR_Inanimate</td>
<td>Inanimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IR (A)<em>Mismatching-CC</em> RESCATAR_Inanimate</td>
<td>Enclisis</td>
<td>Animate</td>
<td></td>
</tr>
<tr>
<td>IR (A)<em>Mismatching-CC</em> BUSCAR_Inanimate</td>
<td>Inanimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUERER_Neutral+CC_ VER_Animate</td>
<td>Proclisis</td>
<td>Animate</td>
<td>Querer</td>
</tr>
<tr>
<td>QUERER_Neutral+CC_ LLEVAR_Inanimate</td>
<td>Inanimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QUERER_Neutral-CC_ VER_Animate</td>
<td>Enclisis</td>
<td>Animate</td>
<td></td>
</tr>
<tr>
<td>QUERER_Neutral-CC_ TRAER_Inanimate</td>
<td>Inanimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TENER_Mismatching+CC_ VER_Animate</td>
<td>Proclisis</td>
<td>Animate</td>
<td>Tener que</td>
</tr>
<tr>
<td>TENER_Mismatching+CC_ LEER_Inanimate</td>
<td>Inanimate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TENER_Matching-CC_ VER_Animate</td>
<td>Enclisis</td>
<td>Animate</td>
<td></td>
</tr>
<tr>
<td>TENER_Matching-CC_ ARREGLAR_Inanimate</td>
<td>Inanimate</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Practice and distractors**

-Distractor_FIBRON_En la cartuchera siempre tengo un fibrón de color negro.
-Distractor_MARKER_In my pencil case I always have a black marker.
-Distractor_PAYASO_En el cumpleaños de Patricio había un payaso bien divertido.
-Distractor_CLOWN_At Patricio’s birthday party there was a very funny clown.
-Distractor_ZAPATO_El domingo pasado ensucié mi zapato con barro.
-Distractor_SHOE_Last Sunday I got my shoe dirty with mud.
-Distractor_DOCTOR_Cuando me lastimé el dedo, el doctor vino a curarme.
-Distractor_DOCTOR_When I hurt my finger, the doctor came to cure me.
-Distractor_MARTILLO_Para clavar ese clavo hace falta un martillo bien grande.
-Distractor_HAMMER_To pound that nail it is necessary a very big hammer.
**Visual Stimuli: Cards with preambles**

(For doublets, participants saw one or the other, depending on the group)

Inanimates (the first three are practice items/fillers)

Animates (the first two are practice items/fillers)
### APPENDIX L Overview of imitation errors by all children STUDY 4

<table>
<thead>
<tr>
<th>Error Type</th>
<th>Enclisis</th>
<th>Proclisis</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Imitation</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>Finite V Omission</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Infinitive Omission</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Clitic Omission</td>
<td>13</td>
<td>14</td>
</tr>
<tr>
<td>Clitic NP Substitution</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Clitic Copying</td>
<td>21</td>
<td>5</td>
</tr>
<tr>
<td>Finite V Substitution (w/clitic same position)</td>
<td>8</td>
<td>16</td>
</tr>
<tr>
<td>Finite V Substitution (w/clitic repositioned)</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>Finite V Substitution (w/no clitic)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Infinitive Substitution (w/clitic same position)</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Infinitive Substitution (w/clitic repositioned)</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>Clitic Substitution (&gt;fem)</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Clitic Substitution (&gt;double)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clitic Substitution (&gt;le/se/me/te)</td>
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<td>0</td>
</tr>
<tr>
<td>Clitic Substitution (plural)</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Addition of Intervening Material</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Change in Tense/Person/Number</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Clitic Repositioning</td>
<td>115</td>
<td>26</td>
</tr>
<tr>
<td><strong>OVERALL</strong></td>
<td><strong>216</strong></td>
<td><strong>81</strong></td>
</tr>
</tbody>
</table>
### APPENDIX M Participant data STUDY 4

<table>
<thead>
<tr>
<th>Child Participant</th>
<th>STM Group</th>
<th>Age</th>
<th>Accurate Repetitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1.25M</td>
<td>1</td>
<td>6;3</td>
<td>8% (1/12)</td>
</tr>
<tr>
<td>Participant 1.ST</td>
<td>2</td>
<td>6;3</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant 11.25M</td>
<td>1</td>
<td>6;0</td>
<td>41% (5/12)</td>
</tr>
<tr>
<td>Participant 3.25M</td>
<td>1</td>
<td>6;4</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant 3.ST</td>
<td>1</td>
<td>6;4</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant 5.25M</td>
<td>1</td>
<td>6;5</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant 5.ST</td>
<td>1</td>
<td>6;3</td>
<td>33% (4/12)</td>
</tr>
<tr>
<td>Participant 7.25M</td>
<td>2</td>
<td>5;5</td>
<td>83% (10/12)</td>
</tr>
<tr>
<td>Participant 7.ST</td>
<td>1</td>
<td>6;4</td>
<td>100% (12/12)</td>
</tr>
<tr>
<td>Participant 9.25M</td>
<td>1</td>
<td>6;3</td>
<td>41% (5/12)</td>
</tr>
<tr>
<td>Participant 9.ST</td>
<td>1</td>
<td>6;5</td>
<td>0% (0/12)</td>
</tr>
<tr>
<td>Participant J1.25M</td>
<td>2</td>
<td>6;3</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant J1.25M</td>
<td>2</td>
<td>5;9</td>
<td>58% (7/12)</td>
</tr>
<tr>
<td>Participant J11.25M</td>
<td>1</td>
<td>5;10</td>
<td>58% (7/12)</td>
</tr>
<tr>
<td>Participant J17.25M</td>
<td>1</td>
<td>5;5</td>
<td>33% (4/12)</td>
</tr>
<tr>
<td>Participant J19.25M</td>
<td>1</td>
<td>5;9</td>
<td>16% (2/12)</td>
</tr>
<tr>
<td>Participant J2.25M</td>
<td>1</td>
<td>5;1</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant J3.25M</td>
<td>1</td>
<td>5;5</td>
<td>33% (4/12)</td>
</tr>
<tr>
<td>Participant J3.ST</td>
<td>2</td>
<td>5;0</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant J5.ST</td>
<td>1</td>
<td>5;0</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant J7.ST</td>
<td>2</td>
<td>5;0</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant J9.ST</td>
<td>1</td>
<td>5;5</td>
<td>33% (4/12)</td>
</tr>
<tr>
<td>Participant P1.25M</td>
<td>2</td>
<td>4;5</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant P1.ST</td>
<td>2</td>
<td>4;6</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant P11.25M</td>
<td>2</td>
<td>4;7</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant P11.ST</td>
<td>2</td>
<td>4;7</td>
<td>66% (8/12)</td>
</tr>
<tr>
<td>Participant P12.25M</td>
<td>1</td>
<td>4;9</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant P15.25M</td>
<td>2</td>
<td>4;2</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant P3.ST</td>
<td>2</td>
<td>4;2</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant P5.25M</td>
<td>2</td>
<td>4;4</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant P5.ST</td>
<td>1</td>
<td>4;5</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant P7.ST</td>
<td>2</td>
<td>4;9</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant P9.25M</td>
<td>2</td>
<td>4;0</td>
<td>100% (12/12)</td>
</tr>
<tr>
<td>Participant P9.ST</td>
<td>1</td>
<td>4;4</td>
<td>75% (9/12)</td>
</tr>
</tbody>
</table>

**STUDY 4 – Rate of accurate repetitions by child participants in the Control group (N=34)**
<table>
<thead>
<tr>
<th>Child Participant</th>
<th>Age</th>
<th>STM Group</th>
<th>Accurate Repetitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 10.25M</td>
<td>6:0</td>
<td>2</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant 10.ST</td>
<td>6:4</td>
<td>2</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant 12.25M</td>
<td>6:8</td>
<td>2</td>
<td>66% (8/12)</td>
</tr>
<tr>
<td>Participant 2.25M</td>
<td>6:4</td>
<td>2</td>
<td>100% (12/12)</td>
</tr>
<tr>
<td>Participant 2.ST</td>
<td>6:10</td>
<td>2</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant 4.25M</td>
<td>6:1</td>
<td>2</td>
<td>100% (12/12)</td>
</tr>
<tr>
<td>Participant 4.ST</td>
<td>6:8</td>
<td>2</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant 6.25M</td>
<td>6:4</td>
<td>2</td>
<td>83% (10/12)</td>
</tr>
<tr>
<td>Participant 6.ST</td>
<td>6:5</td>
<td>1</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant 8.25M</td>
<td>5:6</td>
<td>2</td>
<td>83% (10/12)</td>
</tr>
<tr>
<td>Participant 8.ST</td>
<td>6:5</td>
<td>2</td>
<td>100% (12/12)</td>
</tr>
<tr>
<td>Participant J10.25M</td>
<td>5:5</td>
<td>2</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant J10.ST</td>
<td>5:5</td>
<td>1</td>
<td>41% (5/12)</td>
</tr>
<tr>
<td>Participant J12.25M</td>
<td>5:10</td>
<td>2</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant J14.25M</td>
<td>5:11</td>
<td>2</td>
<td>83% (10/12)</td>
</tr>
<tr>
<td>Participant J16.25M</td>
<td>5:2</td>
<td>1</td>
<td>41% (5/12)</td>
</tr>
<tr>
<td>Participant J18.25M</td>
<td>5:4</td>
<td>1</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant J2.ST</td>
<td>5:0</td>
<td>1</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant J20.25M</td>
<td>5:6</td>
<td>1</td>
<td>58% (7/12)</td>
</tr>
<tr>
<td>Participant J4.ST</td>
<td>5:0</td>
<td>1</td>
<td>33% (4/12)</td>
</tr>
<tr>
<td>Participant J6.ST</td>
<td>5:1</td>
<td>2</td>
<td>83% (10/12)</td>
</tr>
<tr>
<td>Participant J8.25M</td>
<td>5:3</td>
<td>1</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant J8.ST</td>
<td>5:3</td>
<td>2</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant P10.ST</td>
<td>4:6</td>
<td>2</td>
<td>66% (8/12)</td>
</tr>
<tr>
<td>Participant P13.25M</td>
<td>4:7</td>
<td>1</td>
<td>50% (6/12)</td>
</tr>
<tr>
<td>Participant P16.25M</td>
<td>4:9</td>
<td>2</td>
<td>91% (11/12)</td>
</tr>
<tr>
<td>Participant P2.25M</td>
<td>4:3</td>
<td>1</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant P2.ST</td>
<td>4:6</td>
<td>2</td>
<td>25% (3/12)</td>
</tr>
<tr>
<td>Participant P4.25M</td>
<td>4:6</td>
<td>1</td>
<td>83% (10/12)</td>
</tr>
<tr>
<td>Participant P4.ST</td>
<td>4:4</td>
<td>1</td>
<td>75% (9/12)</td>
</tr>
<tr>
<td>Participant P6.ST</td>
<td>4:2</td>
<td>1</td>
<td>33% (4/12)</td>
</tr>
<tr>
<td>Participant P7.25M</td>
<td>4:0</td>
<td>1</td>
<td>41% (5/12)</td>
</tr>
<tr>
<td>Participant P8.ST</td>
<td>4:3</td>
<td>1</td>
<td>50% (6/12)</td>
</tr>
</tbody>
</table>

STUDY 4 – Rate of accurate repetitions by child participants in the Experimental group (N=33)
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imperative clauses. Presented at the 37th Linguistic Symposium on Romance Languages, Pittsburgh, PA.: University of Pittsburgh.


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2015   Language Learning: A Journal of Research in Language Studies - Dissertation Grant ($2,000)

2014   Career Development Award (Center for Global Studies, PSU), Project: L1 Acquisition of Clitic
       Placement Variation. ($2,000)

       NSF Partners for International Research (PIRE) Travel/Research Award (Penn State Center for
       Language Science), Project: The Impact of L2 on L1 clitic placement preferences. (For travel to
       University of Granada, Spain and work in Teresa Bajo’s lab).

2013   RGSO Dissertation Support (College of Liberal Arts, PSU, for research-related expenditures
       associated with the dissertation). ($2,000)

       Superior Teaching and Research Award (College of Liberal Arts, PSU), Project: Creation of a
       corpus of Argentine child Spanish. ($2,500)

PUBLICATIONS:

2014   Requena, P. E., Román-Hernández, A. I., & Miller, K. Children’s Knowledge of the Spanish
       Copulas Ser and Estar with Novel Adjectives. Language Acquisition: A Journal of
       Developmental Linguistics.

       Requena, P. E., Román-Hernández, A. I., & Miller, K. L. Puerto Rican Children’s Knowledge
       of the Spanish Copulas Ser and Estar with Adjectives. Proceeding Supplement of the 38th Boston
       University Conference on Language Development.

PRESENTATIONS:

2014   Requena, P. E. & Miller, K. L. Constraining Spanish Clitic Placement Variation: Evidence from
       Child Language. Paper presented at the Hispanic Linguistic Symposium. West Lafayette, IN.

       Requena, P. E. A Construction Grammar Perspective of Spanish Variable Clitic Placement. Paper
       presented at the 43rd New Ways of Analyzing Variation. Chicago, IL.

       Requena, P. E., & Miller, K. L. Factores léxicos en la posición variable del clítico acusativo en el
       español: evidencias del habla infantil. Paper presented at the 32nd International Conference of the