

**RESEARCH**

# Null/overt subject alternations in L2 Spanish and L2 Greek

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This study aims at exploring the omission/expression of subjects in L2 Spanish and L2 Greek. The distribution of subjects is examined in the context of the Interface Hypothesis (IH), which locates the difficulty of acquisition at the syntax-pragmatics interface (Sorace & Filiaci 2006; Tsimplici & Sorace 2006) and the language combination examined is a case in point as both languages share the null subject property and yet the IH predicts delay in L2 acquisition. We also examine the predictions of Lozano's (2016) Pragmatic Principles Violation Hypothesis. We designed two multiple-choice tasks, one in Spanish and one in Greek, testing subjects in various pragmatic contexts. The tasks were administered to L2 intermediate and advanced learners and native speakers of Spanish and Greek. The results obtained indicate that the L2 learners were able to select the felicitous type of subjects in the appropriate contexts, although they did not always achieve native-like patterns. An asymmetry arose between L2 Greek and L2 Spanish, as L2 Greek was native-like, an asymmetry that failed to be predicted by any of the hypotheses entertained. Even though the involvement of the interface levels might have affected L2 performance, the syntax-pragmatics interface was not consistently having a detrimental effect on the results. Furthermore, our results with the control group indicated that the subject distribution in adult Greek is more nuanced than reported in the literature, especially in unambiguous referent-shift contexts.

**Keywords:** null/overt subjects; pragmatic contexts; L2 acquisition; Spanish/Greek combination; Interface Hypothesis

## 1 Introduction

The aim of this study is to examine the distribution of null/overt subjects in L2 Spanish by Greek learners and L2 Greek by Spanish learners. The combination of Spanish and Greek is not common in the recent literature on L2 acquisition (the exceptions being Lozano 2002; 2018 and Georgopoulos 2017 for L1 Greek-L2 Spanish; Giannakou 2018 for L1 Spanish-L2 Greek). The question here concerns the extent to which the shared null subject value of the languages examined (see Spyropoulos & Philippaki-Warbuton 2001 for Greek; Bosque & Gutiérrez-Rexach 2009 for Spanish) still gives rise to non-target performance in L2 learners. According to the Interface Hypothesis (IH), it is the interface phenomena that are more difficult to acquire due to the complexity of integrating the syntactic domain with other linguistic domains such as pragmatics (see Sorace & Filiaci 2006; Tsimplici & Sorace 2006). The IH claims that the problematic domains are complex to acquire even at near-native levels of competence and in languages sharing the relevant grammatical properties. Hence the interest of the language combination is that both Greek/Spanish are null-subject languages, while most studies involve one null-subject, one non-null subject language. Apart from the language combination, the novelty of the study lies in the range of contexts considered, not undertaken in previous studies (including referent-shift contexts with one or two antecedents).

The structure of this paper is as follows: Section 2 presents the Interface Hypothesis and the typology of Spanish and Greek regarding the distribution of null/overt subjects. Section 3 presents our study, including our predictions, the experimental design and the results. The discussion of the main findings and the conclusions appear in Section 4.

## 2 Background

### 2.1 The Interface Hypothesis and some derivative hypotheses

Within the Minimalist framework, extensive research has explored the L2 acquisition of the grammatical modules and their interface with the pragmatic component. Sorace and colleagues proposed the first version of the Interface Hypothesis (IH-1) as stated in (1).

- (1) IH-1 (Sorace & Filiaci 2006: 340)  
Interface properties involving syntax and another cognitive domain may not be fully acquirable in a second language.

In particular, Sorace & Filiaci (2006: 340) argued that the developmental optionality attested in L2 acquisition may be the result of underspecification at the level of knowledge representation or it may stem from insufficient processing resources to integrate the multiple types of information at the interfaces. A particularly fruitful ground to test the IH-1 is the syntax of pronominal subjects. In the null subject languages, null subjects are syntactically licensed but their distribution is pragmatically determined. Mastery of pronominal subjects in the null subject languages therefore requires both the correct representation of the syntactic licenser (i.e. the correct setting of the null subject parameter) and knowledge of the pragmatic interface conditions that govern the felicitous use of null or overt subject pronouns in context. Indeed, most work in this framework has explored anaphora resolution, i.e. the way in which second (and subsequent) reference to an entity is grammatically encoded in discourse.

Sorace & Filiaci (2006) examined anaphora resolution in bi-clausal sentences in which a null or overt pronoun appears in the subordinate clause. In forward anaphora, in which the main clause precedes the subordinate clause, the processor encounters two referential expressions before the pronoun. In backward anaphora, which has the subordinate clause first, the pronoun is encountered prior to the mention of any other referential expressions. In forward anaphora example (2a) from Italian, the subordinate null pronoun is coreferential with the matrix subject *la mamma* ('the mother'), while the overt pronoun *lei* ('she') refers to the object *la figlia* ('the daughter') of the matrix clause. However, the overt pronoun may also be coindexed with the matrix subject. Similarly in backward anaphora (2b). (Examples are taken from Sorace & Filiaci 2006: 352.)

- (2) a. **La mamma<sub>i</sub>** dà un bacio **alla figlia<sub>k</sub>**, mentre  
the mother give.3SG.PRS a kiss to.the daughter, while  
**lei<sub>k/i</sub>** / **pro<sub>i</sub>** si mette il cappotto.  
she.NOM/pro REFL put.3SG.PRS on the coat  
'The mother gives a kiss to the daughter, while she puts on the coat.'
- b. Mentre **lei<sub>k/i</sub>** / **pro<sub>i</sub>** si mette il cappotto, **la mamma<sub>i</sub>**  
while she.NOM/pro REFL put.3SG.PRS on the coat, the mother  
dà un bacio **alla figlia<sub>k</sub>**.  
give.3SG.PRS a kiss to.the daughter  
'While she puts on the coat, the mother gives a kiss to the daughter.'

In order to test the IH-1, Sorace & Filiaci (2006) administered a picture verification task involving the interpretation of null/overt pronouns in the context of forward and backward anaphora. The participants were 14 English-speaking near-native learners of Italian and a control group of 20 native speakers of Italian. The results showed that the near-native speakers differed from the natives in their preferences for overt pronouns in forward anaphora, as the L2 learners chose the interpretation in which the pronominal subject of the subordinate clause was coreferent with the NP subject from the matrix clause significantly more often than the natives. On the other hand, no differences were found between the two groups in the choice of referent for the null subject of the subordinate clause. In backward anaphora contexts, the L2 learners also chose the NP subject of the matrix as antecedent for the overt pronoun of the subordinate, while the natives preferred an extralinguistic antecedent. However, both groups preferred to interpret null subjects as coreferent with the NP subject of the matrix clause. Overall, the results of this study indicated that the L2 learners had problems with the interpretation of overt pronouns in relation to their antecedent in both anaphora contexts, although the learners had acquired target-like processing strategies for anaphora resolution of null subjects. Thus, the results were not fully consistent with the IH-1. This appears to be the case in various studies following the IH: while problems are attested with overt pronouns, null pronouns are target-consistent, even though both overt and null pronouns fall under the scope of the IH.

Again in the framework of the IH, Belletti et al. (2007) also studied the acquisition of pronominal reference in L1 English – L2 Italian speakers. Their overall results showed that the near-native learners produced a large number of null subjects, as in the performance of natives, but also showed a significantly higher rate of overt pronominal subjects than the natives, confirming overuse of overt pronouns in near-native discourse contexts. The authors' interpretation of the facts was that grammatical representation was the source of the difficulty, as the results were consistent across tasks, thus indicating that processing cost was not relevant. The attribution of the problems faced by L2 learners to competence or processing has been a matter of debate from the first formulation of the IH.

In order to examine the production of subjects, Tsimpli & Sorace (2006) collected data from 10–20 minute-long oral interviews from three experimental groups of Russian learners of Greek, one intermediate-level group, one lower-advanced group and one upper-advanced group. The results showed that all experimental groups had a clear preference for null subjects, following native-like patterns. However, the L2 groups occasionally overused 1<sup>st</sup>/2<sup>nd</sup> person overt pronouns; the type of person had an effect on the L2 performance, as the learners showed less non-native uses of 3<sup>rd</sup> than 1<sup>st</sup>/2<sup>nd</sup> person. A statistical comparison between 1<sup>st</sup>/2<sup>nd</sup> vs. 3<sup>rd</sup> person pronouns revealed significant differences in all groups of learners. Still, the performance of the L2 learners was not always in line with the IH-1, since the L2 groups presented no problems with the distribution of null subjects.

Sorace (2011) introduced a more explicit version of the IH, which we focus on in our study:

(3) IH-2 (after Sorace 2011)

L2 learners are less efficient than monolinguals at processing structures at the syntax-pragmatics interface because their knowledge of or access to computational constraints is less detailed or less automatic than in monolinguals and they have fewer cognitive resources to deploy on the integration of different types of information in real-time language use.

Sorace (2011) specified that interface deficits affect information processing more often than representation knowledge at the highest level of ultimate attainment in L2 (Sorace

2011: 9; 2012: 213). For this, amongst other reasons, the IH has also had its detractors. Rothman (2009) and White (2009; 2011a; b), for example, question the proposal that structures at the interface levels present irresolvable instability or optionality in L2 acquisition. In fact, White (2011a: 578) argues that, even if non-target performance is due to representational or processing difficulties, this does not mean that the interface structures are permanently inacquirable. Furthermore, as White (2011a: 587) states, interfaces are not monolithic: it is not the case that all interfaces lead to difficulties and all phenomena at a particular interface are necessarily problematic, so acquisition failure can be avoided. In his version of the IH, Rothman (2009) also argues that interface problems may be eventually overcome, so that both syntactic and interface features can be finally acquired. In his research, the advanced group performed native-like in all contexts examined, confirming full command of the syntax-pragmatics interface, against the predictions of the IH. Still, in Rothman's view, interface problems may be found at earlier stages with the pattern predicted by the IHs, as the intermediate group he tested presented non-target-like performance, showing that they had not yet acquired the pragmatic conditions regulating null and overt subject distribution.

Looking into the L2 Spanish by L1 English speakers, Lozano (2016) examined topic-continuity contexts and topic-shift contexts and found, as in much of the literature reported, that the expected null pronouns were the most frequent option in topic-continuity contexts, though the L2 advanced learners significantly differed from the native speakers in producing unfelicitous overt pronouns. In an attempt to make the prediction of the IH more specific and empirically adequate, and building on the neogricean principles of Manner and Informativeness, Lozano formulated the Pragmatic Principles Violation Hypothesis (PPVH), stated in (4).

- (4) PPVH (after Lozano 2016)  
Advanced learners will violate pragmatic principles banning redundancy more often than principles banning ambiguity, by being pragmatically more 'redundant' (producing redundant overt anaphors to mark topic-continuity) than 'ambiguous' (producing ambiguous null anaphors to mark a shift in topic).

The overt-when-null violation in topic-continuity contexts does not lead to a communicative breakdown (only to redundancy), as the anaphor can be resolved, while the null-when-overt violation leads to a communicative breakdown (ambiguity) in topic-shift contexts, as the anaphor cannot be resolved. Lozano's stance is that pragmatic principles banning redundancy are violated more often than the principles banning ambiguity, with a differential effect depending on pragmatic context.

## 2.2 The distribution of subjects in Spanish and Greek

As known from Montalbetti (1986), Hernanz & Brucart (1987) and Fernández-Soriano (1989) for Spanish and Philippaki-Warburton (1987; 1989), Horrocks (1994) and Joseph (1994) for Greek, Spanish and Greek are two null subject languages that display rich verbal inflection, which shows the features of person (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>) and number (singular, plural), exemplified in (5a) for Spanish and (5b) for Greek.

- (5) a. **pro<sub>i</sub> fui<sub>i</sub>** a la escuela.  
pro go.1SG.PST to the school  
'I went to school.'
- b. **pro<sub>i</sub> piga<sub>i</sub>** sto sxolio.  
pro go.1SG.PST to.the school  
'I went to school.'

However, the two languages are not identical in all respects (Roussou & Tsimpli 2006). Syncretism in the inflectional marking of subject person renders verb morphology ambiguous in certain Spanish paradigms (Luján 1999), such as the verb *ir* ('go') in imperfect tense which could lead to the use of an overt pronoun for person disambiguation purposes regardless of the context (6a). In Greek, there is no systematic verb inflectional ambiguity (6b) which would trigger overt subject use to the same extent (Dimitriadis 1996), except for some forms of third person singular and plural (e.g. *ine* 'be'). The expression of third person overt pronouns would be possible with deictic/demonstrative interpretation in Greek, differently from Spanish (Manolessou 2001).

- (6) a. Durante las vacaciones **yo/ él/ella iba** a la playa.  
 during the holidays I/ he/she go.1/3SG.PST.CONT to the beach  
 'On holidays, I/he/she was going to the seaside.'
- b. Stis djakopes **pro pijena / pijene** stin paralia.  
 on.the holidays pro go.1SG.PST.CONT/ go.3SG.PST.CONT to.the seaside  
 'On holidays, I/he/she was going to the seaside.'

According to Roussou (2009) Greek is more overtly productive in agreement than Spanish, since it lacks non-finite constructions unmarked for subject agreement. In (7a) for Greek, the matrix verb *matheno* ('learn') and the subordinate *pezo* ('play') are finite forms that agree in number and person with the matrix subject. On the other hand, Spanish displays non-finite constructions (infinitives), triggering reduced marking for agreement. In (7b) variation between the finite verb *aprender* ('learn') and the infinitive *tocar* ('play') is observed.

- (7) a. O Janis<sub>i</sub> **emathe<sub>i</sub>** na **pezi<sub>i</sub>** kithara.  
 the.NOM Janis learn.3SG.PST na.SBJ.PRT play.3SG.FIN guitar  
 'Janis learned to play the guitar.'
- b. Juan<sub>i</sub> **aprendió<sub>i</sub>** a **tocar** la guitarra.  
 Juan learn.3SG.PST to play.INF the guitar  
 'Juan learned to play the guitar.'

Regarding discourse relations, the coreference between null/overt subjects and their antecedents is not always identical in Spanish and Greek. A null pronoun *pro* is generally licensed by the most prominent referent, the antecedent subject of the structure in both languages (8a, 9a). According to some authors, an overt pronoun *él* ('he') in Spanish (8b) can retrieve both prominent and non-prominent antecedents such as the subject and object without incurring a significant processing penalty (Alonso-Ovalle et al. 2002; Filiaci et al. 2014); see, however, Gelormini-Lezama & Almor (2011; 2014) who showed a higher processing delay of an overt over a null pronoun when the coreferent antecedent (i.e. the matrix subject) is salient in Spanish, to the effect that Spanish is less flexible in the use of overt pronouns than some of the previous literature would lead one to believe. The pronoun *aftos* ('he') in Greek (9b) is preferably associated with the antecedent object in the reference structure (Papadopoulou et al. 2015).

- (8) a. El **joven<sub>i</sub>** empujó **al anciano<sub>j</sub>**, mientras **pro<sub>i</sub>**  
 the young.man push.3SG.PST DOM.the old.man, while pro  
 bajaba del autobús.  
 get.3SG.PST.CONT off of.the bus  
 'The young man pushed the old man, while he was getting off the bus.'

- b. **El joven<sub>i</sub>** empujó **al** **anciano<sub>j</sub>**, mientras **él<sub>i,j</sub>**  
 the young.man push.3SG.PST DOM.the old.man, while he.NOM  
 bajaba del autobús.  
 get.3SG.PST.CONT off of.the bus  
 ‘The young man pushed the old man, while he was getting off the bus.’
- (9) a. **O** **nearos<sub>i</sub>** esrokse **ton** **ilikiomeno<sub>k</sub>**, eno **pro<sub>i</sub>**  
 the.NOM young.man push.3SG.PST the.ACC old.man, while pro  
 katevene apo to leoforio.  
 get.3SG.PST.CONT off of the bus  
 ‘The young man pushed the old man, while he was getting off the bus.’
- b. **O** **nearos<sub>i</sub>** esrokse **ton** **ilikiomeno<sub>k</sub>**, eno **aftos<sub>k</sub>**  
 the.NOM young.man push.3SG.PST the.ACC old.man, while he.NOM  
 katevene apo to leoforio.  
 get.3SG.PST.CONT off of the bus  
 ‘The young man pushed the old man, while he was getting off the bus.’

Regarding the acquisition of subjects, it is understudied in the case of L1 Greek/L2 Spanish and L1 Spanish/L2 Greek combinations. Margaza & Bel (2006) is one of the first attempts to examine these two null subject languages (L1 Greek/L2 Spanish), following Bini’s (1993) study for L1 Spanish/L2 Italian. In their results, the intermediate group overused overt pronouns in referential contexts (as in Bini 1993), but the L2 learners achieved target patterns at advanced levels of knowledge, so that the assumed interface vulnerability did not have a permanent effect on the distribution of null subjects.

Georgopoulos (2017) explored anaphora resolution in L2 Spanish and, following Sorace’s (2011; 2012) IH-2, expected that interface deficits would be persistent even at high levels of proficiency. In this case, he examined a written corpus of production data by L1 Greek and L1 English learners at three proficiency levels (intermediate, advanced, upper-advanced). The English learners of Spanish seemed to differ from the Greek participants and the control group, as they employed 3<sup>rd</sup> person anaphoric pronouns and noun phrases to a greater extent. On the other hand, the L1 Greek advanced and upper-advanced groups presented a relatively similar distributional pattern to the native control group. The L1 Greek intermediate learners of Spanish produced a few redundant 3<sup>rd</sup> person pronominal subjects in same-reference contexts, though they did not show the overexplicit patterns of their L1 English peers (even the L1 English upper-advanced group produced some target-deviant 3<sup>rd</sup> person overexplicit subjects). Nevertheless, the IH-2 was not confirmed at higher levels of proficiency, indicating that the linguistic features located at the syntax-pragmatics interface may not be problematic in the L1 Greek-L2 Spanish combination, so that interface deficits may not be permanent (Rothman 2009), depending on the facilitating role of the L1.

Lozano (2018) also examined the distribution of pronominal subjects in the L2 Spanish of Greek learners. As in Lozano (2002), he administered an acceptability judgment task with topic-continuity contexts and contrastive contexts.<sup>1</sup> In the results the intermediate group showed significant divergence from target native-like attainment in topic-continuity contexts, since they alternated equally between null and overt subjects. The rest of the groups (lower and upper-advanced) discriminated between null and overt subjects, but they showed divergence from the Spanish natives by mildly accepting a redundant

<sup>1</sup> As a notion that will be pervasive in this study, it is worth defining contrast. In the words of Molnár & Winkler (2010: 1396), “contrast is a highlighting device operating on alternatives within a restricted set and rendering some kind of new information.” Molnár & Winkler go on to show that contrast is autonomous from the notions of topic and focus – see also Horvath (2010).

overt pronoun. In contrastive contexts, all L2 groups discriminated between the felicitous overt pronoun and the unfelicitous null pronoun. The upper-advanced group showed full convergence with the native patterns, showing that anaphora resolution properties were eventually acquirable at very advanced levels in contrastive contexts. Deficits were more persistent at upper levels in topic-continuity contexts, in which the L2 learners showed a preference for redundant overt pronouns. Lozano (2009) had also carried out work on the language combination English-Spanish focusing on phi-features (i.e. the person and number) of the pronominal paradigm and distinguishing between 1<sup>st</sup>/2<sup>nd</sup> person (corresponding to the speech act participants) and 3<sup>rd</sup> person (corresponding to an anaphoric use of the pronoun). Lozano claims that his results show that deficits at the syntax-pragmatics interface are selective and do not affect the whole pronominal paradigm in L2 Spanish, as there was robust mastery of the deictic uses of 1<sup>st</sup> and 2<sup>nd</sup> person, but vulnerability with the anaphoric uses of 3<sup>rd</sup> person singular pronouns.

Recently, Giannakou (2018) studied the distribution of subjects in the L2 Greek of L1 Spanish speakers in an oral production task. The participants were 20 learners of Greek (4 basic, 5 intermediate, 5 advanced and 6 near-native) and 40 monolinguals, 20 Greek and 20 Spanish native speakers. The results showed that all groups produced a high rate of null subjects in topic-continuity contexts, though the L2 group did not achieve the pattern of native Greek speakers, regardless of their competence level, favouring the IH-2. In topic-shift contexts, all groups showed a higher preference for lexical subjects over overt pronouns, and the L2 learners did not present significant differences from the Greek control group. Thus, in this context, the native-like performance of the L2 learners was not in support of the IH-2. The study also showed that the distribution of subjects by native speakers of Spanish and Greek was not identical in various contexts examined (with the Spanish speakers producing more overt pronouns in topic-shift contexts and Greek speakers producing more null subjects in topic-continuity contexts).

### 3 The study

The present study also examines null/overt subject alternations in L2 Spanish and L2 Greek, and consists of two multiple-choice tasks, one in Spanish and one in Greek. One of the novelties of the study lies in its bidirectionality, as it includes both the L1 Greek-L2 Spanish and the L1 Spanish-L2 Greek combinations, compared to Lozano (2018) on L1 Greek-L2 Spanish and Giannakou (2018) on L1 Spanish-L2 Greek. Our main goal is to examine the degree to which Greek/Spanish learners of Spanish/Greek show command of the expression and omission of subjects in a large array of contrastive/non-contrastive and unambiguous referential contexts. The person effect is also considered, as it is understudied in the recent L2 literature, except for Lozano's (2009) study. These phenomena are tested under the light of the IH-2 (Sorace 2011; 2012) as well as Rothman's (2009) revision of the IH-1 regarding attainment in L2 and Lozano's (2016) reexamination of the IH. Taking into account the above hypotheses and the L1-L2 combinations, we formulate the following predictions:

(1) According to the IH-2, L2 learners will perform worse than natives with 3<sup>rd</sup> person pronouns both in conditions requiring null and overt pronouns if the pragmatic context is involved in native performance. Although generally Sorace and colleagues have not examined 1<sup>st</sup> and 2<sup>nd</sup> person contexts (they do in Tsimpli and Sorace 2006), their hypothesis also predicts that L2 learners will allow unfelicitous sentences when there is involvement of the syntax-pragmatics interface in determining whether a pronoun is overt or null. This prediction holds for all L2 learners, even at very advanced or near-native levels (in fact, according to Sorace 2011, it holds at the highest level of L2 ultimate attainment in particular, in which case the performance of the intermediate learners is irrelevant to test the IH-2).

(2) If Rothman's (2009) contention that L2ers can attain native performance when the syntax-pragmatics interface is involved in the processing of a sentence holds, then the IH-2 effects would be visible for intermediate learners, but with advanced learners native-like performance is not excluded.

(3) If Lozano's (2016) more restrictive version of the IH (the PPVH) is correct, the prediction is that L2 learners will fail more when a null pronoun is expected than when an overt pronoun is expected. That is, errors of redundancy are predicted, not errors giving rise to ambiguity.

Regarding the type of tasks, Sorace (2011: 20) argued that in L2 acquisition not only online tasks can tap on processing resources. In fact, both offline and online tasks can give insights about the speakers' processing abilities. Without going into the question of whether processing or grammatical representation is compromised in L2, we apply offline tasks that examine the choice of pronominal subjects at the syntax-pragmatics interface. It may be the case that, in real time language use, the speaker is subject to further constraints than in a written task; we have selected a written task because it allows us to control better for the pragmatic context. The same kind of tasks have been used repeatedly in the literature on L2 acquisition and, therefore, the results are broadly comparable to those in previous studies in the same theoretical framework (Lozano 2002; 2018; Margaza & Bel 2006; Rothman 2009). It remains for future research to see if a change in the task (for example, adding further time pressure or external load in the form of a concurrent task) would have an impact in the results. The two choices in our multiple-choice tasks are both syntactically well-formed, with only one favoured in the pragmatic context given.<sup>2</sup>

### 3.1 Experimental design

To explore the predictions above, we designed a multiple-choice task in Spanish and the equivalent task in Greek. Each task consists of a total of 30 stimuli, 10 for each condition. 5 fillers were also included concerning the use of articles, adverbs, verbs, etc.<sup>3</sup> The conditions combine the variables (i) person (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>) and (ii) discourse context (topic-introduction or -continuity, topic-shift).

Condition 1 involves the distribution of 1<sup>st</sup> and 2<sup>nd</sup> person subjects in non-contrastive referential contexts in both Spanish and Greek. Each task contains 5 items with subjects of 1<sup>st</sup> person (singular/plural) and 5 items of 2<sup>nd</sup> person (singular/plural). Both 1<sup>st</sup> and 2<sup>nd</sup> person allow the production of null subjects in non-contrastive referential contexts, irrespective of the type of (matrix or subordinate) clause. The independent variable examined is person in a given context, giving rise to two test conditions: the 1<sup>st</sup> person, non-contrastive referential context and the 2<sup>nd</sup> person, non-contrastive referential context. Under the IH-2 the prediction is that L2ers will select unfelicitous sentences (i.e. with an overt pronoun); likewise, under Lozano's PPVH, L2ers will tend to select overt pronouns when null pronouns are selected by natives.<sup>4</sup> All things being equal, no difference between 1<sup>st</sup> and 2<sup>nd</sup> person pronouns is predicted.

<sup>2</sup> Having a two-choice task means, as a reviewer points out, that the learners could obtain a 50% native answer just by guessing. However, anticipating the results, the learners' performance varies as a function of the context, and no guessing pattern is found. Moreover, two-choice tasks are commonly found in the related literature (see, for example, Rothman 2009 and, with a picture verification task, Tsimpli et al. 2004; Sorace & Filiaci 2006).

<sup>3</sup> Although the number of distractors is low, we do not think this has an effect on the results.

<sup>4</sup> An anonymous reviewer argues that the 1<sup>st</sup>/2<sup>nd</sup> person pronouns in condition 1 are not constrained by the syntax-discourse interface, since they are decontextualised in e.g. (10) and (11). In the text we assume that lack of preceding discourse is in itself a discourse condition and thus the syntax-discourse interface is at play; otherwise, as pointed out by the reviewer, the IH-2 and the PPVH would make no prediction in such a context.



To illustrate, in example (10) for Spanish, a null subject is felicitous in non-contrastive referent-introduction contexts, as the inflection of the verb *dar* ('give') shows the 1<sup>st</sup> person singular, without creating referential ambiguity in the matrix clause.

- (10) El fin de semana \_\_\_\_ **doy** un paseo por el parque.  
 the end of week \_\_\_\_ give.1SG.PRS a walk by the park  
 'At the weekend I go for a walk in the park.'
- (a)  $\emptyset$  null subject (b) yo 'I'

In example (11) from Greek the non-contrastive referent-introduction context also allows the production of 1<sup>st</sup> person null subjects due to the inflection of the verb *kano* ('do'), which identifies the person and number of the referent in the matrix clause.

- (11) To savatokirjako \_\_\_\_ **kano** enan peripato sto parko.  
 the weekend \_\_\_\_ do.1SG.PRS a walk in.the park  
 'At the weekend I go for a walk in the park.'
- (a)  $\emptyset$  null subject (b) ego 'I'

Conditions 2 and 3 examine the omission/expression of 3<sup>rd</sup> person subjects in various referential contexts and, unlike in most of the literature, in Condition 2 we focus on contexts that require or favour a null pronoun. Condition 2 consists of 10 items, and two contexts are tested, both calling for a null pronoun: 5 items for referent-continuity and 5 items for referent-shift (with one antecedent). The independent variable is context of production of 3<sup>rd</sup> person, giving rise to two test conditions: the 3<sup>rd</sup> person (singular or plural), referent-continuity context and the 3<sup>rd</sup> person (masculine or feminine), referent-shift context (with one antecedent). In referent-continuity contexts, the 3<sup>rd</sup> person null subject is examined in coordinate or subordinate clauses. In referent-shift contexts (with one antecedent), the 3<sup>rd</sup> person null subject is examined in subordinate clauses. Still, a null subject is felicitous in all the contexts examined, regardless of the type of clause. Under the IH-2, since the selection of a null pronoun is dictated by the pragmatic context, L2ers are expected to fail in their selection; likewise, for Lozano's (2016) PPVH, L2ers will fail because of their preference for overt pronouns.

To illustrate, in examples (12a) and (12b) for Spanish, the inflection of the verbs *hacer* ('do') and *precisar* ('need') shows the third person singular, and it allows null subjects that maintain the antecedent *Rosa* in the coordinate clause or recover the more distant referent *Ángela* in the subordinate clause, respectively (whether coordinated or subordinate, the same kind of subject is licensed). In line with this, the expression of the pronominal subject *ella* ('she') would be redundant in the contexts examined.<sup>5</sup>

- (12) a. Primero, **Rosa** prepara la comida y luego \_\_\_\_ **hace**  
 first, Rosa prepare.3SG.PRS the meal and then \_\_\_\_ do.3SG.PRS  
 los deberes del colegio.  
 the homework of.the school  
 'First, Rosa prepares the meal and then she does her homework.'
- (a)  $\emptyset$  null subject (b) ella 'she'

<sup>5</sup> One might argue that (12a) makes an overt subject truly unacceptable, while in (12b) there is another potential antecedent (*los editores*) which might render the overt subject option marginally acceptable. The results in Section 3.5 seem to support this distinction.

- b. **Ángela** quiere publicar un libro y los editores  
 Angela want.3SG.PRS publish.INF a book and the editors  
 explican que \_\_\_ **precisa** completar un manuscrito  
 explain.3PL.PRS that \_\_\_ need.3SG.PRS complete.INF a manuscript  
 de su obra.  
 of her work  
 ‘Angela wants to publish a book and the editors tell (her) that she has to  
 complete a manuscript of her work.’
- (a)  $\emptyset$  (b) ella  
 null subject ‘she’

In examples (13a) and (13b) from Greek, also, the inflection of the verbs *djavazo* (‘read’) and *parusiazó* (‘present’) specifies the third person singular, and allows the omission of subjects that either maintain the adjacent referent *Martha* in the coordinate clause or recover the distant antecedent *Ageliki* in the subordinate clause. On the other hand, the overt pronoun *afti* (‘she’) is redundant in (13a), and can only receive deictic/demonstrative interpretation in (13b).

- (13) a. **Prota i Martha** etimazi to fajito ke meta  
 first the.NOM Martha prepare.3SG.PRS the.ACC food and then  
 \_\_\_ **djavazi** ja to metaptixiako.  
 \_\_\_ read.3SG.PRS for the master  
 ‘First, Martha prepares the food and then she studies for her Master’s degree.’
- (a)  $\emptyset$  (b) afti  
 null subject ‘she’
- b. **I Ageliki** theli na dimosiefsi ena vivlio,  
 the.NOM Ageliki want.3SG.PRS na.SBJ.PRT publish.3SG.FIN a.ACC book,  
 j’afto ke i ekdotes anaferun oti \_\_\_ **tha**  
 for.this and the.NOM editors mention.3PL.PRS that \_\_\_ will  
**parusiasi** prota ena xirografo tis meletis tis.  
 present.3SG.FUT first a.ACC manuscript the.GEN study hers  
 ‘Ageliki wants to publish a book, so the editors mention that she will first have  
 to present a manuscript of her study.’
- (a)  $\emptyset$  (b) afti  
 null subject ‘she’

Condition 3 consists of 10 items that require the expression of subjects in order to recover one of two antecedent referents in topic-shift contexts (or contrastive-focus contexts). The 3<sup>rd</sup> person overt pronoun (masculine or feminine) is used in a subordinate clause, recovering an antecedent referent presented in the introductory clause. In this case, verbal inflection is not sufficient to identify the 3<sup>rd</sup> person of a more distant referent. As in the two previous conditions, the IH-2 predicts that L2ers will fail to select the felicitous option, due to the involvement of the syntax-pragmatics interface in selecting an overt pronoun. Differently from previous conditions, under Lozano’s PPVH, L2ers are predicted to perform better, possibly in a native-like manner, because errors giving rise to ambiguity are unexpected, and a null pronoun in the contexts tested in Condition 3 would precisely give rise to ambiguity.

To illustrate, in examples (14) from Spanish and (15) from Greek the expression of the pronouns *ella* (‘she’) and *afti* (‘she’) in the subordinate clauses is required to avoid the

ambiguity between the two referents *María/Jorge* and *Meri/Jorgos*, respectively. Having a coordinated subject strongly favours the use of an overt disambiguating subject.

- (14) Pese a que **María** y Jorge fueron a la universidad, el profesor  
 although that Maria and Jorge go.3PL.PST to the university, the lecturer  
 se enteró de que \_\_\_ no **asistió** a la clase de  
 REFL realise.3SG.PST of that \_\_\_ not attend.3SG.PST to the class of  
 filosofía.  
 philosophy

‘Although Maria and Jorge went to the university, the lecturer realised that she did not attend the philosophy class.’

- (a) **ella** (b)  $\emptyset$   
 ‘she’ null subject

- (15) An ke i **Meri** ke o Jorgos pigan sti sxoli,  
 even though the.NOM Meri and the.NOM Jorgos go.3PL.PST to.the faculty,  
 o ipefthinos kathijitis emathe oti \_\_\_ den **parakoluthise**  
 the.NOM responsible lecturer learn.3SG.PST that \_\_\_ not attend.3SG.PST  
 to mathima tis filosofias.  
 the.ACC class the.GEN philosophy

‘Even though Meri and Jorgos went to the faculty, the lecturer found out that she did not attend the philosophy class.’

- (a) **afti** (b)  $\emptyset$   
 ‘she’ null subject

### 3.2 Subjects

Three groups of native and non-native speakers took part in each task. In the first task the intermediate and advanced groups consisted of Greek L1-Spanish L2 learners and a control group of Spanish natives. At the time of the experiment the intermediate and advanced learners were attending a Spanish language course for four hours a week at Athens’ University Institute of Foreign Languages. Both experimental groups had taken the official examination towards a Diploma in Spanish as Foreign Language (*DELE*). The intermediate learners had achieved an average score of 83% in the B1 Exam, while the advanced learners had achieved an average score of 88% in the C1 Exam of the Common European Framework of Reference for Foreign Languages. The native speakers of Spanish were living in Madrid and were students at the Universidad Autónoma de Madrid. Table 1 presents information on the native and non-native speakers of Spanish.

**Table 1:** Subjects in L2 Spanish.

Groups	Intermediate	Advanced	Control
First language	Greek	Greek	Spanish
Number	30 (10 males, 20 females)	30 (5 males, 25 females)	30 (6 males, 24 females)
Age range (Standard Deviation)	21–58 (SD: 11.81)	24–56 (SD: 9.77)	21–30 (SD: 1.98)
Studies in L2 Spanish	3 <sup>rd</sup> L2 course	5 <sup>th</sup> L2 course	—
Studies’ duration	3 years	5 years	—
Proficiency level	B1	C1	natives
Average (range) in <i>DELE</i>	83% (70%–100%)	88% (70%–100%)	—

In the second task, the intermediate and advanced groups consisted of Spanish L1-Greek L2 learners and a control group of Greek natives. The L2 learners were taking classes in Greek for four hours a week at the School of Greek Language in Madrid. The two groups had taken the official examination for the Certificate of Attainment in Greek Language (CAGL); the intermediate learners had an average score of 81% in the B1 Exam, while the advanced learners had an average score of 86% in the C1 Exam. The native speakers of Greek were university students living in Patras. Table 2 provides details on native and non-native groups of Greek.

**Table 2:** Subjects in L2 Greek.

Groups	Intermediate	Advanced	Control
First language	Spanish	Spanish	Greek
Number	30 (16 males, 14 females)	30 (9 males, 21 females)	30 (2 males, 28 females)
Age range	20–66 (SD: 15.92)	23–69 (SD: 13.28)	22–27 (SD: 1.15)
Studies in L2 Greek	3 <sup>rd</sup> L2 course	5 <sup>th</sup> L2 course	—
Studies' duration	3 years	5 years	—
Proficiency level	B1	C1	natives
Average (range) in CAGL	81% (70%–100%)	86% (70%–100%)	—

### 3.3 Procedure

The experiment in Spanish was administered in written form to the L2 learners at Athens' University Institute of Foreign Languages, and to the natives at the Universidad Autónoma de Madrid. The experiment in Greek was administered in written form to the L2 learners at the School of Greek Language in Madrid and to the natives at the University of Patras. All participants were instructed to complete the respective multiple-choice task by selecting one of two options (a null or an overt pronominal subject, other options in the case of distractors) provided in the answer sheet. Participants were given an example with the felicitous option to ensure full comprehension of the task. L2 learners were also given clarifications in their L1 (Greek or Spanish) to make sure they understood the instructions fully. The time limit to complete the task was 30 minutes.

### 3.4 Coding of the results and statistical analysis

The responses were coded for subject type (overt, null) and for appropriateness in the context given. All felicitous and unfelicitous subjects were averaged for each group in order to make comparisons between the groups. The values of subjects were also averaged for each participant and coded in SPSS to perform non-parametric statistics, the Mann-Whitney and the Wilcoxon tests. Non-parametric statistics were chosen because of the type of data: non-parametric tests are appropriate for categorical, ordinal or rank data (see Warren 2018). The size of the sample also played a role in the preference for non-parametric tests. These tests are designed for small-size samples ( $n \leq 30$ ) (see Corder & Foreman 2009). The analyzed samples are random and independent samples that have free distribution or behave heterogeneously (see also Hollander et al. 2014). In our analysis, the Mann-Whitney test measured the significant differences between independent paired groups of L2 learners and native speakers (intermediate-advanced, intermediate-control and advanced-control). The aim of this test was to determine the effect of the independent factor of *Group* on the dependent factor of *Subject* distribution (i.e. null/overt subjects) in the conditions examined. The effect of *Language* on the performance of native and non-native groups was also measured. The interaction of *Person* and *Group*, or *Context*

and *Group* on the selection of *Subjects* was measured by means of the Wilcoxon test for the three groups of each task.

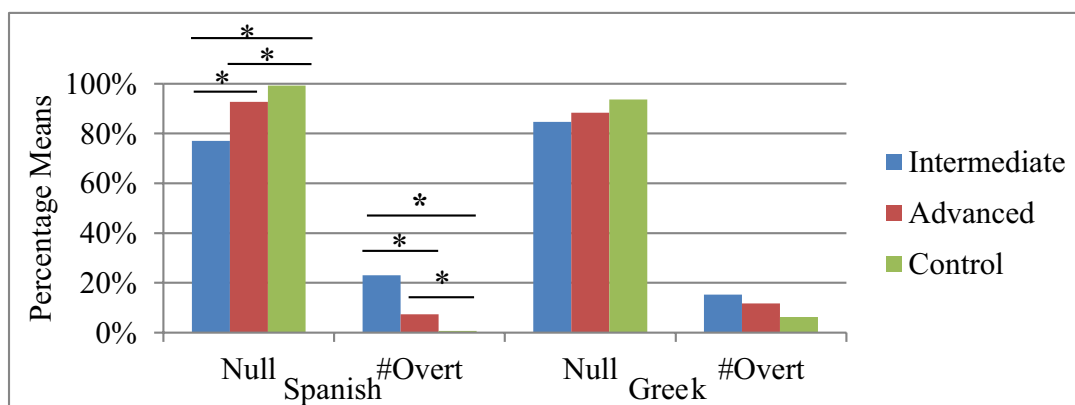
### 3.5 Results

Each multiple-choice task yielded a total of 2,700 responses (900 responses from each group). In the first condition of non-contrastive referential contexts, the non-native groups, like native speakers, showed a high preference for the omission of 1<sup>st</sup>/2<sup>nd</sup> person subjects in both Spanish and Greek. However, in the task for L2 Spanish the intermediate group selected null subjects less often than the other groups, showing higher divergence from native-like patterns. Even the advanced learners of Spanish did not reach the rates of native speakers. On the other hand, in the task for L2 Greek both experimental groups followed the behaviour of the control group, irrespective of their competence level. The frequency and percentage rates and the Standard Deviation of the groups are shown in Table 3 for both languages.

**Table 3:** Null subjects of 1<sup>st</sup>/2<sup>nd</sup> person in non-contrastive referential contexts.

	Spanish		Greek	
	Frequency	Percent	Frequency	Percent
Intermediate	231/300	77% (SD: 13.55)	254/300	84.67% (SD: 8.34)
Advanced	278/300	92.67% (SD: 8.86)	265/300	88.33% (SD: 5.71)
Control	298/300	99.33% (SD: 2.10)	281/300	93.67% (SD: 7.77)

The results are graphically represented in Figure 1. According to the statistical analysis, in the Mann-Whitney test for the Spanish data, the differences between the intermediate and advanced groups ( $U = 257.000$ ,  $p = .009$ ), the intermediate and control groups ( $U = 107.000$ ,  $p < .003$ ) and the advanced and control groups ( $U = 263.000$ ,  $p < .003$ ) were significant with Bonferroni correction. Thus, the effect for *Group* was significant in all cases. On the other hand, in the Greek data, the differences between the intermediate and advanced groups, the advanced and control groups, and the intermediate and control groups were not found to be statistically significant. The differences between Spanish and Greek native speakers were significant ( $U = 295.000$ ,  $p = .002$ ) in the Mann-Whitney test, while the differences between the L2 groups of Spanish and Greek were not.



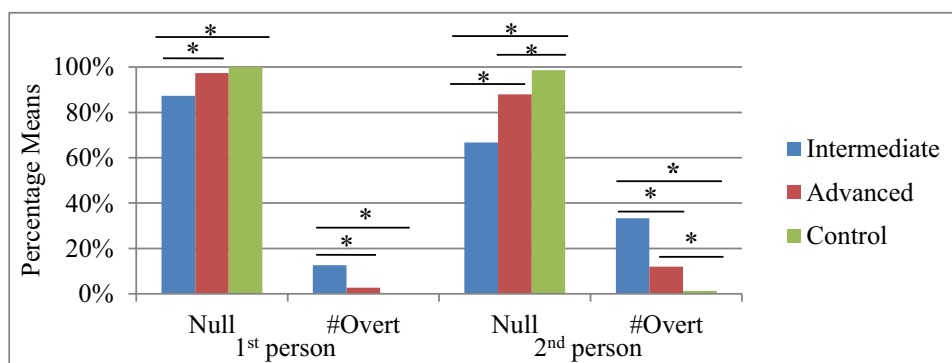
**Figure 1:** Subjects of 1<sup>st</sup>/2<sup>nd</sup> person in non-contrastive referential contexts.

Turning to the results by *Person*, all experimental and control groups preferred null subjects more often than overt subjects with both 1<sup>st</sup> and 2<sup>nd</sup> person. However, the non-native groups selected null subjects of 1<sup>st</sup> more often than 2<sup>nd</sup> person. The advanced groups of both languages showed more native-like patterns, despite some differences between the advanced learners of Spanish and native speakers. Even the control groups did not present indistinguishable patterns in the two languages, as Spanish natives allowed a higher rate of null subjects with both 1<sup>st</sup>/2<sup>nd</sup> person than Greek natives, who selected a few more overt subjects of 2<sup>nd</sup> person. Results for native and non-native groups are shown in Table 4.

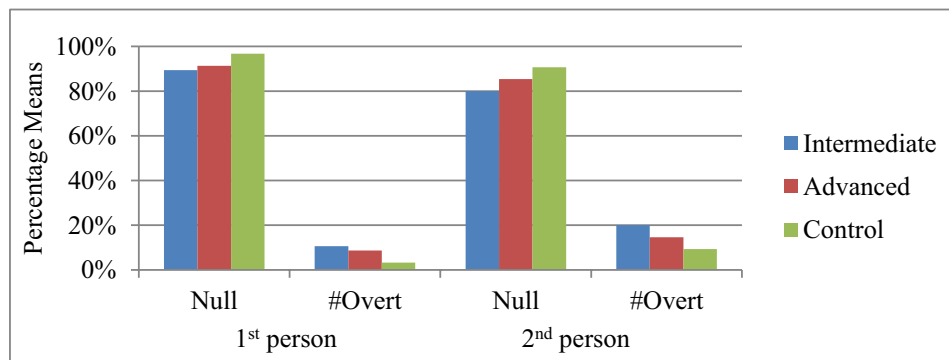
**Table 4:** Null subjects in non-contrastive referential contexts.

	Spanish				Greek			
	1 <sup>st</sup> person		2 <sup>nd</sup> person		1 <sup>st</sup> person		2 <sup>nd</sup> person	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
Intermediate	131/150	87.33% (SD: 8.62)	100/150	66.67% (SD: 8.49)	134/150	89.33% (SD: 4.34)	120/150	80% (SD: 9.12)
Advanced	146/150	97.33% (SD: 4.34)	132/150	88% (SD: 10.16)	137/150	91.33% (SD: 3.80)	128/150	85.33% (SD: 6.05)
Control	150/150	100%	148/150	98.67% (SD: 2.98)	145/150	96.67% (SD: 4.08)	136/150	90.67% (SD: 9.83)

In the Mann-Whitney test for the results on Spanish, the differences between the intermediate and advanced groups ( $U = 313.000, p = .024$ ) and the intermediate and control groups ( $U = 270.000, p < .003$ ) were significant with Bonferroni correction for 1<sup>st</sup> person subjects, but they were not for the advanced and control groups. In the case of 2<sup>nd</sup> person, the differences between all paired groups (intermediate-advanced:  $U = 255.500, p = .006$ ; intermediate-control:  $U = 122.000, p < .003$ ; advanced-control:  $U = 280.000, p = .003$ ) were significant. The Wilcoxon test also indicated that there was an interaction of *Person* and *Group* for the intermediate ( $Z = -4.103, p < .001$ ) and advanced learners ( $Z = -2.491, p = .013$ ), but not for the control speakers. On the other hand, for Greek, the Mann-Whitney test with Bonferroni correction showed that the differences between all paired groups were not significant for 1<sup>st</sup> and 2<sup>nd</sup> person subjects. The Wilcoxon test indicated that there was an interaction of *Person* and *Group* for the intermediate ( $Z = -2.257, p = .024$ ) and control speakers ( $Z = -2.070, p = .038$ ) and close to the limit rate ( $Z = -1.913, p = .056$ ) for the advanced learners. The Mann-Whitney test also showed that the differences between Spanish and Greek native speakers were significant for both 1<sup>st</sup> ( $U = 390.000, p = .040$ ) and 2<sup>nd</sup> person ( $U = 326.000, p = .009$ ). Thus, *Language* had an effect on the performance of natives. The results for the two languages are graphically represented in Figures 2 and 3.



**Figure 2:** Subjects in non-contrastive referential contexts in Spanish.



**Figure 3:** Subjects in non-contrastive referential contexts in Greek.

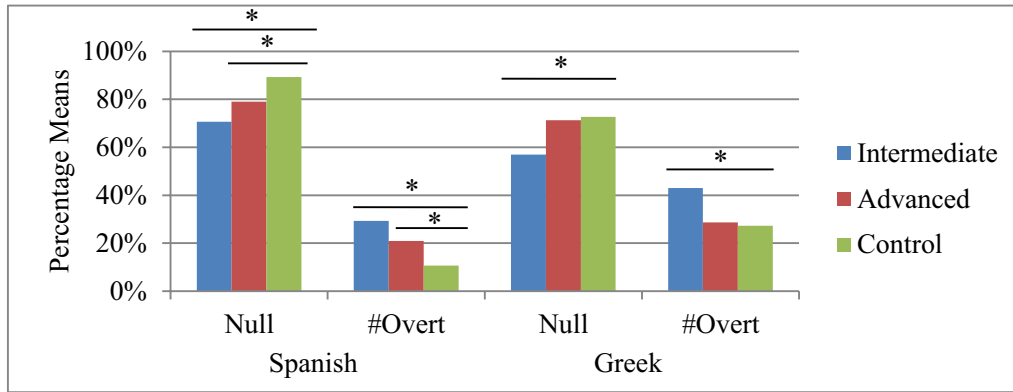
In unambiguous referent-continuity and -shift contexts of 3<sup>rd</sup> person (with one antecedent) (Condition 2), the non-native groups of both L2s also accepted null subjects, like native speakers. However, the intermediate groups did not reach the rates of the natives, showing a more pronounced tendency to the expression of overt subjects. On the other hand, the advanced group of L2 Greek showed native patterns. Native speakers also presented distinguishable patterns, as Spanish natives selected more null subjects than Greek natives, who accepted the expression of 3<sup>rd</sup> person pronominal subjects more often. See Table 5 for the overall rates of all groups in both referent-continuity and -shift contexts (with one antecedent) in both languages.

**Table 5:** Null subjects of 3<sup>rd</sup> person in unambiguous contexts (referent-continuity and -shift contexts).

	Spanish		Greek	
	Frequency	Percent	Frequency	Percent
Intermediate	212/300	70.67% (SD: 19.03)	171/300	57% (SD: 23.95)
Advanced	237/300	79% (SD: 24.24)	214/300	71.33% (SD: 24.30)
Control	268/300	89.33% (SD: 14.29)	218/300	72.67% (SD: 19.23)

In the Mann-Whitney test for the data in L2 Spanish (see Figure 4), the differences between the intermediate and control groups ( $U = 186.000$ ,  $p < .003$ ) and the advanced and control groups ( $U = 232.500$ ,  $p = .003$ ) were statistically significant, while the differences between the intermediate and advanced groups were non-significant with Bonferroni correction. Thus, the effect for *Group* was significant for the intermediate-control and advanced-control groups. As for the data in L2 Greek (again see Figure 4), the statistical differences were close to significance for the intermediate and control groups ( $U = 293.500$ ,  $p = .057$ ), while they were not for the advanced and control groups and the intermediate and advanced groups with Bonferroni correction. Thus, the effect for *Group* was marginally significant for the intermediate-control comparison, but not for the rest of the comparisons. Regarding the *Language* effect, the differences between the Spanish and Greek native speakers were significant ( $U = 267.000$ ,  $p = .005$ ) in the Mann-Whitney test.

The interaction of *Context* and *Group* was also examined in the case of unambiguous referents of 3<sup>rd</sup> person. Although the null subject option is overall the one preferred by native speakers in this condition, all non-native groups preferred 3<sup>rd</sup> person null subjects more often in referent-continuity than in shift contexts (with one antecedent). As for referent-shift contexts, all non-native groups presented variation between null and overt subjects,



**Figure 4:** Subjects of 3<sup>rd</sup> person in unambiguous referent-continuity and -shift contexts.

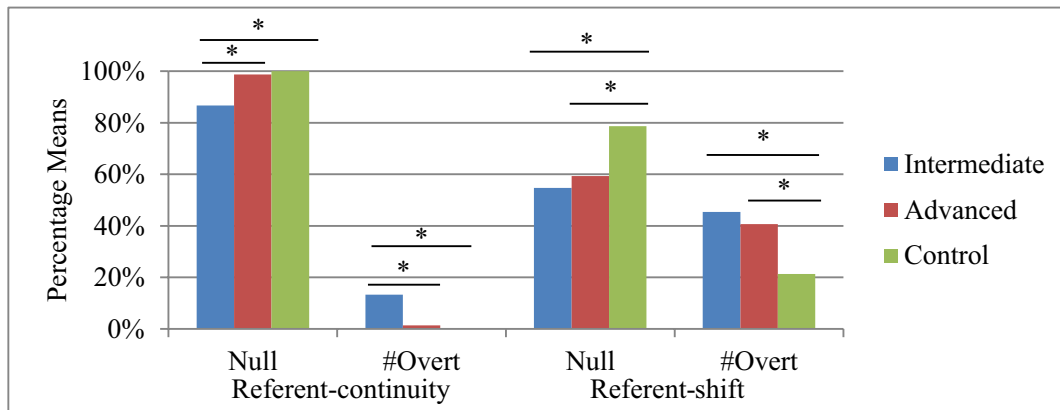
though the intermediate group of Greek selected overt subjects more often than the other groups. The two experimental groups of Spanish performed unlike the native speakers, while the advanced group of Greek performed like the control group. In any case, the two native groups did not exclude overt subjects in the sentences examined, but the Greek native group preferred a higher rate of 3<sup>rd</sup> person overt subjects in shift contexts. The frequency and percentage rates of all groups in each context are shown in Table 6.

**Table 6:** Null subjects of 3<sup>rd</sup> person in unambiguous referential contexts (with one antecedent).

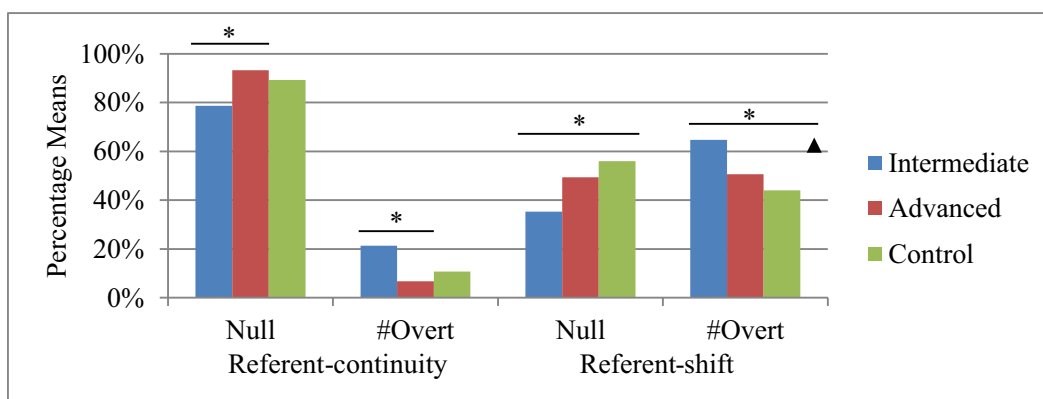
	Spanish				Greek			
	Referent-continuity		Referent-shift		Referent-continuity		Referent-shift	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
Intermediate	130/150	86.67% (SD: 5.77)	82/150	54.67% (SD: 11.92)	118/150	78.67% (SD: 9.88)	53/150	35.33% (SD: 4.47)
Advanced	148/150	98.67% (SD: 1.82)	89/150	59.33% (SD: 18.76)	140/150	93.33% (SD: 3.33)	74/150	49.33% (SD: 10.38)
Control	150/150	100%	118/150	78.67% (SD: 13.24)	134/150	89.33% (SD: 5.96)	84/150	56% (SD: 10.10)

In the Mann-Whitney test (with Bonferroni correction) for Spanish (see Figure 5), the differences between the intermediate and advanced groups ( $U = 280.000$ ,  $p = .003$ ) and the intermediate and control groups ( $U = 255.000$ ,  $p < .003$ ) were statistically significant for referent-continuity contexts, but they were not for the advanced and control groups. In the case of referent-shift contexts (with one antecedent), the intermediate and control groups ( $U = 223.000$ ,  $p = .003$ ) and the advanced and control groups ( $U = 234.500$ ,  $p = .003$ ) presented significant differences, while the intermediate and advanced groups did not. As for Greek (see Figure 6), the differences between intermediate and advanced groups were significant ( $U = 314.500$ ,  $p = .036$ ) in referent-continuity contexts, but they were not for the rest of paired comparisons. In referent-shift contexts, the intermediate and control groups showed significant differences ( $U = 289.000$ ,  $p = .045$ ), while the other paired groups did not. The Wilcoxon test indicated that there was an interaction between *Context* and *Group* for both the intermediate groups ( $Z = -3.763$ ,  $p < .001$  in Spanish and  $Z = -3.796$ ,  $p < .001$  in Greek), the advanced groups ( $Z = -4.587$ ,  $p < .001$  in Spanish and  $Z = -3.341$ ,  $p = .001$  in Greek) and the control groups ( $Z = -3.896$ ,  $p < .001$  in Spanish and  $Z = -4.055$ ,  $p < .001$  in Greek). Regarding the *Language* effect, the Mann-Whitney test showed that the differences between Spanish and Greek native speakers were significant for both referent-continuity ( $U = 330.000$ ,  $p = .003$ ) and -shift contexts ( $U = 283.000$ ,  $p = .011$ ).





**Figure 5:** Subjects of 3<sup>rd</sup> person in unambiguous referential contexts in Spanish (with one antecedent).



**Figure 6:** Subjects of 3<sup>rd</sup> person in unambiguous referential contexts in Greek (with one antecedent).

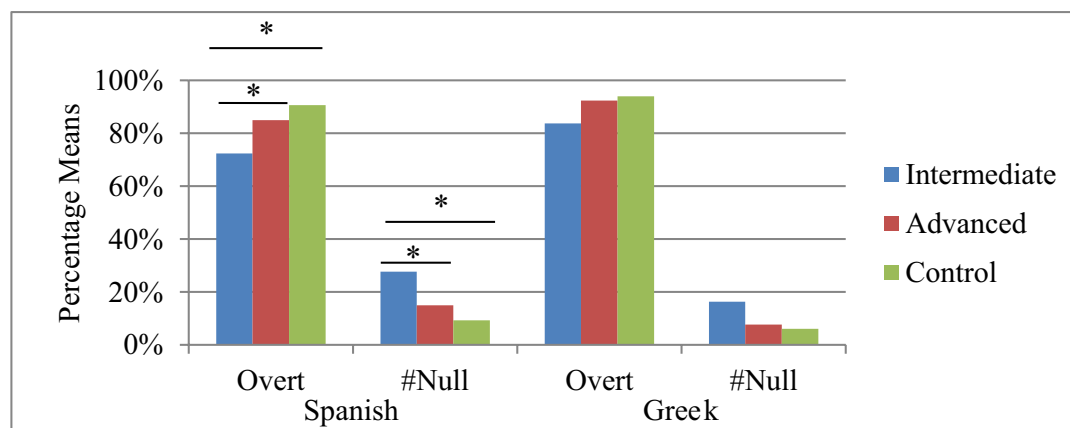
In the results of Condition 3, of contrastive referent-shift contexts, on the other hand, all non-native groups selected a high rate of 3<sup>rd</sup> person overt subjects, like the control groups, recovering the more distant of two antecedent referents. However, the intermediate group of Spanish learners preferred overt pronouns less often than the advanced and control groups, while both experimental groups of Greek performed like the control group, though the intermediate group selected a few more null subjects. See Table 7 for the scores and the SD in contrastive referent-shift contexts (with two antecedents) in both L2s.

**Table 7:** Overt subjects of 3<sup>rd</sup> person in contrastive referent-shift contexts (with two antecedents).

	Spanish		Greek	
	Frequency	Percent	Frequency	Percent
Intermediate	217/300	72.33% (SD: 12.86)	251/300	83.67% (SD: 6.17)
Advanced	255/300	85% (SD 17.51)	277/300	92.33% (SD: 4.45)
Control	272/300	90.67% (SD: 13.12)	282/300	94% (SD: 3.44)

The Mann-Whitney test (with Bonferroni correction) for the data in L2 Spanish (see Figure 7) showed significant differences between the intermediate and control groups ( $U = 200.500, p < .003$ ) and the intermediate and advanced groups ( $U = 276.500, p = .027$ ), but no significant difference between the advanced and control groups.

Therefore, the effect for *Group* was significant for the intermediate-control groups and not for the advanced-control groups. Regarding the data for L2 Greek (in Figure 7), though, none of the differences between the intermediate and advanced groups, the intermediate and control groups and the advanced and control groups reached significance in the Mann-Whitney test. Thus, the effect for *Group* was non-significant for the comparisons examined. As for the *Language* effect, the Spanish and Greek native speakers did not present significant differences in their responses.



**Figure 7:** Subjects of 3<sup>rd</sup> person in contrastive referent-shift contexts (with two antecedents).

#### 4 Discussion and conclusions

One unexpected result of the experiments reported has to do with the performance of native Greek and Spanish speakers. Despite the shared null subject value, Spanish and Greek native speakers differed with respect to null/overt subject selection in all contexts except with 3<sup>rd</sup> person subjects in contrastive referent shift contexts. Native preferences showed that Greek allowed a higher rate of overt subjects than Spanish, an unexpected result not previously noted or quantified in the literature (see, for example, Philippaki-Warbuton 1987; 1989; Spyropoulos & Philippaki-Warbuton 2001; Giannakou 2018). The proper characterisation of this phenomenon remains for future research.

The experimental groups showed a tendency to select felicitous null/overt subjects in accordance with the context. However, the L1-L2 combination and competence level played a role in the performance of L2 learners. In L1 Greek-L2 Spanish, the intermediate group presented native-deviant patterns in all referential contexts, while the advanced group attained target preferences in 1<sup>st</sup> person non-contrastive, referent-continuity and contrastive contexts. Our results of L2 Spanish were consistent with Georgopoulos' (2017) and Lozano's (2018) findings with respect to the better performance of the advanced groups in comparison with the intermediate group, though the upper-advanced group of Georgopoulos performed native-like in all contexts examined.

On the other hand, in L1 Spanish-L2 Greek both experimental groups showed target distribution of subjects in referential contexts, although the intermediate group did not achieve native-like performance in unambiguous shift contexts. Our results are in line with those of Giannakou (2018) for target behaviour of advanced and near-native learners in topic-shift contexts. Still, in Giannakou's (2018) study, the advanced and near-natives overused overt subjects in topic-continuity contexts, contrary to advanced learners' native-like patterns in all the contexts examined in this study.

It is worth pointing out that the asymmetry in the behaviour of the learners of Greek and the learners of Spanish in our study cannot be attributed to a difference in proficiency level between the two groups: first, this is not supported by the details of language competence (Tables 1 and 2); second, even the intermediate learners of Greek outperform the advanced learners of Spanish in some conditions, therefore the language effect is robust. This asymmetry is one of the contributions of our study, and it is unexpected under any of the hypotheses we have considered.

The results are summarised in Table 8 (where target-deviant is understood as granting a statistically significant difference in performance with respect to the natives).

**Table 8:** Summary of results.

	Target deviant in L2 Spanish		Target deviant in L2 Greek	
	Intermediate	Advanced	Intermediate	Advanced
<b>Overall non-contrastive contexts (Condition 1)</b>	+	+	-	-
Non-contrastive 1 <sup>st</sup> person	+	-	-	-
Non-contrastive 2 <sup>nd</sup> person	+	+	-	-
<b>Overall unambiguous contexts (Condition 2)</b>	+	+	-	-
Referent-continuity	+	-	-	-
Referent-shift	+	+	+	-
<b>Contrastive referent-shift contexts (Condition 3)</b>	+	-	-	-

If we consider our results *vis à vis* the predictions of the various versions of the IH considered, we observe that, in L2 Spanish, the intermediate learners showed pervasive difficulties in alternating null/overt subjects, in consonance with the predictions of the IH (under the assumption that this hypothesis can characterise intermediate stages). But the performance of advanced learners was against the IH in three of the five (sub) conditions examined. These results would argue against the IH-2 characterising the advanced learners' performance, while it would be consistent with Rothman's (2009) view that a stage of difficulty with the syntax-pragmatics interface can be overcome. In L2 Greek the learners did not confront difficulties in most pragmatic contexts, so that the IH-2 was not confirmed, except for intermediate levels in referent-shift contexts (with one antecedent). So, in L2 Greek not even intermediate learners show the effect of the interface syntax-pragmatics. If the view is taken that the IH-2 characterises only the advanced stages of language learning (Sorace 2011), then the IH-2 does not predict the performance of the learners of Greek, and only partially the performance of the learners of Spanish. The asymmetry in the results of Greek and Spanish is unexpected under any version of the IH.

Turning to the predictions of Lozano's (2016) PPVH, conditions targeting null subjects (Conditions 1 and 2) are predicted to yield worse results than conditions targeting an overt subject (Condition 3). L2 Greek does not fulfil this prediction, as L2 learners are native-like; on the other hand, the results for L2 Spanish are significantly different for advanced learners from those of natives in Conditions 1 and 2, but not in Condition 3, as predicted by the PPVH. For intermediates, Lozano's predictions are incorrect, since this group fails across the board. So, Lozano's predictions for a selective delay in L2 are more accurate for the advanced than those of the IH-2, although they still do not predict the

performance of L2ers, whose behaviour is native-like in several of the contexts in which the PPVH would make us expect non-native performance.

Overall, the learners of both L2s performed better than predicted by the IH-2 (against Sorace 2011), and the involvement of the pragmatic interface was not the source of non-target behaviour in any systematic way. Not even at the intermediate level were the learners challenged in the way predicted by the IH, especially in L2 Greek, *contra* Rothman's (2009) version of the IH. The stricter version of the IH by Lozano's (2016) PPVH also failed to identify the contexts in which L2ers would fail. (These conclusions are based on the assumption that the involvement of the pragmatic interface predicts non-target performance under the IH: the possibility that the pragmatic interface *may* or *may not* give rise to non-target performance would render the predictive power of the hypothesis null and void.) This casts doubt on the widespread assumption that the syntax-pragmatics interface is at the source of problems for L2 acquisition. As pointed above, there have been detractors of the IH on theoretical grounds; here we have explored the empirical predictions of the IH (and two of its variants) against the acquisition of two null-subject languages, Greek and Spanish with a wider array of pragmatic contexts than in the existing literature. The predictions for L2 Greek and L2 Spanish were not fulfilled.

The L2 learners did not confront difficulties in any systematic way when the syntax-pragmatic interface was involved in the derivation of a sentence. While Lozano's PPVH version of the IH-2 fared better than the IH-2 itself for the advanced L2 Spanish, the results of L2 Greek do not fulfil its predictions either. Moreover, L2 learners often achieved a native-like stage. Briefly, the syntax-pragmatics interface did not determine the path of L2 acquisition. What can account for the pattern found in our results is an open question, that we did not aim to address, since our experiment was designed to test the IH. Nevertheless, we observe that, in our results, *Language* played a role, as learners performed better in L2 Greek than in L2 Spanish. In particular, the intermediate group of Spanish presented target-deviant patterns more often than the respective group of Greek. Similarly, the advanced group of Spanish did not always avoid unfelicitous subjects, while the respective group of Greek showed native-like performance. Therefore, these results suggest an effect of the L1-L2 different typology. In particular, L2 Greek is more native-like than L2 Spanish, and generally the discrepancies found between L2 learners of Spanish and natives are due to overacceptance of overt subjects on the part of the learners; as attested in our results, native speakers of Greek are also more willing to accept overt subjects than Spanish natives (in non-contrastive and unambiguous contexts). To the extent that Greek defines a superset with respect to Spanish, Spanish learners of Greek are less likely to accept a construction that is unacceptable in Greek, while the reverse is quite possible: on the basis of transfer, Greek learners of Spanish are more likely to overaccept overt subjects which are acceptable in Greek but unacceptable in Spanish.

## Abbreviations

ACC = accusative, CONT = continuous, DOM = differential object marking, FIN = finite, FUT = future, GEN = genitive, IH = Interface Hypothesis, INF = infinitive, NOM = nominative, NP = Nominal Phrase, PL = plural, PPVH = Pragmatic Principles Violation Hypothesis, pro = null pronouns, PRS = present, PST = past, REFL = reflexive, SBJ.PRT = subjunctive particle, SG = singular

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## Competing Interests

The authors have no competing interests to declare.

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