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Object clitic use and interpretation in Chinese-speaking learners of Spanish

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Abstract: We examine the role of cross-language interaction on the acquisition of Spanish object clitics among 26 Chinese-speaking learners of Spanish from China. Specifically, we investigate the learners' sensitivity to definiteness and specificity associated with the distribution of Spanish clitics. A question-and-answer task tested the realization of definite specific objects, while a sentence completion task and an acceptability judgment task elicited the production and intuition of clitic use in clitic left-dislocated (CLLD) contexts. The results showed that, while the learners appear to have sensitivity to the non-object-drop nature of Spanish, they tend to avoid object clitics. Furthermore, the learners' clitic use and intuition were not associated with specificity or definiteness features, and their performance was not correlated with language proficiency. In line with the Feature Reassembly Hypothesis (Lardiere, 2008, 2009), we posit that the learners have not yet successfully reassembled the semantic features associated with object clitics into their Spanish grammar.

Keywords: *Spanish, clitics, object-drop, Chinese, CLLD, Feature Reassembly Hypothesis.*

Uso e interpretación de clíticos de objeto en estudiantes chinos de español

Resumen: Examinamos el papel de la influencia interlingüística en la adquisición de los clíticos de objeto directo en español en 26 estudiantes de español de China. Específicamente, investigamos la sensibilidad de estos aprendices a la definitud y a la especificidad asociadas a la distribución de los clíticos en español. Una prueba de preguntas y respuestas evaluó la realización de objetos específicos definidos, mientras que una prueba de completar oraciones y una de juicio de aceptabilidad elicitaron la producción e intuición del uso de clíticos en contextos con desplazamiento de clíticos a la izquierda (CLLD). Los resultados mostraron que, aunque los estudiantes parecen ser sensibles a la naturaleza del español de necesitar un objeto explícito, tienden a evitar los clíticos de objeto. Además, el uso de clíticos y la intuición de los alumnos no estaban vinculados a rasgos de especificidad o definitud y su rendimiento no se correlacionó con su dominio general de la lengua. En consonancia con la Hipótesis del Reensamblaje de Rasgos (FRH; Lardiere, 2008, 2009), postulamos que los aprendices aún no han reensamblado con éxito los rasgos semánticos asociados a los clíticos de objeto en su gramática del español.

Palabras clave: *español, clíticos, objeto nulo, chino, CLLD, Hipótesis de Reensamblaje de Rasgos.*

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1. Introduction

The present study examines the role of crosslinguistic influence, among other factors, on the acquisition of third-person direct object clitics among Chinese-speaking learners of Spanish. In Spanish, these clitics (*lo, la, los, las*; hereinafter 'accusative clitics') are constrained by the definiteness and specificity features of the object they refer to (Leonetti, 2007; Sportiche, 1996; Uriagereka, 1995). Overt clitics are used with definite or specific antecedents, whereas null objects are employed with indefinite non-specific antecedents (Campos, 1986; Clements, 2006; Schwenter, 2006). In contrast, Chinese lacks pronominal clitics that encode definiteness or specificity features. Furthermore, Chinese allows null objects with antecedents that can be retrieved from the discourse (Aoun & Li, 2008; Huang, 1998; Li, 2007, 2014). Null objects in Chinese are discourse-related irrespective of definiteness or specificity features, as we discuss shortly.

Previous work has documented sensitivity to the definiteness and specificity features associated with Spanish clitics among learners whose first language (L1) allows pronominal clitics (Borgonovo et al., 2006; Rothman & Iverson, 2013 for Brazilian Portuguese; Bruhn de Garavito & Guijarro-Fuentes, 2002 for European Portuguese). However, difficulties have been observed with learners whose L1 does not have a clitic paradigm, such as English (Seibert Hanson & Carlson, 2014; VanPatten, 1987; Zyzik, 2008). Despite extensive research among speakers of Indo-European languages, few studies have explored the extent to which native speakers of typologically distant languages have sensitivity to accusative clitics in Spanish (Jiao & Cuza, 2022; Cuza et al., 2013). In contrast with previous work looking at simultaneous or sequential Spanish/Chinese bilinguals in an immersion context (Cuza et al., 2013), we investigate this grammatical domain further by testing the elicited production and intuition of this structure among Chinese-speaking learners in a classroom setting in China. This is relevant to investigate more closely the role of language experience on the acquisition of this structure, as well as the potential effects of language instruction. Additionally, in contrast with previous work with classroom learners looking at semi-spontaneous production (Jiao & Cuza, 2022), we implemented two elicited production tasks and an acceptability judgment task (AJT). These tasks scrutinized specific contexts where the realization or omission of the clitic is constrained by definiteness and specificity features. To our knowledge, no previous studies have conducted such a detailed analysis with Chinese-speaking learners of Spanish residing in China.

We follow the Feature Reassembly Hypothesis (hereinafter FRH) which conceives L2 acquisition as a redeployment of features into the learners' grammar (Lardiere, 2008, 2009). Chinese does not use an article or pronominal clitic system to encode definiteness or specificity morphologically, unlike Portuguese or English. Instead, these semantic features are manifested contextually. The acquisition of Spanish accusative clitics by Chinese-speaking learners involves the reassembling of contextually encoded features into morphologically encoded features in the target language. Specifically, we investigate the production of Spanish accusative clitics within matrix sentences and their usage

and acceptability in clitic-doubled left dislocation (CLLD) structures. To what extent do Chinese-speaking learners of Spanish demonstrate sensitivity to the semantic features of the antecedents that co-refer with clitics in CLLD constructions?

The study is structured as follows. Section 2 discusses the distribution of overt and null object clitics in Spanish as well as object realization in Chinese. Section 3 presents previous work on the acquisition of overt and null clitics in Spanish. Section 4 presents the design of the study, including the participants, the tasks, and the procedure. This is followed by the results in Section 5 and the discussion and conclusions in Section 6.

2. Spanish accusative clitics and direct object realization in Chinese

2.1 Accusative clitics in Spanish

In Spanish, third-person accusative clitics (*lo, la, los, las*) function as the direct object of a verb and are inflected according to the gender and number features of their antecedents. Clitic use in Spanish is constrained by definiteness and specificity features. Overt clitics are required with definite and specific[1] (Sportiche, 1996; Uriagereka, 1995). Clitics can be dropped when their referent is indefinite and non-specific (Campos, 1986; Clements, 2006; Schwenter, 2006). This is represented in (1) below:

(1) a. - ¿Compraste aquellos zapatos? [+definite, +specific]
Buy-2ND-SG-PAST those shoes
Did you buy those shoes'

- Sí, **los** compré Ø.
Yes them buy-1ST-SG-PAST
Yes, I bought them.'

b. - ¿Compraste café? [-definite, -specific]
Buy-2ND-SG-PAST coffee
'Did you buy coffee?'

- Sí, compré **Ø**.
Yes buy-1ST-SG-PAST
'Yes, I bought (some).'

(from Campos, 1986)

[1] Leonetti (2007) proposed that definiteness is the only semantic feature related to clitics, and that the specific reading is a side effect imposed by definiteness and the lack of descriptive content of the pronominal clitics. In this study, we follow the traditional claim that definiteness and specificity are both associated to clitics.

Although clitic drop is not considered a categorical property of Spanish, this phenomenon is present in most varieties. The requirement for definiteness or specificity is found in structures in which the direct object is dislocated to the left periphery of the sentence (i.e., CLLD structures):

(2) a. *Me gusta el té, pero café no tomo.* [-definite, -specific]
'I like tea but coffee I don't drink.'

b. *Julio se comió la carne, pero los vegetales no los tocó.* [+definite, +specific]
'Julio ate the meat, but he did not touch the vegetables.'

In (2a), the dislocated object *café* 'coffee' is generic, and a clitic is not used to co-refer to it in the comment clause. This is different from (2b) in which there is an overt accusative clitic co-referring to the fronted definite object *los vegetales* 'the vegetables', which is definite and specific. CLLD structures are rather infrequent in Spanish oral communication, although more frequent than in English (Slabakova, 2015). According to Slabakova's (2015) calculation in the NOCANDO corpus of 59,800 words (Brunetti et al., 2011), there were 39 instances of CLLD structures, which only take 1.35 % of all finite clauses. Leal & Slabakova (2019) tallied an oral corpus of 27,050 words from three class sessions for high-proficiency learners and they only found 21 instances of CLLD structures (0.72 %) among 2924 terminable units operationalized as a "clause along with its subordinate clauses" and "instances that were reduced by ellipsis" (p.20). We should also note that both the semantic constraints of clitic use and CLLD structures are not explicitly taught in classroom instruction in China.

We examine the knowledge of Spanish clitics from two key perspectives. First, we assess whether the participants can effectively produce the morphological form of clitics when responding to questions of the form 'what did X do to Y'. Second, we explore the relationship between learners' use of clitics and the semantic features of definiteness and specificity via a sentence-completion task (SCT) and an acceptability judgment task (AJT) using CLLD structures. Following Aissen's (2003) scale that combines definiteness and specificity, we examine the production and intuition of overt and null accusative clitics in three conditions: (1) [+definite, +specific], (2). [+definite, -specific] and (3). [-definite, -specific]. We opted for CLLD structures because, in this configuration, participants are restricted in producing and evaluating object realizations solely through overt/null clitics.

The option of a full DP[2] is precluded due to the preceding fronted topic. This design ensures a controlled environment for clitic use. Moreover, as Chinese shows object omission regardless of the definiteness or specificity of the object, CLLD serves as an ideal testing ground to investigate the effects of crosslinguistic influence on the acquisition of these properties.

[2] By "full DP object" we refer to the type of object DP composed of a determiner and a noun instead of a clitic (e.g., Plancha *los pantalones*).

2.2 Direct objects in Chinese

In contrast with Spanish, where accusative and dative clitics are used to mark direct and indirect objects, Chinese does not have a category of accusative clitics. Both nominative and accusative cases are instantiated with the same pronoun (3a-3b). Pronouns in Chinese are not case-marked and do not vary phonologically for gender or animacy, despite the writing system indicating the distinctions for the third person pronoun *ta* (feminine: 她 'she/her'; masculine: 他'he/him', nonhuman: 它 'it' (Li & Thompson, 1981):

(3) a. ***ta*** *kanjian le* *wo* Nominative
he/she/it see PERF me
'He/her/it saw me.'

b. *wo kanjian le* ***ta*** Accusative
I see PERF him/her/it
'I saw him/her/it'

Moreover, unlike indefinite clitic drop in Spanish, object drop is very productive in Chinese. Null objects are allowed regardless of the semantic features of their antecedents (4) (Huang, 1998):

(4) a. - Ni_i *mai na shuang* xie_j *le* *ma?*
you buy that pair shoe PERF Q
'Did you buy that pair of shoes?'

-. e_i *mai le* $\boldsymbol{e_j}$
buy PERF
'I bought them.'

b. - Ni_i *mai* $kafei_j$ *le* *ma?*
you buy coffee PERF Q
'Did you buy coffee?'

-. e_i *mai le* $\boldsymbol{e_j}$
buy PERF.
'I bought some.'

In (4), both the definite object *na shuang xie* 'that pair of shoes' in (4a), and the indefinite non-specific object *kafei* 'coffee' in (4b) are dropped in the responses to the questions. Omission is the preferred option when referents are retrievable in the discourse.[3] While

[3] While our focus lies on the omission of objects regarding definiteness and specificity, we have discussed some of the main theoretical accounts for Chinese null objects. For more analyses on this issue, see Cheng (2013), Huang (1987), and Xu (1986).

null objects have been traditionally approached through the lens of topicalization and topic deletion (Huang, 1984), other proposals have been formulated arguing for VP ellipsis and argument ellipsis (Huang, 1991; Li, 2014; Liu, 2014).

Huang (1984) argues that null objects in Chinese form a topic chain with the antecedent with which they identify. In the topic chain, the topic NPs undergo deletion when they are identified with the topic in a preceding sentence, as shown in (5) below. Huang analyzed null objects in Chinese as a variable bound to a null topic, as in Campos's analysis (1986) for Spanish null clitics. Hence, the null object in the comment clause in (6a) is the same as when the topic is present (6b, from Huang, 1984):

(5) [Zhongguo, difang hen da.] [*e*, renkou hen duo.] [*e*, tudi hen feiwo.]
China place very big population very many land very fertile
[*e*, qihou ye hen hao.] [*e*, women dou hen xihuan.]
climate too very good we all very like

'(As for) China, (its) land area is very large. (Its) population is very big. (Its) land is very fertile. (Its) climate is also very good. We all like (it).'

(from Huang, 1984)

(6) a. - Lisi renshi nage reni ma?
Lisi know that man Q
'Does Lisi know that man?'

- [TOP e_i] Zhangsan shuo Lisi bu renshi e_i.
Zhangsan say Lisi not know
'(That man,) Zhangsan said Lisi didn't know.'

b. *Neige ren$_i$, Zhangsan shuo Lisi bu renshi e_i.*
That man, Zhagnsan say Lisi not know
'That man, Zhangsan said Lisi didn't know.'

Besides being a variable bound to a null topic, null objects are a complex phenomenon. In Huang's (1991) analysis, while in some instances a null object can be analyzed as null epithet, in some other cases, the empty category is caused by VP ellipsis. For the epithet analysis, based on the assumption that an epithet has properties of both referential expressions (such as names and common nouns) and pronouns, Huang argues that a null object is like an epithet in that (1) it cannot be A-bound (7), (2) it can but not need be A'-bound (6), and (3) it may be co-indexed with a non-c-commanding argument (8):

(7) a. Zhangsan$_j$ renshi tai$_{*j}$ Pronoun
Zhangsan know him/her
'Zhangsan knows him/her.'

b. *Zhangsan$_j$ renshi e$_{i*j}$* Null object
Zhangsan know
'Zhangsan knows him/her/them/you...'

c. *Zhangsan$_j$ renshi nage bendan$_{i*j}$* Epithet
Zhangsan know that idiot
'Zhangsan knows that idiot.'

(adapted from Huang, 1991)

(8) a. *Ruguo ni xiang jian Zhangsan, wo jiu pai ren qu zhao zhe xiaozi.* Epithet
if you want see Zhangsan, I then send man go look this sissy
'If you want to see Zhangsan, I will send someone to look for the sissy.'

b. *Ruguo ni bu xihuan zheben shu, jiu qing bie mai e* Null object
if you not like this book, then please don't buy
'If you don't like this book, then please don't buy [it].'

(from Huang, 1991)

On the other hand, Chinese null objects are often found in structures in which the verb in the first clause is reduplicated in the following one, as shown in (9). Huang argued that the reduplicated verb can be analyzed similarly to '*do*-support' in English sentences with VP ellipsis (9):

(9) *John kanjian le tade mama, Mary ye kanjian le.*
John see-PERF his mother Mary also see-PERF
'John saw his mother, and Mary did, too.'

(from Huang, 1991)

This analysis is further developed by Liu (2014) who argues that in parallel structures like (9), the null object is licensed by the identity of the verb in the two sentences, and that the verb is moved to the *v* position leaving the VP including the internal argument of the verb in the second clause elided, as in (10):

(10) [v V_i ... [VP t_i Object]]

Liu (2014) also mentioned that in some cases that do not involve VP-ellipsis, the omission of definite referential objects is more constrained compared to indefinite objects as shown in the contrast between (11a) and (11b). However, he does not exclude the overall productivity of a definite referential null object. For example, the author sustains that the null object in (11c) is an E-type pronoun. What is relevant for our study is that Chinese exhibits both definite and indefinite null objects:

(11) a. *Yuehan xiang ti ta nuer qing yi-wei gangqin jiajiao,*

John want for his daughter hire one-CL piano tutor
Dan, ta haimei zhaodao e. Indefinite object
But he not-yet find-arrive
'John wants to hire a piano tutor for his daughter, but he has not found one'

b. Speaker A: Our little brother was crying this morning.

Speaker B: Really? What happened?
Speaker A': **Baba jintian zaoshang ma-le e.*[4] Definite referential object
Father today morning scold-PERF
'Father scolded [our little brother] this morning.'

c. *Yuehan zuotian maile yiben shu. Ni xiang kan e ma?*

John yesterday mai-PERF one-CL book you want read Q
'John bought a book yesterday. Do you want to read [the book that he bought]?'
(adapted from Liu, 2014)

In another line of analysis, Li (2014) argues against the account of VP ellipsis in some structures such as in ditransitive predicates. In Chinese, both the first and the second object in a ditransitive predicate can be omitted. Given the fact that the first object asymmetrically c-commands the second one in a ditransitive predicate, she pointed out that "it is impossible to have a constituent containing only the verb and the first object, to be deleted by some VP-ellipsis operation, leaving behind the verb and the second object" (p.47). Instead, the author argues for a base-generated True Empty Category (TEC) as the last resort to derive null arguments in Chinese. The TEC has no lexical content and bears only categorical and case features. It only serves to fulfill the subcategorization requirement of the verb. In other words, Chinese differs from other languages like English in that it does not require a full manifestation of the verb's full argument structure.

2.2.1 Definiteness and specificity and Chinese objects

The analyses discussed above demonstrate that null objects in Chinese can be derived from different mechanisms. However, what is relevant for the present study is that both definite and indefinite null objects exist in the surface structure in Chinese.[5] Although a definite referential object is less likely to be deleted in some cases without structural parallelism (Liu, 2014), a null definite object is not scarce at all. It is very frequent in the monologues

[4] According to our informants, although a pronoun *ta* ('him') sounds more natural in (11b), a null object is also possible. Hence, we think a question mark (?) would be more adequate.

[5] Although we maintain a neutral position, we believe that the equivalent structures in Chinese that we have examined do not involve VP-ellipsis. This is because there is no structure parallelism or verb identity as argued by Liu (2014) ('what does X do to Y' for the question-and-answer task and left-dislocation for the SCT and AJT). In the test items, the given verb in the structure for clitic production/judgment is different from the preceding sentence that provides the antecedent.

or dialogues with parallel structures, and in other instances as in (8b) or (11c). Regarding definiteness and specificity, these notions are encoded contextually. For instance, the bare nominal in (12a) can be interpreted as indefinite and nonspecific when responding to a question like 'What did he read?' However, it can also take on a definite interpretation when answering a question like 'Did he read the letter or the postcard from his girlfriend?' In (12b), similarly, the object *yifeng xin* 'a letter' can either be understood as a specific letter or a non-specific one, depending on whether the letter is known to the speaker.

(12) a. *Ta du le xin.*
he/she read-PERF letter
'He read a letter/letters/the letter.'

b. *Ta du le yifeng xin*
he/she read-PERF a letter
'He read a letter.'

According to Chen (2004), definiteness can also be expressed morphologically by the plural marker *-men* for animate (human) nominals, lexically by demonstratives or possessives (as in languages like English and Spanish, etc.), and syntactically by clause-initial positions (subject, topic) or *ba*-marked[6] preverbal positions. However, it is not obligatory to mark definite or indefinite nominal expressions in Chinese, and there is no unambiguous mark for the feature of definiteness (Chen, 2015). For the indefinite nominals, Portner (2002) argues that an indefinite nominal can receive specific reading when the domain of quantification is a covert or overt topic. For example, in (13b), the nominal *xuesheng* 'student' in the quantificational structure may be overtly topicalized and this enables a specific reading. These facts show that Chinese lacks overt unambiguous marks for definiteness and specificity and that these semantic features are encoded in the discourse.

(13) a. You yixie xuesheng laile xuexiao Non-specific
exist some student come-PERF school
'There are some students who came to school.'

b. Xuesheng you yixie laile xuexiao Specific
student exist some come-PERF school
'Some of the students came to school.'

In sum, Spanish has a system of accusative clitics in the position of direct object co-referring to definite or specific antecedents. Accusative clitics with an indefinite non-specific referent can be realized as null clitics. Chinese extensively allows both definite and indefinite null objects that are retrievable from the discourse. This difference applies to constructions with a fronted object in the topic position, like topicalization and CLLD.

[6] *Ba*-marked objects are used in causative sentences or agentive sentences, and has been analyzed as a preposition, as a verb or as a coverb (Bender, 2000; Li & Thompson, 1981; Yang & van Bergen, 2007).

3. The acquisition of Spanish clitics

Previous studies have examined the acquisition of word order (Duffield & White, 1999; Liceras, 1985) and agreement features such as gender and number (Arche & Domínguez, 2011; Klee, 1989) in clitic constructions. Another line of research has explored the semantic distribution of overt and null clitics among learners from various L1 backgrounds, including European Portuguese (Bruhn de Garavito & Guijarro-Fuentes, 2002), Brazilian Portuguese (Borgonovo et al., 2006; Rothman & Iverson, 2013), English (Bruhn de Garavito & Guijarro-Fuentes, 2002; VanPatten, 1987; Zyzik, 2008), and Chinese (Jiao & Cuza, 2022; Cuza et al., 2013). These studies have shown mixed results which are accounted for along the lines of L1 transfer and stages of L2 development. For instance, Borgonovo et al. (2006) examined the interpretation of null and overt objects among Brazilian Portuguese-speaking L2 learners of Spanish in four conditions (definite DP, indefinite DP, bare NP, and topicalized sentences). Results showed target-like performance except for overt clitics with non-specific antecedents and topicalized non-specific bare NPs. It is argued that the non-specific property of null clitics in Spanish is possible to acquire, although overt clitics are still underspecified regarding specificity features.

Similar findings were reported by Rothman and Iverson (2013), demonstrating that Brazilian Portuguese-speaking learners of Spanish reject ungrammatical omissions of definite objects and accept grammatical ones. In a related investigation, Bruhn de Garavito and Guijarro-Fuentes (2002) compared the treatment of null and overt clitics among European Portuguese (EP) and English-speaking learners of Spanish using a grammaticality judgment task (GJT). Test items were distributed in nine conditions involving the presence or absence of an accusative clitic in simple sentences and sentences with different islands (Complex NP, Sentential Subject, or Adjunct Clause). The authors found that advanced EP learners outperformed their English-speaking counterparts in all contexts, showing a mastery of null clitics in Spanish. Furthermore, the intermediate English-speaking learners were able to distinguish grammatical vs. ungrammatical null clitics in all sentence types except for sentences with adjunct islands. This suggests general success in acquiring definiteness constraints on null objects.

Zyzik (2008) implemented a GJT and a series of oral production tasks (a storybook narration task, a structured interview, and two video narration tasks) on 50 English-speaking classroom learners of Spanish. The participants were divided into four proficiency groups based on classroom placement and time spent abroad. The author found ungrammatical clitic omission in coordinated structures and question-and-answer dialogues among English-speaking adult L2 learners across all proficiency levels. She also found that learners with higher proficiency showed more rejection of ungrammatical null clitics. The author argues for a stage of null objects in the learners' development of Spanish grammar and that clitic omission is due to performance factors because the learners' performance showed intra-subject variability regarding the object realization with the same verb and they showed self-correction when they omitted the object, but they never corrected themselves by omitting the object when they produced overt ones. This differed

from Brun de Garavito and Guijarro-Fuentes' findings demonstrating general success in the acquisition of Spanish null objects. However, as the judgment task did not include items for grammatical null clitics, the status of semantic constraints on null clitics remains unclear.

Valenzuela (2006) also examined the acquisition of the syntactic and interpretative constraints of object clitics in CLLD and topicalization contexts by English-speaking adult learners of Spanish. The author assumed that if the learners acquire the syntactic difference between the two contexts, they would accept and produce overt clitics with CLLD contexts and null objects with topicalization. However, if they have acquired the interpretative constraints (specific and non-specific) on these two contexts, they would reject null objects with specific contexts and accept them with non-specific contexts. An oral grammaticality judgment task, an oral sentence selection task, and a SCT were implemented on 15 near-native adult learners of Spanish. The results showed that the learners produced and accepted overt clitics in CLLD contexts and showed less production or acceptance in topicalization contexts. However, they showed more production and acceptance of overt clitics with topicalization contexts compared to native speakers. This suggests that the learners exhibited sensitivity to the syntactic constraint regarding the presence or absence of a clitic. However, they displayed variability in the acquisition of specificity constraints in clitic use.

Numerous studies have examined the acquisition of discourse properties of the CLLD structure by L2 learners and heritage speakers (Sequeros-Valle et al., 2020a,b; Slabakova et al., 2012). The results suggest that the discourse properties are acquirable, particularly among learners with higher proficiency levels. Slabakova & Ivanov (2011) reinterpreted Valenzuela's (2005, 2006) results and compared them to the results from Ivanov (2009) on the acquisition of CLLD structures in L2 Bulgarian. The authors argue that the learners have awareness of discourse cues for clitic use in CLLD structures and that the difficulties lie in the semantic features.

As in the case of English-speaking learners, Chinese-speaking learners of Spanish also must develop a clitic paradigm. However, the learning task is more demanding because Chinese does not encode definiteness morphologically and null objects are productive. Following the FRH, Slabakova (2009) argues that the way the features are configured in the learners' L1 and target language leads to different levels of difficulty. The author posits that the mapping from contextually conditioned features to morphological forms poses more difficulty than mapping a morphologically expressed feature. Following this viewpoint, we would expect the learning task of Chinese-speaking learners (whose L1 lacks a morphological system for definiteness or specificity) to be more difficult compared to those learners whose L1 overtly encodes these semantic features (e.g., English).

Cuza et al. (2013) examined the distribution of overt and null clitics among Chinese-Spanish bilinguals in Peru via an AJT, and two elicited production tasks (a question-and-answer task and a SCT). The simultaneous bilinguals showed comparable proficiency in Spanish to childhood immigrants, who were in turn more proficient

than the adult immigrants. The results suggest that while the simultaneous bilinguals showed no differences from the monolingual controls, the childhood immigrants were more target-like than the adult immigrants regarding the production of overt clitics, although they showed a preference for null objects in the receptive tasks. However, unlike the simultaneous bilinguals who produced clitics in a target-like manner, or the adult immigrants who overextended null clitics, childhood immigrants chose full DP as a strategy of object realization. More recently, Jiao and Cuza (2022) compared the production of Spanish accusative clitics in a story-retelling task among simultaneous and sequential Chinese-Spanish bilinguals from Peru, and classroom learners of Spanish in China. The authors found that, while the simultaneous bilinguals outperformed the other groups, the sequential bilinguals and the classroom learners did not show significant differences in terms of the number of clitics produced. Considering that the learners in China had been exposed to classroom instruction for only less than two years, it is possible that late exposure could be partially compensated by classroom instruction when compared to sequential bilinguals in an immersion context. Having said this, this study is limited in the sense that the semi-spontaneous task (oral narrative) did not elicit clitic use or omission in a variety of contexts where the realization or omission of the clitic is constrained by definiteness and specificity features. We cover this gap by implementing an elicited production task targeting these specific features as well as an acceptability judgment task.

To summarize, previous work suggests difficulties in the acquisition of object clitics in Spanish. Chinese-speaking learners of Spanish not only have to acquire the semantic constraints (definiteness and specificity) regulating clitics but also the clitic paradigm itself, leading to potential form-meaning mismatches or ungrammatical object omission. The lack of specification can be easily accounted for by FRH (Lardiere, 2008, 2009). This proposal argues that languages differ in the assembly and clustering of linguistic features in language forms. The key to successful L2 acquisition resides in dissociating the features assembled in the learners' L1 and in the redeployment of those features in the L2. The learners must identify the morphological items in the L2 that correspond to those in their L1 based on semantic meaning or grammatical function (p.191). Lardiere (2009) poses that "the greater difficulty for the second language acquirer lies in assembling just the right combination of features into the right lexical items for each language and in determining the appropriate conditioning environments" (p.216). Slabakova (2009) argues that the learning task is easier when L1 and L2 semantic features are morphologically encoded, and is more difficult when features are overtly encoded in one language but not in the other. For our study, we argue that the challenge for the learner is linked to the asymmetry that definiteness and specificity are encoded morphologically in Spanish but contextually in Chinese. Moreover, although the morphological form is presented in the learning materials, neither the associated semantic features nor the CLLD structures are taught explicitly in the classroom.

The acquisition of CLLD structures would suggest a distinction between CLLD and focus fronting. In this case, other features such as [+/-anaphoric], [+/-contrastive] and [+/-topic] may be crucial. Since we only use CLLD structures as sentence frame to elicit

clitic production and judgment related to definiteness and specificity, we put the discourse cues for clitic use aside. Moreover, the fact that preverbal or clause-initial position favors definiteness or specific reading in Mandarin might lead to a hypothesis that students will favor clitic use in CLLD contexts. However, since both (in)definite and (non-)specific objects can be dropped in Mandarin, transfer from Mandarin would only favor a definite reading in topic position but not the association between overt clitic in this context. This is because there is a possibility for clitic omission regardless of whether the preverbal element is analyzed as definite or indefinite. Our primary focus is on whether the learners can establish the necessary associations between the semantic features and the presence or absence of overt clitics, rather than their ability to interpret contextual cues. We hypothesize that the learning process will be influenced by crosslinguistic influence from Chinese L1 as well as proficiency, leading to a general underspecification of the definiteness or specificity features of the Spanish clitic system.

3.1 Research questions and hypotheses

We pose the following research questions and hypotheses:

- **RQ1**: To what extent do Chinese-speaking learners of Spanish have a clitic system in place that allows them to use overt clitics?
  - **H1**: The L2 learners will show low production of overt clitics in required contexts in Spanish due to crosslinguistic influence of Chinese, a language that does not feature pronominal clitics.
- **RQ2:** To what extent do Chinese-speaking L2 learners have sensitivity to the semantic constraints of definiteness or specificity that regulate the appearance or absence of Spanish clitics in topicalization and CLLD constructions?
  - **H2:** The Chinese-speaking learners will either overextend object clitics to contexts where they are not required (Valenzuela, 2006), or omit them in contexts where they are needed in Spanish (Cuza et al., 2013; Zyzik, 2008) due to underspecification of the semantic features regulating Spanish clitics (Lardiere, 2008, 2009; Slabakova, 2009).
- **RQ3:** Does proficiency play a role in target clitic use?
  - **H3:** The Chinese-speaking learners with higher Spanish proficiency will show more target-like use of overt and null clitics and more sensitivity to the semantic features of definiteness or specificity encoded in the clitics in CLLD structures in Spanish.

We discuss the participants, tasks, and procedures in the following section.

4. The study

4.1 Participants

Twenty-six Chinese-speaking classroom learners of Spanish (CSLs) (age range: 19-21; *M* = 19.96; *SD* = 0.76) and twenty-one monolingual Spanish speakers serving as baseline group (Monolingual Group) participated in the study (age range: 19-48; *M* = 28.10; *SD* = 6.99). All the classroom learners were Spanish majors at a large university in Northern China. They were completing their second year of college at the time of testing. The CSLs completed an adapted version of the DELE test (*Diploma de Español como Lengua Extranjera*) (Bruhn de Garavito, 2002; Cuza, et al. 2013; Duffield & White, 1999; Montrul & Slabakova, 2003), and their scores varied between 28 and 44 out of 50 points (*M* = 37.4; *SD* = 3.6).

A language background questionnaire (LBQ) was also implemented to elicit the participants' pattern of language use. The CSLs were born and raised in China and Chinese was the language used in the interactions with their family and friends, and in other social circumstances. The learners were exposed to Spanish from their first year of college (approximately 14 hours a week of instruction). The courses were taught in Chinese except for the conversation class two hours per week taught by a native instructor from Spain. The direct object clitics were taught in their first year of Spanish together with the concept of direct object. They were taught that these clitics are used to double co-referring nominal antecedents in the preceding discourse context. However, as mentioned above, the semantic constraints of definiteness or specificity on the overt or null clitics are not taught in the textbook, nor is the structure of CLLD. The Spanish monolingual speakers were tested in Seville, Spain, and participated in the study as baseline group. Six of them had completed college or were receiving college-level education at the time of testing, and fifteen had completed high school.

4.2 Tasks

We implemented a question-and-answer task, a SCT, and an AJT, following previous work (Cuza et al., 2013). The general motivation for choosing the three tasks was to elicit both production and intuition data to tap into the participants' internal grammar. This multifaceted approach was adopted to provide a more robust and nuanced perspective on the phenomena under examination (Crain & Thornton, 1998; Schütze, 2011). The question-and-answer task (Arche & Domínguez, 2011; Castilla & Pérez-Leroux, 2010; Cuza et al., 2013) was designed to answer the first research question by exploring whether the participants used clitics for the realization of anaphoric direct objects in definite specific contexts in matrix sentences. In other words, we implemented this task to examine whether the morphological form of accusative clitics exists in the learners' Spanish grammar, as this is the prerequisite to further acquiring the association between the clitics and the semantic features. It consisted of 8 test items including a short preamble accompanied by a picture. After reading the preamble, the participants were asked to answer a question in the form of "What does X do to Y?", aiming to elicit the production of an accusative clitic. A test item sample of the question-and-answer task is shown below:

(14) Question-and-answer task

Ramón está preparándose para salir al cine. ¿Qué está haciendo Ramón con los pantalones? 'Ramón is preparing himself for going to the movie theater. What is he doing with the pants?'

[An image of a man ironing pants appeared here]

Expected response: *los plancha/los está planchando/está planchándolos or plancha los pantalones* 'He is ironing them/ He is ironing the pants'

For this task, the participants were expected to produce a sentence with the clitic as an anaphora to the antecedent in the question. A sentence with a full DP (*los pantalones* 'the pants') was also an acceptable response. However, a null object would not be an expected response because it is not a grammatical option in Spanish.

The SCT and the AJT were designed to examine the participants' sensitivity to definiteness or specificity features that regulate the distribution of overt and null clitics in contexts with a left-dislocated object. The reason for using structures with left-dislocated objects was to restrict the participants' responses so that they produced either an overt clitic or a null clitic. Thus, these tasks provided the context for examining the distribution of overt/null clitics. The SCT (Cuza et al., 2013; Pérez-Leroux et al., 2011; Valenzuela, 2006) elicited the use of overt or null clitic in CLLD and topicalization constructions. Unlike the question-and-answer task that examined the use of clitics as a strategy for the realization of anaphoric definite specific objects, this task focused on the learners' knowledge of the semantic restrictions of definiteness or specificity on the appearance of overt or null clitics. A full DP was not a possible response as in the case of the question-and-answer task. A total of 15 test items were distributed in three conditions defined by the semantic properties of the fronted object: [+definite, +specific], [+definite, -specific], and [-definite, -specific]. A preamble with visual support was given in each PowerPoint slide. After reading the preamble, the participants were asked to complete the sentence (15):

(15) Sentence Completion Task

a. [+definite, +specific]

Juan puso los libros en el estante pero los documentos no importantes____(tirar)

'Juan put the books on the shelf but threw away the unimportant documents.'

[An image of a wastebasket appeared here]

Expected response: *los tiró* 'threw them away'

b. [+definite, -specific]

Mi hijo odia a los gatos, pero a los perros _____(adorar)

'My son hates cats, but he loves dogs.'

[An image of a child with his dog appeared here]

Expected response: *los adora* 'adores them'

c. [-definite, - specific]

*Mi amigo Ramiro es una persona muy ocupada, pero deporte siempre*_____ *(hacer)* 'My friend Ramiro is a busy person but he always workout.'

[An image of a man working out appeared here]

Expected response: *hace* 'does'

The antecedent is in the topic position, thus the only expected response is the production of overt clitic in the CLLD contexts and the null object in the topicalization context. Since both the sentence completion task and the question-and-answer task are elicited production tasks, they were implemented together with 27 distractors examining the learners' use of other structures, namely differential object marking and definite determiners. All the items were counterbalanced and randomized.

The AJT was implemented to measure the participants' intuition of the distribution of overt and null clitics (Cuza et al., 2013; Montrul, 2010; Montrul et al., 2011). The design of the AJT followed the same conditions as the SCT. The participants were asked to rate grammatical and ungrammatical sentences across three conditions ([+definite, +specific], [+definite, -specific], and [-definite, -specific]) with the use of a Likert scale ranging from 1 (extremely odd) to 5 (completely fine) (16):

(16) Acceptability Judgment Task

[+definite, +specific, overt clitic] Grammatical

Miguel logró llevar su equipo de buceo a Hawái, pero la bicicleta la dejó en el aeropuerto. 'Miguel managed to take his scuba diving equipment to Hawaii, but he left the bike at the airport'

1	2	3	4	5
completamente extraña	*extraña*	*ni bien ni mal*	*bien*	*completamente bien*
'completely odd'	'odd'	'neither good nor bad'	'good'	'completely good'

Expected response: 4 or 5

Unexpected response: 1 or 2

There was a total of 24 test items, 52 distractors and three practice items. Participants were asked to provide a brief explanation for the test items rated as 1 or 2. Responses unrelated to clitic use were excluded from the analysis.

4.3 Procedure and data coding

The LBQ, the DELE test, and the AJT were distributed and completed online via Qualtrics (Qualtrics LLC, Provo, UT, USA). Upon the completion of the online portion, the participants were contacted by the researcher to schedule a face-to-face interview and complete the sentence completion task and the question-and-answer task. The testing sessions were conducted individually in a public place. The tester of the experimental group was a Chinese native speaker, and the tester of the control group was a Spanish native speaker. The testing sessions were conducted in Spanish following the same instructions and procedures.

Regarding data coding, in the question-and-answer task, overt clitics were coded as '1', and null clitics were coded as '0'. Responses presenting a full DP were coded as 'DP' while other responses were coded as 'other'. Whereas the native speakers mostly produced either overt or null clitics in this task, the CSLs opted predominantly for full DPs as their strategy of direct object realization. In the sentence completion task, overt clitics were coded as '1', and null clitics were coded as '0'. A small portion (5 %, 20 instances) of the responses from the CSLs were discarded. All of these responses featured past participles (*tirados* 'thrown' for the item in 7a above). In the AJT, the analysis was performed based on the ratings that the participants gave to the test items. As in the sentence completion task, 98 (8.7 %) of the participants' rejections to test items were discarded as the reasoning that they provided for doing so were irrelevant to the purpose of the study.

5. Results

5.1 Question-and-Answer Task

This task examined the realization of direct objects in the context of a dialogue. There were 8 test items in which the participants were expected to produce an overt accusative clitic referring to a definite specific antecedent. The results showed the realization of full DP objects as the main strategy used by the CSLs, with 159/208 instances (76 %). Clitics were used infrequently as an alternative for object realization, with only 18/208 instances (9 %). This type of response was followed by null clitics, which were used only in 14/208 instances (7 %). Additionally, there were 17/208 instances (8 %) coded as "other". These "other" responses included the use of prepositional phrases (i.e., *Está planchando* ***con*** *los pantalones* '(He) is ironing with the pants') and paraphrases (i.e., *Está haciendo algo para hacer los pantalones planos* '(he) is doing something to make the pants flat'). In contrast, the Spanish monolinguals produced overt clitics categorically in these contexts, as expected. There were only 7/168 (4.17 %) instances of use of overt full DP objects plus one response (0.6 %) featuring a paraphrase, coded as "other". No null clitics were used by the monolinguals. The percentages of each option of object realization are shown in Figure 1 as well as in Table 1.

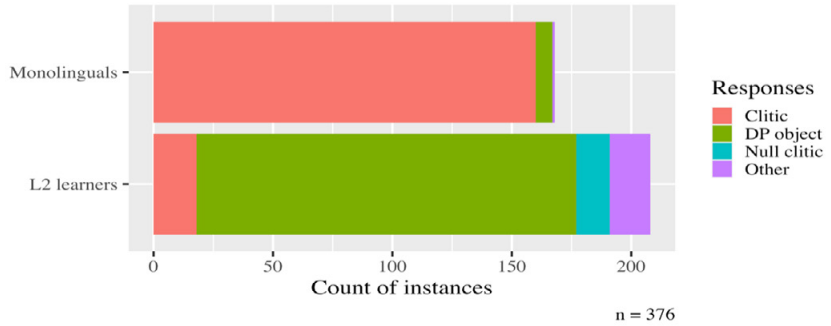


Figure 1. Object realization in the question-and-answer task across groups.

Table 1. Percentages of object realization in the question-and-answer task across groups.

	CLS group	Monolingual group
Clitic	9 % (18/208)	**95.23** % (160/168)
Full DP	**76 %** (159/208)	4.17 % (7/168)
Null clitic	7 % (14/208)	0 % (0/168)
Other	8 % (17/208)	0.6 % (1/168)

Looking at the data individually, there were only five CSLs who produced clitics, four of whom scored from 41 to 44/50 at the DELE as well as the participant with the lowest score, 28/50. Two CSLs produced clitics in more than half of the 8 items (5/8 and 7/8 items respectively). Regarding null clitics, eight participants produced null clitics with DELE scores ranging from 38 to 42/50. However, none of them used null clitics in more than 4/8 test items. The results in the question-and-answer task indicate that, whereas clitics are used categorically by native speakers of Spanish, full DPs are considered the main strategy for object realization in this context.

In order to confirm these trends, one multinomial regression was performed using the *mblogit* function in the *mclogit* package (Elff, 2021) in R (R Development Core Team, 2021). This regression had response (clitic, full DP, null clitic) as dependent variable and group (monolingual group vs. CSL group) as a dependent variable. This regression included '1' or 'clitic' as the baseline response while the baseline level for the independent variable 'group' was 'monolingual'. Tables 2 and 3 below show the results of the multinomial regression performed with the question-and-answer task data.

Table 2. Results of multinomial regression on question-and-answer data - equation for DP vs 1.

Fixed Factor	Estimate	SE	Z Value	P Value
(Intercept)	-3.1293	0.3861	-8.104	< 0.001 *
Group (L2)	5.3078	0.4593	11.556	< 0.001 *

Table 3. Results of multinomial regression on question-and-answer data - equation for null vs 1.

Fixed Factor	Estimate	SE	Z Value	P Value
(Intercept)	-19.89	1646.12	-0.012	0.99
Group (L2)	19.64	1646.12	0.012	0.99

Random factors were excluded to allow for the algorithm to converge. The multinomial regression confirmed the difference between the CLS group and the monolingual group regarding their production of full DP responses. The Appendix A.1 shows more detailed results of the multinomial regression.

5.2 The Sentence Completion Task

This task examined the production of clitics in the following contexts: (1) [+definite, +specific] objects, (2) [+definite, -specific] objects, and (3) [-definite, -specific] objects. As shown in Figure 2 and Table 4 below, the monolingual group produced overt clitics categorically in two conditions and produced very few instances of overt clitics in the [-definite, -specific] condition. On the other hand, the CSLs produced overt clitics below chance in the two conditions in which the monolingual group had performed categorically while their production of null clitics in the [-definite, -specific] condition was above chance given that null clitics are the expected response in that condition.

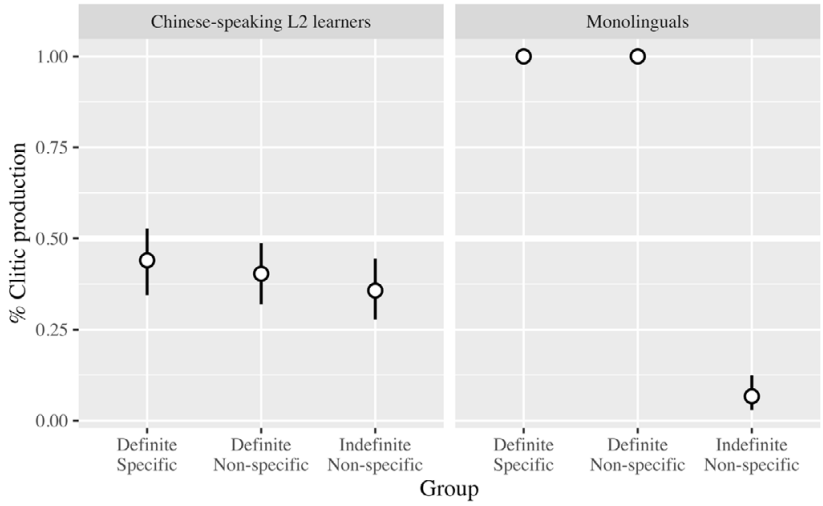


Figure 2. Proportion of overt clitic production in the sentence completion task.

Table 4. Percentages of clitic production realization in the EPT across groups.

Group	Condition		
	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
CSL (n = 26)	*M* = 0.44; *SD* = 0.50	*M* = 0.40; *SD* = 0.49	*M* = 0.36; *SD* = 0.48
Monolingual (n = 21)	*M* = 1; *SD* = 0	*M* = 1; *SD* = 0	*M* = 0.07; *SD* = 0.25

We conducted a generalized linear mixed model (GLMM) in R using the *glmer* function in the *lme4* package (Bates et al., 2015). In this GLMM, response was the dependent variable (coded as 1 for overt clitic and 0 for null clitic), and condition ([+definite, +specific], [+definite, -specific], [-definite, -specific]) and group (monolingual group, CSL group) as independent variables. The baseline values were '[+definite, -specific]' for condition and 'monolingual' for group. The model included random intercepts for each subject as well as for each test item.

This first GLMM analysis found group effects as well as condition effects. The first effect indicates that the CLS group is less likely to produce overt clitics compared to the baseline group ($\beta = -2.53$, SE = 0.98, $z = -2.58$, $p < 0.01$; OR= 0.080, 1/0.080 = 12.5). Specifically, the CLS group was over twelve times less likely to produce overt clitics than the monolingual group. The condition effect suggests that, in comparison with the responses to the test items examining the definite non-specific condition, which the model used as a baseline, the model found that the production of overt clitics in the [-definite, -specific] condition was lower than in the other conditions in both groups, as expected ($\beta = -4.30$, SE = 0.43, $z = -9.95$, $p < 0.01$; OR = 0.014; 1/0.014 = 71.43). The odds of using an overt clitic were about seventy times lower in the [-definite, -specific] condition than in the baseline condition. The output of this GLMM is shown in Appendix A.2.

A second GLMM examined within-group data in the CSL group to examine proficiency effects. This model included response as the dependent variable and condition and DELE scores as independent variables. The model failed to find main effects but yielded two significant interactions between condition and DELE scores, which are shown in Figure 3 below.

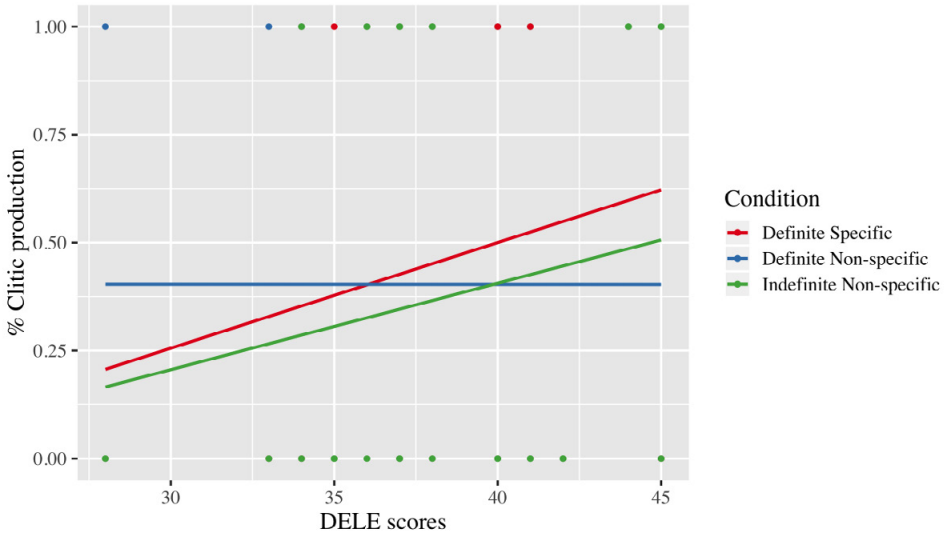


Figure 3. Correlations between responses in the sentence completion task and DELE scores.

The interaction between the [+definite, +specific] condition and DELE scores (β = 1.45, SE = 0.57, z = 2.54, p = 0.01) as well as the interaction between the [-definite, -specific] condition and DELE scores (β = 1.42, SE = 0.57, z = 2.46, p = 0.01) indicate that the likelihood of producing overt clitics increases hand in hand with DELE scores among the CLS group; however, this effect does not occur with the production of clitics in the [+definite, -specific] condition, which the model uses as the baseline. The output of this GLMM can be found in Appendix A.3.

5.2.1 Individual analysis

To confirm that the group differences observed were reflected at the individual level, we conducted an individual analysis. In this analysis, participants were divided into four subgroups according to the number of overt clitics produced per condition: the first subgroup included participants who produced 4-5 overt clitics, followed by participants who produced 3 overt clitics, 1 or 2 overt clitics, and a range of zero production of overt clitics. The results are shown in Table 5.

Table 5. Individual analysis of the sentence completion task.

Group	# of clitics produced	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
CSL (n = 26)	4-5	**8/26 (31 %)**	**9/26 (35 %)**	**10/26 (38 %)**
	3	3/26 (12 %)	0	0
	1-2	6/26 (23 %)	6/26 (23 %)	1/26 (4 %)
	0	**9/26 (35 %)**	**11/26 (42 %)**	**15/26 (58 %)**
Monolingual (n = 21)	4-5	**21/21 (100 %)**	**21/21 (100 %)**	0
	3	0	0	0
	1-2	0	0	**7/21 (33 %)**
	0	0	0	**14/21 (67 %)**

As shown in Table 5, the native speakers of Spanish performed at ceiling in [+definite, +specific] and [+definite, -specific] conditions where the overt clitic was the expected response. In contrast, the CSLs were distributed towards the two extremes: either in the first subgroup with 4-5 overt clitics produced or in the subgroup of participants who had not produced any overt clitic. It is noticeable that more participants clustered in the subgroups with lower clitic production (1-2 clitics or zero production) compared to the subgroups with 3 or more clitics. A closer look at those participants with target-like performance showed that all the participants in the first subgroup in [+definite, -specific] condition were also in the first subgroup in [+definite, +specific] and [-definite, -specific] conditions. These participants tended to use overt clitic regardless of the definiteness or specificity condition.

In the [-definite -specific] condition in which a null clitic was the expected response, null clitic appeared in the response of all the native speakers, and 7 of them used overt clitics in 1/5 items. In contrast, 42 % of the CSLs used overt clitics (38 % in the range of 4-5 clitics, and 4 % in the range of 1-2), whereas the rest of them produced null clitics. The percentage of CSLs that produced null clitics in this condition was higher than the target production of overt clitics in the other two conditions. This confirmed the group analysis in that they treated this condition differently from the other two [+definite] conditions. A closer look at the 15 participants who produced 0 overt clitics in the [-definite, -specific] condition showed that 7 of them also produced 0 overt clitics in the other two conditions where an overt clitic was required. Among the remaining 8 participants, six of them only produced 1 or 2 clitics in one of the other two conditions, and two of them produced 1 or 2 clitics in both conditions that require an overt clitic. Again, the individual analysis showed that the pattern of clitic use in one condition was likely to be extended to other conditions, regardless of definiteness or specificity features.

Regarding the effect of proficiency, as measured by the DELE, 14 participants scored between 28 and 40, and 12 participants scored above 40. The group analysis found interactions between DELE scores and two conditions: [+definite, +specific] and [-definite, -specific]. We looked at the DELE scores of the participants who produced 4 to 5 overt clitics in these conditions. As mentioned above, these were the same 8 participants plus 2 participants who produced 3 clitics in [+definite, +specific] condition and 4 clitics in [-definite, -specific] condition. Six (6/10) of these participants scored from 34 to 38/50 and four (4/10) scored from 41 to 45.

In sum, the sentence completion task showed that the CSLs produced fewer target-like overt or null clitics than the monolingual group. The analysis also revealed that, in general, CSLs do not treat the conditions differently by definiteness or specificity.

5.3 Acceptability Judgment Task

The AJT examined the acceptability of grammatical and ungrammatical instances of overt and null clitics in the same conditions as in the sentence completion task. For visualization purposes, Figure 4 below shows the average response across grammaticality, condition, and group when considering their response as numeric instead of ordinal.

The AJT data were analyzed with two ordinal regressions using the *clmm* (cumulative link mixed model) function in the *ordinal* package (Christensen, 2019) in R. The first ordinal regression included response (ratings ranging from 1 to 5) as the dependent variable, and grammaticality (grammatical, ungrammatical), condition ([+definite, +specific], [+definite, -specific], [-definite, -specific]) and group (monolingual group, CSL group) as independent variables. Additionally, it included both participant and test item as random effects as well as an interaction between group and grammaticality. The goal of this first ordinal regression was to assess between-group differences with regard to the variables under examination. The model found grammaticality ($\beta = -6.31$, SE = 0.30, $z = -20.87$, $p < 0.001$) and group ($\beta = -2.46$, SE = 0.45, $z = -5.49$, $p < 0.001$) effects as well as differences in the acceptance

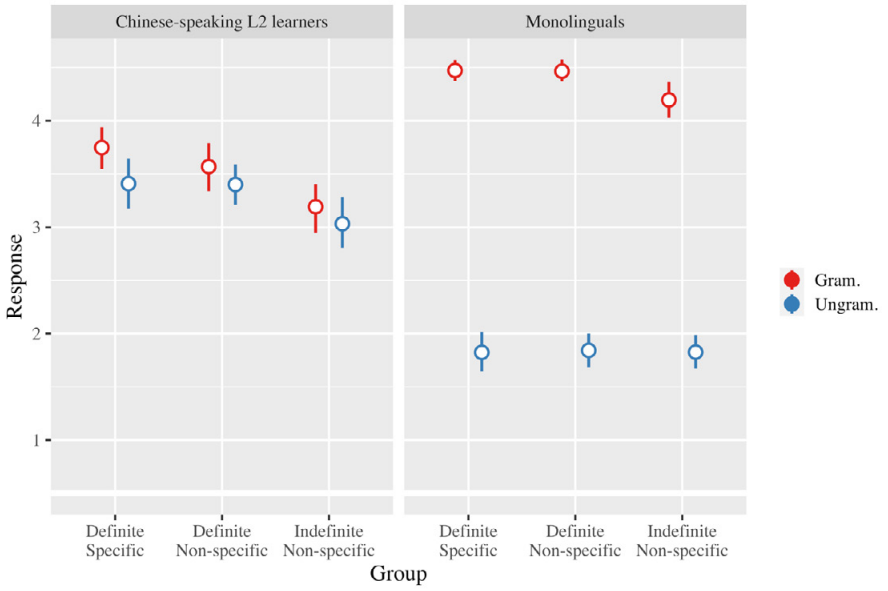


Figure 4. Acceptability of conditions as a function of grammaticality across groups.

of overt clitics in the [-definite, -specific] condition (β = -0.60, SE = 0.20, z = -3.02, $p < 0.01$), as expected. It also found a significant interaction between group and grammaticality (β = 5.71, SE = 0.32, z = 17.89, $p < 0.001$), which indicates that the CLSs do not rate ungrammatical items as low as the native speaker group.

An additional ordinal regression was conducted to analyze the data obtained from CSLs only to assess proficiency effects. This model included response as the dependent variable and grammaticality, condition, and DELE scores as independent variables. The model also included participant and test item as random effects and tested for interactions between grammaticality and condition, and between grammaticality and DELE scores. The model only found differences in the CLSs' responses in the [-definite, -specific] condition (β = 1.00, SE = 0.42, z = 2.40, $p = 0.02$), which indicates that the learners rated this condition lower than the other two regardless of grammaticality. However, no other effects or interactions were found (see Appendices A.4 and A.5 for outputs).

5.3.1 Individual analysis

For the individual analysis, we divided the participants into three ranges according to the average ratings they assigned to the sentences in each condition: accepted (average rating 4-5), unsure (average rating 2.1-3.9), and rejected (average rating 1-2). The results are presented in Table 6 below.

As shown in Table 6, the performance of the CSLs differed greatly from the monolingual group's in both grammatical and ungrammatical sentences at the individual level. For the grammatical sentences, all the monolinguals showed categorical acceptance of grammatical overt clitics in the two [+definite] conditions. The CSLs showed uncertainty

Table 8. Individual analysis: AJT.

Grammatical			
CSL (n= 26)	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
Accepted	8/26 (31 %)	**13/26 (50 %)**	5/26 (19 %)
Unsure	**17/26 (65 %)**	12/26 (46 %)	**16/26 (62 %)**
Rejected	1/26 (4 %)	1/26 (4 %)	5/26 (19 %)
Monolingual (n= 21)	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
Accepted	**21/21 (100 %)**	**21/21 (100 %)**	**17/21 (81 %)**
Unsure	0	0	3/21 (14 %)
Rejected	0	0	1/21 (5 %)
Ungrammatical			
CSL (n=26)	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
Accepted	9/26 (35 %)	8/26 (31 %)	7/26 (27 %)
Unsure	**11/26 (42 %)**	**11/26 (42 %)**	**17/26 (65 %)**
Rejected	6/26 (23 %)	7/26 (27 %)	2/26 (8 %)
Monolingual (n= 21)	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
Accepted	0	0	0
Unsure	1/21 (5 %)	1/21 (5 %)	0
Rejected	**19/21 (95 %)**	**19/21 (95 %)**	**21/21 (100 %)**

in these two conditions. In the [-definite, -specific] condition with a grammatical null clitic, both groups showed variation. Whereas 14 % of the monolingual speakers showed uncertainty, this proportion increased to 62 % for the CSLs. In ungrammatical sentences, the monolinguals performed as expected in the three experimental conditions. In contrast, the CSLs showed acceptance or uncertainty towards sentences with ungrammatical clitic omission in the [+definite] conditions. Similarly, there were even more CSLs who were unsure about ungrammatical overt clitics (65 %) and fewer CSLs who rejected them (8 %). The individual analysis is consistent with the group analysis. The results confirmed our hypothesis 2, which states that the learners have difficulty with the distribution of overt and null clitics, regulated by the semantic features of definiteness and specificity.

Regarding DELE scores, we took a closer look at the CSLs that accepted grammatical sentences and those who rejected ungrammatical ones. We found that, except for the [-definite, -specific] condition with an ungrammatical overt clitic, in none of the conditions the CSLs who scored above 40 in the DELE test behaved more target-like (a score of 4-5 to the grammatical items and 1-2 to the ungrammatical ones) than the learners who scored below 40. This is consistent with the group analysis in that no effect of proficiency was found. The analysis is shown in Table 7.

Table 7. Proportion of the participants with target performance in the AJT by DELE score.

Grammatical			
DELE score	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
28-40	5/14 (36 %)	8/14 (57 %)	3/14 (21 %)
41-45	3/12 (25 %)	5/12 (42 %)	2/12 (17 %)
Ungrammatical			
DELE score	[+definite, +specific]	[+definite, -specific]	[-definite, -specific]
28-40	3/14 (21 %)	4/14 (29 %)	0
41-45	3/12 (25 %)	3/12 (25 %)	2/12 (17 %)

In sum, the AJT showed that the CSLs' knowledge of the semantic distribution of overt and null clitics is not as perceptible as their monolingual counterparts. The CSLs showed uncertainty in all three conditions regardless of grammaticality. However, their treatment of the [-definite, -specific] condition differs from the other conditions in the sense that they generally gave lower ratings in this condition regardless of the grammaticality.

5.4 Summary of the results

To summarize, the results from the question-and-answer task showed that the CSLs have the knowledge that an overt object is required in transitive structures in Spanish, but they preferred full DP over clitics in the contexts where overt clitics were preferred. The data from the sentence completion task show that the learners differed from the monolingual speakers regarding the distribution of clitics as constrained by the definiteness and specificity features of their antecedents. Similarly, the two groups also showed differences in the AJT, with the CSLs showing more uncertainty regardless of the grammaticality status of the test items. In addition, DELE scores were not found to be a significant predictor in any task. Finally, the individual analyses confirmed the results of the group analyses in all the tasks.

6. Discussion and conclusions

The present study examined the extent to which Chinese-speaking learners of Spanish have knowledge of the use and the semantic distribution of accusative clitics in Spanish. Following the FRH (Lardiere, 2008, 2009; Slabakova, 2009), the learners were expected to recognize the form before associating the features with the morphological form. Thus, difficulties with target clitic use and distribution by Chinese L2 learners were expected to stem from (1) using the morphological form of clitics as a strategy for object realization, and (2) from associating definiteness and specificity to the clitics, and acquiring the indefinite, non-specificity property of the null clitics. Accordingly, our first research question asked to what extent CSLs had knowledge of accusative clitic use in Spanish as a strategy of direct object realization. In light of Cuza et al. (2013) and Jiao and Cuza's (2022) previous work, we expected crosslinguistic influence from Chinese into Spanish leading to low production

of overt clitics in definite specific contexts in which a clitic is preferred. The prediction was borne out by the results of the question-and-answer task. The results showed that overt clitic is not the Chinese-speaking learners' preferred strategy for anaphoric object realization, since only 7 % of the total instances of object was produced as overt clitic, compared to the monolingual group who produced overt clitic in 95.23 % of the instances. The fact that eight of the learners (8/26) but none of the monolingual speakers showed null clitics showed that crosslinguistic influence was present. However, rather than preferring null clitics, the Chinese speakers' preferred strategy was overt DP (76.44 %). This suggests the learners seemed to know that null objects are not an adequate option for anaphoric objects, and that the use of DP stems from an avoidance strategy.

Regarding the learners' knowledge of Spanish as a language that does not generally allow object drop, their performance differed from the adult immigrants in Cuza et al. (2013), who were also exposed to Spanish during adulthood. In our study, eight (8/26) classroom learners produced null clitics in at least one of the items, in contrast to the fact that all the adult immigrants produced null objects, from which 95 % (12/13) of them only used null clitics. This suggests that classroom instruction compensates for late exposure to some level, consistent with Jiao and Cuza' (2022) findings with semi-spontaneous data and with VanPatten (1987), who claimed effects of instruction on the recognition of non-object drop in Spanish. However, this compensation effect was not present for the use of clitics as the preferred strategy. From a FRH perspective, if recognizing the use of clitic as a strategy of overt object realization is the first step of acquisition, these learners have not completed this step because they showed avoidance of producing overt clitics. However, they were aware that Spanish is a non-object-drop language, which means that they have fulfilled the prerequisite for using the morphological forms of clitics. In other words, they are in the process of including the morphological form of clitics in their inventory.

The second research question focused on the learners' knowledge of the semantic distribution of Spanish accusative clitics, namely associating the semantic feature of definiteness and specificity with clitic use and intuition in CLLD constructions. We hypothesized difficulties with the acquisition of the definiteness or specificity constraints evidenced in clitic overextension or omission. This question was addressed by the sentence completion task and the AJT, and the results from both tasks confirmed our expectations. In the SCT, the learners' production of overt clitics was below chance in the expected conditions (44 % in [+definite, +specific] and 40 % in [+definite, -specific] contexts). They produced overt clitics 36 % of the time in the [-definite, -specific] contexts where the clitic is not required. The results of the individual analysis also showed a cluster towards both extremes in all the contexts among the L2 learners: most participants were either in the range of clitic production of 4 to 5 clitics out of 5 trials or in the range of zero production. This suggests that the production of the clitics by Chinese learners is not regulated by definiteness or specificity features.[7] Moreover, this suggests that they may first acquire the

[7] As suggested by a reviewer, difficulties might stem from sources other than definiteness or specificity. While this could be possible, our data showed that these semantic features are not related to the learners' choice of overt/null clitics.

indefiniteness and non-specificity property of the null clitics. Additionally, their patterns of performance in one condition were likely to extend to other conditions. Specifically, if one participant did not produce any clitic in one condition, it was very likely that the participant also produced none or very few clitics in the other conditions. This provides another piece of evidence that the semantic features of definiteness and specificity do not play a role in clitic use.

The results of the AJT also support Hypothesis 2. The learners showed a general uncertainty in their judgment of clitic use regardless of grammatical context as their main judgment scores in all the contexts were between 3 and 4, in contrast to the monolinguals who performed categorically as expected. The individual results showed that the learners were clustered in the range of 'unsure' in almost all contexts, except for a very close distribution in the ranges of 'accepted' (50 %) and 'unsure' (46 %) in the [+definite, -specific] condition with a grammatical clitic.

The results from the SCT and the AJT showed that overt and null clitics were used and interpreted regardless of the semantic features of the antecedents to which they referred, suggesting insensitivity to the semantic constraints of overt and null clitics in Spanish. Provided that these semantic features are not related to the realization of overt or null objects in Chinese, the results show that the first language did not, at least, play a facilitative role in their feature reassembly process. Moreover, in both tasks, the learners' performance in the [-definite, -specific] condition differed from those in the [+definite] condition. In the SCT, they produced fewer clitics in the [-definite, -specific] condition, and in the AJT they gave lower ratings to this condition regardless of the presence of an overt clitic. This can also be explained by crosslinguistic influence. Given that in Chinese the topicalized element usually receives a definite reading, a topicalized [-definite, -specific] element would be less natural compared to a definite or a specific one, and thus receives lower acceptability. Moreover, their avoidance strategy can be accounted for by the fact that overt clitics are more cognitively taxing than null objects since they specify case, gender, and number.

The insensitivity to the semantic constraints on Spanish overt or null clitic among Chinese speakers was found by Cuza et al (2013), especially in the adult immigrants who were exposed to Spanish after puberty. The immigrants also showed low production of overt clitics in the sentence completion task and uncertainty in the AJT. However, compared to Cuza et al (2013) in which the adult immigrants showed a pattern of rejecting clitic production, more CSLs in our study produced clitics in all the contexts. Moreover, while the adult immigrants in Cuza et al. (2013) accepted overt and null clitics regardless of grammaticality with a mean rating above 4 in all the contexts, the CSLs in our study gave lower ratings showing uncertainty across all contexts. This, again, confirms previous studies on the effect of classroom instruction on the grammatical awareness of clitic use (Jiao & Cuza, 2022; VanPatten, 1987). Results from the two studies on Chinese adult learners of Spanish in different contexts also revealed the persistent difficulty in developing sensitivity to the semantic constraints on clitics for adult learners of Spanish. This is also

consistent with Valenzuela (2006) on English-speaking adult learners in Spain with near-native proficiency, who showed a trend of acquisition but difference from native speakers regarding production and acceptance with overt clitics in CLLD compared to topicalized constructions with a non-specific topic.

As mentioned in Section 2.1, while the accusative clitic was introduced in the instruction process as a strategy for object realization, CLLD structures were not taught. The teaching of this structure is relatively rare in classroom instruction in China. Results of this study only suggest that the CLSs have only developed some awareness of the non-object-drop property of Spanish and a full mastering of clitic use is yet to come. However, this does not mean that the learners cannot acquire a structure that is lacking in the input or the discourse cues of clitic use. Although the acquisition of complex discourse properties of CLLD is outside the scope of the current study, other studies have shown that L2 learners and heritage speakers can successfully acquire the distinction between CLLD structures and other types of information structure such as focus fronting and cleft (Sequeros-Valle et al., 2020a,b; Slabakova, 2015; Slabakova et al., 2012).

In addressing the third research question, which aimed to examine the effect of proficiency on clitic use and distribution, we hypothesized that participants with higher proficiency would outperform those with lower proficiency. We expected more target production of clitics in anaphoric contexts and greater sensitivity to the semantic features among more advanced learners. However, contrary to our expectations, results did not reveal a correlation between proficiency in Spanish and target clitic use or sensitivity to the semantic features governing their appearance. The effect of proficiency was only found in the interactions with [+definite, +specific], and [-definite, -specific] conditions in the SCT, with the learners with higher proficiency producing more overt clitics in these two opposite conditions. These results showed that proficiency was not a predictor for target performance regarding clitic use and distribution, but learners with higher proficiency levels might be more aware of the morphological form of the clitics, which is a prerequisite for the subsequent acquisition. The lack of proficiency effects was also observed in the narrative data in Jiao and Cuza (2022). Additionally, Cuza et al. (2013) showed that Chinese-speaking simultaneous bilinguals and childhood immigrants in Peru with very close DELE scores performed differently in both the productive and the receptive tasks, and the results seem to be better accounted for by experience with Spanish as measured by age of onset of bilingualism. Hence, while proficiency can be defined as the learners' overall level in their L2, experience with the L2 as measured by their exposure and use of the language might be a stronger predictor for the acquisition of this specific structure.

In conclusion, results from the present study showed difficulties with clitic production and intuition among Chinese-speaking learners of Spanish. While the CSLs showed avoidance of clitic use as a strategy of anaphoric object realization, the semantic features regulating clitic use and intuition appear to remain underspecified in the learners' Spanish grammar, as predicted by the FRH. This underspecification might stem from crosslinguistic influence and existing differences between Chinese and Spanish regarding the lexical

encoding of definiteness and specificity (Iverson & Rothman, 2015; Slabakova, 2009). While crosslinguistic influence was partially mitigated with learners demonstrating that Spanish does not allow definite or specific object drop, its impact persisted in the acquisition of the semantic distribution of overt and null clitics. In comparison with prior research, our study indicates that classroom instruction might increase the learners' awareness of using overt objects but does not seem to influence the reassembly of semantic features into accusative clitics in their Spanish grammar. From a developmental perspective, the results suggest that the Chinese-speaking learners of Spanish seemed to realize the need for an overt object, but they did not acquire the other two steps necessary to acquire target-like clitic use, namely choosing clitics as the preferred option for anaphoric objects and being aware of the semantic constraints on the distribution of overt/null clitics. Finally, we did not find an effect on language proficiency in the learners' productive or receptive grammatical knowledge.

There are some limitations of the study. As noted by a reviewer, the number of test tokens included per condition is relatively small. While the study's findings align with our hypotheses, a larger number of test tokens could have strengthened the validity of our conclusions. For instance, we observed interactions between proficiency and clitic use in certain conditions but not in others in the SCT. Including more test items would provide a better understanding of whether there is a strong association between proficiency and target clitic use and intuition. Another limitation is the absence of quantified information on the learners' Spanish experience in our analysis. Future research would benefit from examining the effect of these factors on the acquisition of Spanish accusative clitics and their distribution.

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Appendices

A.1. Multinomial regression for question-and-answer task

Equation for DP vs 1:

Fixed Factor	Estimate	SE	Z Value	P Value	Odds Ratio	95 % CI of Odds Ratio	
						2.5 %	97.5 %
(Intercept)	-3.1293	0.3861	-8.104	< 0.001 *	0.0438	0.0205	0.0934
Group (L2)	5.3078	0.4593	11.556	< 0.001 *	201.9048	81.9461	497.46782

Equation for null vs 1:

Fixed Factor	Estimate	SE	Z Value	P Value	Odds Ratio	95 % CI of Odds Ratio

						2.5 %	97.5 %
(Intercept)	-19.89	1646.12	-0.012	0.99	< 0.001	0.000	Inf
Group (L2)	19.64	1646.12	0.012	0.99	337209900	0.000	Inf

Approximate residual Deviance: 274.6

Number of Fisher scoring iterations: 18

Number of observations: 358

A.2. GLMM for between-group analysis of EPT data

Fixed Factor	Estimate	SE	Z Value	P Value	Odds Ratio	95 % CI of Odds Ratio	
						2.5 %	97.5 %
(Intercept)	2.7357	0.7523	3.637	< 0.001 *	15.4208	3.51915	73.666
Group (L2)	-2.5309	0.9809	-2.580	0.0099 *	0.0796	0.01019	0.548
Condition (+def, +spe)	0.3329	0.3687	0.903	0.3666	1.3951	0.65983	3.027
Condition (-def, -spe)	-4.3017	0.4324	-9.948	< 0.001 *	0.0135	0.00524	0.030

Random effects:

Groups	Variance	Standard Deviation
Participant (Intercept)	9.632719	3.10366
Item (Intercept)	0.007461	0.08638

Number of observations: 685; participant: 47; item: 15

AIC: 480.0

BIC: 507.1

A.3. GLMM for within-group analysis of EPT data

Fixed Factor	Estimate	SE	Z Value	P Value	Odds Ratio	95 % CI of Odds Ratio	
						2.5 %	97.5 %
(Intercept)	-1.1390	0.8693	-1.310	0.1901	0.3201	0.05826	1.7590
Condition (+def, +spe)	0.2806	0.5265	0.533	0.5941	1.3239	0.4718	3.7151
Condition (-def, -spe)	-0.7414	0.5386	-1.376	0.1687	0.4764669	0.1658	1.3693
DELE	0.1899	0.8614	0.220	0.8255	1.2091	0.2235	6.5415
Condition (+def, +spe) × DELE	1.4464	0.5699	2.538	0.0112 *	4.2476	1.3900	12.9799

Condition (-def, -spe) × DELE	1.4167	0.5749	2.464	0.0137 *	4.1237	1.3362	12.7256

Random effects:

Groups	Variance	Standard Deviation
Participant (Intercept)	13.44061	3.6661
Item (Intercept)	0.06512	0.2552

Number of observations: 370; participant: 26; item: 15

AIC: 266.6

BIC: 297.9

A.4. Ordinal regression for between-group analysis of AJT data

Fixed Factor	Estimate	SE	Z Value	P Value	Odds Ratio	95 % CI of Odds Ratio	
						2.5 %	97.5 %
Grammaticality (Ung.)	-6.3133	0.3025	-20.870	< 0.001 *	0.0018	428.6157	0.0000
Group (L2)	-2.4581	0.4476	-5.491	< 0.001 *	0.0856	10.5879	0.0007
Condition (+def, +spe)	0.1553	0.2065	0.752	0.45206	1.1680	0.8615	1.5834
Condition (-def, -spe)	-0.6028	0.1997	-3.018	0.003 *	0.5473	1.7836	0.1679
Grammaticality (Ung.) × Group (L2)	5.7123	0.3193	17.891	< 0.001 *	302.5623	0.0042	22035470

Threshold coefficients:

Threshold	Estimate	SE	Z Value
1|2	-7.0546	0.4296	-16.420
2|3	-4.4440	0.3932	-11.303
3|4	-3.3349	0.3832	-8.702
4|5	0.1026	0.3539	0.290

Random effects:

Groups	Variance	Standard Deviation
Participant (Intercept)	1.82230	1.3499
Item (Intercept)	0.07592	0.2755

Number of observations: 1128 (98 observations deleted due to missingness)

Participant: 47; item: 24

AIC: 2230.96

A.5. Ordinal regression for within-group analysis of AJT data

Fixed Factor	Estimate	SE	Z Value	P Value	Odds Ratio	95 % CI of Odds Ratio	
						2.5 %	97.5 %
Grammaticality (Ung.)	-0.25382	1.46486	-0.173	0.8624	0.77583453	1.2759031	0.4717593
Condition (+def, +spe)	0.19946	0.41981	0.475	0.6347	1.22073755	0.8257445	1.804675
Condition (-def, -spe)	-1.00272	0.41708	-2.404	0.0162 *	0.36687881	2.6184398	0.05140468
DELE	-0.04729	0.07137	-0.663	0.5075	0.95380692	1.0464469	0.8693682
Grammaticality (Ung.) × Condition (+def, +spe)	-0.19467	0.59176	-0.329	0.7422	0.8231094	1.2054736	0.5620273
Grammaticality (Ung.) × Condition (-def, -spe)	0.38211	0.58137	0.657	0.5110	1.46537111	0.692941	3.098839
Grammaticality (Ung.) × DELE	-0.01134	0.03811	-0.298	0.7661	0.98872548	1.0109441	0.9669952

Threshold coefficients:

Threshold	Estimate	SE	Z Value
1|2	-5.7121	2.7067	2.110
2|3	-4.0486	2.6998	-1.500
3|4	-2.6724	2.6966	-0.991
4|5	0.3886	2.6932	0.144

Random effects:

Groups	Variance	Standard Deviation
Participant (Intercept)	2.1180	1.4553
Item (Intercept)	0.1786	0.4226

Number of observations: 624 (83 observations deleted due to missingness)

Participant: 26; item: 24

AIC: 1393.79