Glossa a journal of general linguistics

Giannakou, Aretousa and Ioanna Sitaridou. 2020. Microparametric variation in the syntax of Spanish and Greek pronominal subjects. *Glossa: a journal of general linguistics* 5(1): 75. 1–42. DOI: https://doi.org/10.5334/gjgl.960

RESEARCH

Microparametric variation in the syntax of Spanish and Greek pronominal subjects

Aretousa Giannakou[1] and Ioanna Sitaridou[2]

[1] University of Nicosia, Department of Languages and Literature, Nicosia, CY

[2] University of Cambridge, Queens' College, Cambridge, UK

Corresponding author: Aretousa Giannakou (giannakou.a@unic.ac.cy)

The present research aims to investigate the interface phenomenon of third-person subject distribution in two prototypical null subject (NS) languages, Greek and Spanish focusing on Chilean Spanish, in adult monolingual speakers. The data were obtained from oral production of narratives (Study 1) and anaphora resolution (AR) (Study 2). All elicited data were submitted to statistical analyses while the production data were as well qualitatively scrutinised. Greek and Spanish were directly compared in order to discover differences between them, which were expected to emerge in the scope of the overt subject pronoun (OSP). The two languages were largely similar, sharing analogous clause structures and displaying generally similar properties on the distribution of subject forms, i.e. NS, OSP, as well as lexical subjects (LS) in oral production. The findings, confirming the predictions, showed crosslinguistic differences in the scope of OSP in topic shift (TS) between the languages due to deictic distinctions, with Greek OSP carrying deictic properties, which are less pronounced in its Spanish counterpart. This evidences the fact that NS languages may not be identical regarding subject distribution. Another key aspect, which emerged in the oral production data in both Greek and Spanish, was the felicitous use of NS in TS contexts. NS were also found to be flexible or ambiguous in AR in both languages, thereby displaying a more variable distribution than sometimes assumed.

Keywords: null subjects; Greek; Spanish; microparametric variation

1 Introduction

At least since the 80s there has been intense discussion on the possible correlations between the positive setting of the Null Subject Parameter and other apparently related properties, the most prominent of which is the availability of rich verbal morphology in null subject (NS) languages. More recently, this relation has become the core property associated with NS phenomenology (cf. Taraldsen, 1978; Borer 1986; Rizzi 1986; Barbosa 1995; Alexiadou & Anagnostopoulou 1998; Roberts & Roussou 2002, a.o). In fact, the connection between agreement and identification of NS has been implicit in all studies of these phenomena and has led to more refined typologies acknowledging partial NS languages (see Holmberg 2005; Holmberg et al. 2009; Barbosa 2013; Sitaridou 2004; Sifaki & Sitaridou 2007; 2009). While different theories assign a different role to this relation, all of them agree that it is the special status of the inflectional system of a language and its agreement markers that allows NS, an intuitively appealing approach that is echoing traditional grammarian accounts. Conceptually, this is most notably captured by Jaeggli & Safir's (1989) Morphological Uniformity Condition (MUC).

(1) Morphological Uniformity Condition (Jaeggli & Safir 1989: 30)
An Inflectional paradigm P in a language L is morphologically uniform
iff P has either only underived inflectional forms or only derived inflectional forms

However, it is also well-known that the MUC does not fully capture the empirical complexity: Although it can accurately predict the presence of NS in Japanese and Greek, it fails to capture the case of partial pro-drop languages. Similarly, it fails to capture the differences between typologically similar languages, namely prototypical NS languages such as Greek and Chilean Spanish. On the latter issue, the common belief still is that all prototypical NS languages are identical.

Although NS languages can be analogous on the general universal principles that govern NS vs overt subject pronoun (OSP) distribution, they are not identical as regards the particular scope of these pronouns (Carminati 2002; Sifaki & Sitaridou 2007; Prada Pérez 2009; 2018; Sorace et al. 2009; Filiaci 2010; 2011; Sorace 2011; 2012; Iverson 2012; Filiaci et al. 2013; Pinto 2014; Bel & García-Alcaraz 2015; Judy 2015; Tammer 2016, a.o.). Even in typologically similar NS languages, it is argued that typological relatedness seems to be overestimated (Pinto 2014). A representative case of closely-related Romance language pairings with well-attested differences in subject pronoun distribution is the case of European and Brazilian Portuguese (e.g. Mayol 2012; Tammer 2016). Even between different varieties of Spanish, there are dissimilarities in pronominal subject distribution, with typical case the difference between Caribbean and non-Caribbean varieties (Lipski 1994; 2012; Montrul 2004b; Ordóñez & Olarrea 2006; Mayol 2012). Crucially, in all these studies, for the language pairs under comparison, at least one language has/is become/ing partial pro-drop. As such, the comparisons are between typologically similar languages, one of which however is on the verge of losing NS, and, in this respect, very different from our study (but see Prada Pérez 2009; 2010; 2018 for Peninsular Spanish and Catalan).

The present research, based on oral production (Study 1) and anaphora resolution (AR) (Study 2), investigates third-person subject distribution in two prototypical NS languages, Greek and Chilean Spanish, in adult monolingual speakers with a view at understanding: (a) what are the differences between the two prototypical NS languages, if any; (b) whether the differences pertain to the scope of the OSP and NS alike; (c) to what extent we could attribute the differences to the nature of the pronominal paradigm (a version of which is captured by the MUC above). Chilean Spanish was chosen as an understudied variety with the aim of bringing new insights into the description of Spanish and because we ultimately also study bilingual speakers of these two languages. We concentrate on two common discourse contexts: topic continuity (TC) and topic shift (TS), in which the choice among the available referential forms, i.e. NS, OSP, as well as lexical subjects (LS), for subject expression is regulated by discourse-pragmatics.

Our findings based on innovative experimental work show that not all prototypical NS languages are identical contrary to current thinking. Not only do we capture differences between Greek and Chilean Spanish in terms of the scope of OSP but we also accurately attribute these differences to the nature of the pronominal subjects, which is fundamentally different between the two languages: more demonstrative in the case of the Greek OSP, less so in the case of Chilean Spanish. As such our study has important ramifications for both NS theories and our understanding of parameters. On the one hand, it maintains the connection between pronominal subjects and NS licensing, offering however a more refined view of this connection with larger empirical grasp thanks to the bigger empirical resolution attempted here. On the other, with this in mind, we can now continue to hold on to a notion of parameters since they can now make the right predictions.

In particular, we argue that consistent/prototypical, agreement-licensed NS whereby T has phi-features, D-features and an EPP-feature can differ further with regards to the nature of the D-feature and the way the latter may also interact with the phi-features.

2 Referential properties of null and overt subjects

Nominal and pronominal elements organise discourse reference involving specific linguistic choices, such as definiteness in noun phrases (definite or indefinite) and pronoun use (null or overt, personal or demonstrative). Pronoun use enables speakers to refer to referents avoiding the need to expressly restate them, thus preventing excessive redundancy or repetition (e.g. Ariel 1990; Gundel et al. 1993; Almor 1999; Keating et al. 2011; Arnold et al. 2013; Iraola 2015). In English, OSP are obligatory in all contexts, as shown in example (2) by Keating et al. (2011: 197). Spanish and Greek, as NS languages, have more permitted options for expressing subjects as in (3) (Keating et al. 2011: 197) and (4) respectively.

(2) John saw Charles when he was walking on the beach.

(3) *Spanish*
Juan vio a Carlos cuando ∅/él caminaba en la playa.
Juan saw Carlos when ∅/he walk.IMPERF on the beach
'John saw Charles when ∅/he was walking on the beach.'

(4) *Greek*
O Janis iðe ton Kosta otan ∅/aftos perpatuse
the.NOM Janis.NOM saw the.ACC Kostas.ACC when ∅/he walk.IMPERF
stin paralia.
on-the beach
'Janis saw Kostas when ∅/he was walking on the beach.'

The alternation of null and overt subjects is constrained by pragmatic and discursive factors. Traditionally, NS are used for economy purposes referring to an antecedent which is clearly identified by the context, i.e. given. NS have been characterised as being the default in NS languages or the unmarked usage of subject pronouns and as having simple informational structure. OSP, on the other hand, mark change of topic and/or convey focus (contrast or emphasis). The overt forms are the marked option and have more complex informational structure (see e.g. Chomsky 1981 on the Avoid Pronoun Principle; Tsimpli et al. 2004; Lozano 2009; Sorace et al. 2009; Tsimpli 2011; Kaltsa et al. 2015; Papadopoulou et al. 2015).

The two discourse contexts in which NS and OSP distribution is regulated for reference to given entities are TC and TS (see e.g. Dimitriadis 1996; Argyri & Sorace 2007; Sifaki & Sitaridou 2007; 2009; Lozano 2009; 2016; Sorace et al. 2009; Blackwell & Lubbers Quesada 2012; Shin & Cairns 2012; Mayol 2012; Andreou 2015; Bel & García-Alcaraz 2015; Kaltsa et al. 2015; Montrul & Sánchez-Walker 2015; Papadopoulou et al. 2015; Montrul 2016; Clements & Domínguez 2016; Georgopoulos 2017, a.o.). In the context of the present research, TC involves subject maintenance, usually encoded via a NS in both Greek and Spanish. TS entails a change of subject referent (subject discontinuity), typically realised by means of an overt form in both Greek and Spanish. In sum, overt subjects mark TS while NS encode TC.

The apparent division of labour between NS and OSP contributes to felicity in subject use determining a degree of coherence, necessary for the unobstructed flowing of processing and communication. However, this division of labour is not always straightforward

as it depends on different factors. In TC contexts a NS is considered pragmatically appropriate (i.e. felicitous) due to economy reasons, while the other options, although also grammatical, are generally considered infelicitous. In TS contexts a LS or an OSP are the pragmatically felicitous options (e.g. Lozano 2009) but NS can be also grammatical and felicitous when the likelihood of ambiguity occurrence is none or minimal (Lubbers Quesada & Blackwell 2009; Blackwell & Lubbers Quesada 2012; Pinto 2014).

Carminati (2002: 57) captured the division of labour of NS and OSP in intra-sentential anaphora in her proposal of the Position of Antecedent Hypothesis (PAH) for Italian, which has been influential in the study of NS languages: "the null pronoun prefers an antecedent which is in the Spec IP position, while the overt pronoun prefers an antecedent which is not in the Spec IP position." The asymmetry between NS and OSP use is prompted by the syntactic position of their antecedent, which in turn determines its prominence and consequent anaphoric resolution. A preverbal subject in the canonical position of a sentence is assumed to constitute a referent which is interpreted as the default topic of that sentence. The preverbal subject is considered to be more prominent than other antecedents in positions lower in the hierarchical syntactic structure, such as object position. The prediction of the PAH is that NS are linked more often than OSP to subject position, while OSP are preferentially linked to non-subject (non-topic) antecedents. This strategy is flexible in cases of non-ambiguity where both NS and OSP are appropriate since disambiguation can be in principle provided by features of gender, person and number (see also Ariel 2017).

According to Ariel's (1990) accessibility theory, referring (anaphoric) expressions convey degrees of accessibility of mental representations. Reduced referring expressions display a bias towards highly salient/prominent antecedents, i.e. highly explicit referents, which are more activated or accessible in people's minds, while fuller referring expressions establish coreference to less salient/prominent antecedents (Ariel 1990; Almor 2000; Hendriks 2003). Subject position confers salience on the entities of reference, "such that the speaker can assume that the listener is more likely to focus attention on things in subject than nonsubject positions" (Arnold et al. 2009: 140). According to Miltsakaki (2001), subjecthood is the strongest salience factor in Greek. That said, in both Greek and Spanish, NS and OSP occurrence is variable and not entirely predictable. A reduced referring expression, such as a NS, can be used even when the referent is not salient insofar as it can be identified in the discourse context. The referential properties of NS, thus, do not force coreference to (preverbal) subjects or the most salient antecedents (Carminati 2002; Belletti et al. 2007; Lubbers Quesada & Blackwell 2009; Blackwell & Lubbers Quesada 2012; Camacho 2013; Clements & Domínguez 2016; Frana 2017).

A comparison between Greek and Spanish related research suggests that Greek studies (Dimitriadis 1996; Miltsakaki 2007; Prentza & Tsimpli 2012; Mastropavlou et al. 2014; Kaltsa et al. 2015; Papadopoulou et al. 2015) are relatively consistent in their findings, despite methodological heterogeneity, as compared to Spanish studies (Alonso-Ovalle et al. 2002; Montrul 2004a; Montrul & Rodríguez Louro 2006; Callahan et al. 2007; Filiaci 2011; Gelormini-Lezama & Almor 2011; Keating et al. 2011; Jegerski et al. 2011; Iverson 2012; Shin & Cairns 2012; Filiaci et al. 2013; Chamorro et al. 2015; Montrul & Sánchez-Walker 2015; Clements & Domínguez 2016; Montrul 2016). NS favour assignment with subject antecedents in most Greek and Spanish studies, whereas OSP appear to differ in the two languages, with the Spanish OSP evidently being weaker (more ambiguous) than the Greek OSP. Evidence for Spanish subject distribution and AR has not been conclusive so far since different studies have examined different varieties of Spanish and there is considerable variation in OSP use across varieties (e.g. Mayol 2012). Difference in data elicitation

methods is also a contributing factor to the varying results. Nonetheless, it seems that the Spanish OSP does not always comply with the discourse feature of salience/prominence to the same degree as in Greek, while the tendency of NS co-referring to subject antecedents appears to be a commonality in the two languages. This leads to the prediction that in comparing Greek and Spanish stronger differences are expected in the distribution of OSP and fewer or no differences in the distribution and interpretation of NS.

3 Greek and Spanish pronominal subjects

Pronouns in Greek and Spanish are marked in a three-person distinction (first, second, third), number (singular, plural) and gender (masculine, feminine, neuter). In the paradigm of third-person personal pronominal subjects, the pronouns *aftos/afti/afto* in Greek and *él/ella/ello* in Spanish bear overt gender features. Third-person pronouns are anaphoric in nature and refer to lexical or proper noun phrase referents, animate or inanimate, introduced in the preceding (or following) discourse, bearing the same features of the corresponding noun phrases. Third person differs from first and second person in referent accessibility (e.g. Carminati 2005). Third-person entities are often absent from the extra-linguistic context, hence less accessible and more difficult to track than the other persons (Shin & Cairns 2012). Competing referents may thus exist for third-person pronouns, potentially leading to emergence of ambiguity or vagueness, which makes reference tracking crucial for third-person referents to avoid misinterpretations.

3.1 Greek third-person pronominal subjects

In Greek, personal pronouns have strong and weak forms. NS are classified as weak pronouns and constitute the default form. The strong forms are the marked option and function as the subject of a clause "when emphasis or distinction is required" (Holton et al. 2012: 113). The strong form of the third-person personal pronoun is *aftos*, inflected in masculine, feminine and neuter (grammatical) gender as well as for number and case (nominative, accusative and dative surfacing as genitive). The nominative case indicates the subject of a verb. Third-person pronouns in Greek are forms of the demonstrative *aftos* (e.g. Manolessou 2001; Tsimpli & Sorace 2006; Mavrogiorgos 2010; Tsimpli 2011; Holton et al. 2012; Prentza & Tsimpli 2012) as can be seen in Table 1.

Apart from *aftos*, there are two more demonstrative pronouns in Greek: *ekinos* and *(e)tutos*, the latter being used similarly to *aftos* in its deictic usage yet much less often.

The demonstratives may operate as:

(a) strong third-person pronouns, devoid of deictic content, e.g. *aftos majirepse* 'he cooked'; in order to keep their anaphoric function, personal pronouns are unstressed; if a personal pronoun carries prosodic stress, it then has a demonstrative function with further deictic properties (Tsimpli et al. 2004), e.g. ***aftos*** *majirepse* '**he** cooked'
(b) demonstrative pronouns, with deictic properties, e.g. *aftos ine o mathitis* 'this is the student'

Table 1: Third-person singular pronoun *aftos* in Greek.

Greek third-person singular pronoun *aftos* in nominative case			
Gender	**Masculine**	**Feminine**	**Neuter**
Personal pronoun (strong forms)	*aftos*	*afti*	*afto*
Demonstrative pronoun	*aftos*	*afti*	*afto*

(c) demonstrative determiners in adjectival position that modify a noun and form demonstrative phrases, e.g. *aftos o mathitis* 'this student'

Demonstratives can be used either as pronouns or as determiners within a noun phrase with a deictic or an anaphoric usage in both cases (Mavrogiorgos 2010). Since (c) falls into the category of LS (noun phrases), in what follows the focus is on (a) and (b) involving pronouns.

Demonstrative pronouns link to notions of proximity and distance in the space/time or metaphorical perception within the discourse in relation to the speaker (the reference point, or deictic centre). As for the two most frequently used demonstratives in Greek, *aftos* entails nearness, while *ekinos* entails distance. Dimitriadis (1996: 10) maintains that *ekinos* "is frequently used with antecedents that did not occur in the previous sentence at all." Having a proximal-distal, or recent-remote contrast, *aftos* is more commonly used than *ekinos* as OSP, while both are surpassed in relative frequency by NS (Dimitriadis 1996). In Greek, there is no specific form for purely anaphoric function since *aftos* is not exclusively used in anaphoric contexts, but the deictically marked form, i.e. the demonstrative, occurs anaphorically. In words of Tsimpli (2011: 102), "the overt subject pronoun in Greek […] may have anaphoric uses with a non-topical antecedent (when unstressed), but also deictic or emphatic uses when stressed, in which cases it can co-refer with the subject topic of the sentence." It can thus denote TC but only when discourse-related features, such as contrast or emphasis, are involved (Prentza & Tsimpli 2012).

Because of its strong deictic component, the use of *aftos* in certain contexts may bear a pejorative nuance when referring to an actual person. Due to this connotation, in such cases omission of the third-person OSP in Greek is generally encouraged as a form of politeness. This pragmatic effect together with the inherent deictic nature of third-person pronouns and the distinction of person and number in verb morphology shed some light into why OSP, particularly in third-person singular, are "relatively rare" in Greek (Dimitriadis 1996: 7; see also Chiou 2012).

3.2 Spanish third-person pronominal subjects

Spanish has stressed pronouns and NS, the former being inflected for case (see Luján 1999b; Ordóñez 2012). The third-person personal pronoun is used as subject in nominative case and can be of masculine, feminine or neuter gender. In nominative case, the forms *él* and *ella* are inflected for number while there is no plural for the neuter form *ello*, which can only refer to inanimate entities or abstract nouns. NS in Spanish are also considered to be the default forms, as in Greek, while OSP are the marked options (Liceras et al. 2010; Tsimpli 2011; Liceras & Fernández Fuertes 2017).

As opposed to Greek, in which the personal and the demonstrative pronoun *aftos* coincide in form, in Spanish the demonstratives are distinctly different from the personal pronominal forms. There are three inflected demonstratives that can be most frequently used in subject position: *este*, *ese* and *aquel*, which mark gender and number as the personal pronouns do (see Table 2). The neuter forms (*esto*, *eso*, *aquello*) refer to inanimate/abstract entities and lack plural. The status of masculine and feminine demonstratives may change: when accompanying a noun (e.g. *esta idea* 'this idea') the demonstratives are determiners; when they stand alone they may function as a pronoun or as a determiner. The demonstrative pronoun *este* seems to be the equivalent to the demonstrative *aftos* in Greek.

Analogously to Greek, the personal pronouns in Spanish may operate as:

(a) pronouns devoid of deictic content, e.g. *él cocinó* 'he cooked'; if a personal pronoun carries prosodic stress, it then conveys emphasis or contrast, e.g. ***él*** *cocinó* '**he** cooked'

Table 2: Third-person singular pronouns in Spanish.

Spanish third-person singular pronouns in nominative case			
Gender	**Masculine**	**Feminine**	**Neuter**
Personal pronoun	*él*	*ella*	*ello*
Demonstrative pronoun	*este*	*esta*	*esto*

The demonstratives carrying deictic properties are used as:

(b) demonstrative pronouns, e.g. *éste es el alumno* 'this is the student'
(c) demonstrative determiners in adjectival position modifying a noun, thereby forming demonstrative phrases, e.g. *este alumno* 'this student'

The demonstratives *este*, *ese* and *aquel* allow a ternary division related to the (physical or metaphorical) distance that separates the speaker from the referent. Traditionally, *este* denotes proximity to the speaker (hence proximal), *ese* denotes proximity to the listener (hence medial) and *aquel* expresses remoteness from both (hence distal). Some analyses postulate that the demonstrative *ese* would be the unmarked element that can take both values of nearness and remoteness used in situations where the relation of proximity is not relevant. The distance established through the lexical distinctions marked by demonstratives is subjective rather than real since the expressed distance is relative and not fixed. Both *ese* and *aquel* (unlike *este*) are also used with a demonstrative value manifesting the so-called deixis in absentia, which allows to indicate entities that are neither present in the context nor mentioned in the preceding discourse (RAE[1] 2011). In this regard, *ese* and *aquel* can be seen as equivalents to *ekinos* in Greek, while the demonstrative *aftos* parallels *este* referring to an entity introduced in the immediate (extra)linguistic context.

In Spanish, as in Greek, NS are more widely used than OSP (e.g. Shin & Cairns 2012). The OSP rate is considerably variable in the different geographic varieties of the language (e.g. Lipski 1994; 2012; Otheguy, Zentella & Livert 2007). Caribbean Spanish (Dominican, Puerto Rican and Cuban) displays a high rate of OSP compared to other varieties of Latin American and Peninsular Spanish (e.g. Montrul 2004b; Mayol 2012). As for Chilean Spanish, the scarcity of related research prevents drawing solid conclusions on the relative frequencies of pronoun use. Third-person subject pronouns in singular and plural are generally used more often than in Peninsular Spanish, but not as much as in Caribbean Spanish, i.e. Chilean Spanish lays in-between the two extremes of the spectrum (see Enríquez 1986; Van Esbroeck 2014).

3.3 Interim conclusion I

The observations on third-person pronoun in Greek and Spanish are the following:

(a) Since in Greek the personal pronoun is identical in form with the demonstrative, it may be ambiguous between deictic and pronominal readings; it has more deictic properties than the Spanish personal pronoun and its use is presumably more restricted than in Spanish.
(b) In Spanish, there is a three-term distance-related system of demonstrative pronominal forms with the existence of the medial demonstrative (*ese*), which describes an intermediate space between proximal and distal, whereas Greek distinguishes two basic zones (near/far).

[1] Real Academia Española.

(c) The neuter forms in Greek are used either as pronouns or as determiners, whereas in Spanish these forms (existing only in singular) are exclusively used as pronouns referring to inanimate or abstract referents, i.e. they cannot modify a noun; this is because in Spanish, nouns are either masculine or feminine, never neuter, and the pronominal use of neuter has very specific referential properties (RAE 2016).

Evidently, there is no strict one-to-one correspondence between Greek and Spanish third-person overt pronominal subjects, as also shown in Table 3. In both languages however OSP always convey a semantic or pragmatic value (e.g. Haegeman 1994; Chiou 2012; Liceras & Fernández Fuertes 2017).

Table 3: Third-person personal and demonstrative pronouns in Greek and Spanish.

Language	Personal	Demonstrative		
		Proximal	Medial	Distal
Greek	*aftos* *afti* *afto*	*aftos* *afti* *afto*		*ekinos* *ekini* *ekino*
Spanish	*él* *ella* *ello*	*este* *esta* *esto*	*ese* *esa* *eso*	*aquel* *aquella* *aquello*

4 Person morphology in Greek and Spanish verb forms

Apart from (the different version of) MUC, which attempts to correlate the inflectional paradigm to the availability of NS, there seems to be one more correlation to consider, namely between the verbal affixes and the pronominal system (see Koeneman 2006). For this purpose, we also consider the ambiguous agreement morphology in Greek and Spanish.

4.1 Ambiguous person morphology in Greek

Verb forms with ambiguous person morphology are found in Greek, albeit to a lesser extent than in Spanish, potentially hindering the identification of a NS referent.

(a) The verb *ime* 'to be/exist' is ambiguous between third person singular and third person plural in all verb tenses and moods, as exemplified in Table 4.
(b) Second-conjugation verbs (oxytone type B; see Holton et al. 2012) in passive imperfect are also ambiguous between third person singular and third person plural, e.g. *aftos theorundan(e)/afti theorundan(e)* 'he was considered/they were considered', and likewise with the conditional and imperfect subjunctive.

Table 4: Morphological neutralisation of the verb *ime* in Greek.

TAM	*aftos/afti/afto afti/aftes/afta*	he/she/it they
present	*ine*	is/are
past	*itan(e)*	was/were
future	*tha ine*	will be
simple conditional	*tha itan(e)*	would be
present subjunctive	*na ine*	(to) be
imperfect subjunctive	*na itan(e)*	(to) have been

The frequency of verb forms with morphological overlap in (b) is very low in Greek, unlike the forms of *ime* ('to be/exist'), as seen in (a), which are highly frequent.

4.2 Ambiguous person morphology in Spanish

The morphology of verb desinences in Spanish is neutralised and identical, hence potentially ambiguous, in first and third person singular, as well as formal second-person singular, in less distinctive verb paradigms such as imperfect, pluperfect, conditional and all subjunctive forms, as exemplified in Table 5.

Verbal syncretism has been observed to restrict the availability of NS in Spanish due to the inability of certain verbal forms to identify their referent (Silva-Corvalán 1994; Zagona 2002; Filiaci 2011; Camacho 2013; Shin 2014; Duarte & Soares da Silva 2016; see also Cardinaletti 2014). It has been thus suggested that Spanish speakers tend to use OSP with ambiguous person morphology verb forms (Lubbers Quesada & Blackwell 2009; Shin 2014; 2016; Shin & Erker 2015; Prada Pérez 2018; cf. Filiaci 2011; Van Esbroeck 2014). This is illustrated in (5), in which *yo* 'I' is used for reference disambiguation since the verb form *estaba* 'was' is morphologically ambiguous between first and third person singular.

(5) *Spanish* (Silva-Corvalán & Enrique-Arias 2017: 173)
ella iba a mi lado y **yo** estaba temblando.
she go.IMPERF by my side and I be.IMPERF shaking
'she used to go by my side and I was shaking.'

Nonetheless, in Filiaci's (2011) study on AR focusing on monolingual Peninsular Spanish, there was no evidence of increased preference for OSP due to ambiguous verbal morphology in the patterns found in anaphora interpretation.

Additionally, some Spanish varieties, such as Chilean Spanish, are characterised by the lenition or deletion of word-final /s/, which is reduced to an aspiration [h] or completely lost (see Lipski 1994; 2012). The weakening or loss of the final /s/ on second-person singular verb forms may generate (additional) ambiguity between second and third person in present indicative, as well as among first, second and third person in past imperfect, pluperfect, conditional and subjunctive. Native speakers of such varieties might tend to use more overt subjects to compensate for information loss due to the weakening or deletion of the second-person singular final /s/ in ambiguous verb forms (see Steward 1999).

Table 5: Example of morphological neutralisation of Spanish verb forms.

TAM	*yo/él/usted*	I/he/you
past imperfect	*estudiaba*	was/were studying
pluperfect	*había estudiado*	had studied
simple conditional	*estudiaría*	would study
perfect conditional	*habría estudiado*	would have studied
present subjunctive	*estudie*	study/ies
imperfect subjunctive	*estudiara/estudiase*	would study
perfect subjunctive	*haya estudiado*	would study
pluperfect subjunctive	*hubiera/hubiese estudiado*	would have studied

4.3 Subjunctive

Spanish has indicative, infinitival and subjunctive complements in complementary distribution. The subject pronoun in the indicative complement in (6) is referentially free

(Luján 1999a: 105). The subjunctive verb forms (see Table 5) in complement clauses indicate disjoint reference between matrix and embedded subject (contra-indexation or Obviation) as in (7) (Goodluck et al. 2001: 157). If the verb is infinitival, the embedded subject (also known as PRO) expresses same reference (co-indexation or Control) as in (8), i.e. it is obligatorily controlled by the matrix subject (ibid; see also Parodi & Tsimpli 2005).

(6) Juan$_{i}$ dice que (él)$_{i/k}$ viene.
Juan says that (he) comes
'John says that he comes.'

(7) María$_{i}$ intenta/quiere que $\varnothing_{k/*i}$ cante.
Maria tries/wants that sing.SBJ.3SG
'Maria tries/wants (for) someone else to sing.'

(8) María$_{i}$ intenta/quiere $\varnothing_{i/*k}$ cantar.
Maria tries/wants to-sing
'Maria tries/wants to sing.'

A crucial difference between Greek and Spanish is the lack of infinitival forms in Greek, where complement clauses involve either indicative or subjunctive verb forms (Spyropoulos 2007). Contrary to Spanish, in Greek presence of overt pronouns in indicative complements signals disjoint reference in non-focused contexts, as in (9). Subjunctive complement clauses are introduced by the subjunctive particle *na* and the verb is fully inflected for agreement with the subject, hence it may be regarded as finite (Goodluck et al. 2001; Spyropoulos 2007; cf. Iatridou 1993). In Greek a distinction is made based on the lexical semantics of the matrix verb, shown in (10) and (11) (Goodluck et al. 2001: 156). Moreover, the object of a matrix clause can be also the (semantic) subject of the embedded clause, as shown in (12), which involves an Object Control structure (see Beys 2009: 109).

(9) O Janis$_{i}$ lei oti $\varnothing_{i}$/aftos$_{k}$ erxete.
the.NOM John.NOM says that he comes
'John says that he comes.'

(10) I Maria$_{i}$ prospathi $\varnothing_{i/*k}$ na traγuðisi.
the.NOM Maria.NOM tries to sing
'Maria tries to sing.'

(11) I Maria$_{i}$ theli $\varnothing_{i/k}$ na traγuðisi.
the.NOM Maria.NOM wants to sing
'Maria wants to sing' or 'Maria wants someone else to sing.'

(12) Epise$_{i}$ ton Jani$_{k}$ na fiji$_{k}$.
persuade.PAST.3SG. the.ACC John.ACC to leave
'S/he persuaded John to leave.'

In sum, in Spanish overt subjects are not (invariably) required to mark change of subject referent in cases of subjunctive complement clauses since coreference with the matrix subject is disallowed (Obviation) (see Luján 1999a; Sánchez-Naranjo 2013). In Greek, on the other hand, the use of subjunctive may indicate both coreference and non-coreference between the matrix and the embedded subject depending on lexical semantics, with subject and object control verbs, such as in (9) and (11) respectively (see Iatridou 1993; Goodluck et al. 2001; Parodi & Tsimpli 2005; Beys 2009).

4.4 Interim conclusion II

Compared to Spanish, Greek presents fewer cases of verbal syncretism and only in third-person singular and third-person plural. In Spanish, inflectional ambiguity appears in more verb paradigms. Greek has richer inflectional morphology on verbs than Spanish while Spanish has weak agreement in person-verb paradigm compared to Greek. Spanish conflated verb forms, i.e. with ambiguous person morphology, may favour subject pronoun expression for person disambiguation, especially in contexts involving alternation of first and third person singular.

In addition, there is a difference between Spanish and Greek in the use of OSP in indicative complement clauses. The use of OSP in Spanish generally allows both coreferential and non-coreferential interpretations, while in Greek the OSP marks non-coreference in non-focused contexts. Although subjunctive in Spanish may be morphologically ambiguous between first and third person singular, when it appears in complement clauses it marks non-coreference between the matrix and the embedded subject. This is not the case in Greek, where subjunctive in complement clauses allows both coreference and non-coreference with the matrix subject depending on the lexical semantics of the matrix verb.

5 The present studies

The current research explores subject distribution in Greek and Chilean Spanish (henceforth Spanish) in adult speakers. Two studies, one on production and one on interpretation, seek to discern potentially existing differences in the scope of third-person subjects between the languages. In order to establish whether and to what extent the languages are equivalent in subject distribution, monolingual performance in Greek and Spanish in both production and interpretation of third-person null and overt subjects was directly compared. Evidence shown in previous sections suggests cross-linguistic differences, which however have not been empirically investigated using the same methodology.

It is assumed that subject distribution is guided by similar discourse/pragmatics conditions in both Greek and Spanish but these conditions are not necessarily identical in the two languages. The scope of OSP is expected to be wider in Spanish and narrower in Greek. Monolingual speakers may occasionally be redundant in use and/or interpretation of overt subjects, since referential biases in the contexts of interest are not categorical. In production, NS in TS could obtain without resulting in pragmatic inappropriateness, while in AR, due to lack of context, NS may be more ambiguous.

5.1 Methodology

Both production and interpretation data from Greek and Chilean Spanish monolinguals were elicited and compared using the same methods, thereby offering a fuller picture of the monolingual grammars. Such an approach allows insights into the strategies employed by the speakers combining two methodological paradigms (production and interpretation) which are usually employed independently. In particular, the data were obtained from semi-spontaneous speech elicited from oral narratives for Study 1 and interpretation of ambiguous anaphora (AR) for Study 2. The monolingual groups in each language presented a difference in their composition due to the time lag between the data collection for each study. Thus, production and interpretation data were obtained from partly different groups of participants for each language.

5.1.1 Tasks

In Study 1, the story-telling task entailed free production of contextualised structures chosen by the participants in narratives following storylines of picture sequences based

on Hickmann (2003). This method instigates natural usage of grammar targeting implicit linguistic knowledge. The story-telling task elicited oral narratives containing semi-spontaneous use of third-person referential subjects in an ordered discourse structure (story generation). In narratives speakers are free to select the referring expressions of their choice and all constructions are contextualised in series of temporally-connected events. More details on the oral production task are given in Section 6.

In Study 2, the AR task was a linguistic manipulation task comprising decontextualised stimuli presented aurally to the participants in order to elicit their intuitions on AR strategies in interpreting oral speech. The data were obtained using the method by Mastropavlou, Katsiperi, Fotiadou, Fleva, Peristeri, Tsimpli (2014) on Greek monolingual adults adapted for the purposes of the present research. The task tested interpretation of non-biased referentially ambiguous intrasentential forward anaphora, involving biclausal discourse contexts. Forward anaphora is more frequent than backward anaphora (cataphora) across languages as the unmarked word order (Blackwell 2003; Iraola 2015). Given that the referents in the matrix clause were of the same gender (masculine or feminine), the participants had to choose between two competing antecedents in subject or object position. More details on the interpretation task are offered in Section 7.

Both tasks involved commonly used linguistic structures in day-to-day communication based on oral and auditory skills. Contrary to the production task in Study 1, which involved contextualised discourse units expressed by the participants, the interpretation (AR) task in Study 2 concerned decontextualized discourse units presented to the participants. In AR, NS and OSP involved referent continuity or reintroduction. The ambiguity of the sentences served to determine whether pronouns have clearly identifiable biases and, more specifically, to what extent the PAH is operative in intra-sentential contexts using the same methodology for both languages. The experimental design for the AR task provided a testing ground for the PAH in isolated sentences, which lack context and are thus expected to guide the participants to spontaneously apply (or not) referential biases. Narratives, on the other hand, allow a fine-grained exploration of the contextual factors regulating AR.

In performing both tasks there were neither hints nor opportunities for metalinguistic thinking. There was no time pressure, but in the AR task the participants were prompted to respond as soon as they heard each sentence and question. All data were collected in a quiet space and all participants were naive to the specific objectives of the tasks.

5.1.2 Statistical analyses

Statistical analyses were conducted using Stata. The level of statistical significance was established at $p < 0.05$. Pearson Chi-square tests were performed in order to analyse the association between categorical variables, i.e. group of speakers (Spanish or Greek) and use of subjects (NS, LS, OSP) in each discourse context (TC or TS) in production or antecedent preference (subject or object) in each condition given in interpretation. Tests of proportions were also used to analyse proportions within a group, e.g. subject vs object antecedent preferences in a specific group of speakers in AR. These statistical analyses were chosen because the variables of interest were categorical. More details on the statistical analysis for each study are given in Sections 6 and 7.

5.2 Participants

The monolingual groups of Greek and Chilean Spanish speakers ($N = 40$) who took part in each study were recruited through personal contacts in Athens and in Santiago. In the Greek group, eleven speakers participated in both studies while nine speakers participated in one study, either Study 1 or Study 2. In the Chilean group, eight participants

Table 6: Age of Spanish and Greek speakers in Study 1 (oral production task).

Study 1: Age of monolingual speakers in years					
Language	**N**	**Mean**	**SD**	**Min**	**Max**
Spanish	20	45.20	13.72	28	77
Greek	20	45.45	12.65	29	70

Table 7: Age of Spanish and Greek monolingual speakers in Study 2 (interpretation task).

Study 2: Age of monolingual speakers in years					
Language	**N**	**Mean**	**SD**	**Min**	**Max**
Spanish	20	47.80	19.30	20	85
Greek	20	48.15	19.82	16	80

participated in both studies while twelve participants participated in only one of the two studies. The criteria for selecting participants were: (a) to be Greek or Chilean national; (b) to reside in Athens or in Santiago; (c) to have been monolingually raised in Greek or in Spanish; and (d) to have low/hardly/no proficiency in other languages. All Spanish-speaking monolinguals were native speakers of the Chilean variety only. All participants had attended at least twelve years of school education. They signed a consent form and answered a short questionnaire on their general and linguistic background.

The difference in the group composition between Study 1 and Study 2 regarding age, shown in Tables 6 and 7, is partly due to the fact that the data for Study 2 were collected several months after data collection for Study 1. Moreover, the production and the interpretation tasks for each study were performed by a partly different group of participants in each language, as previously mentioned. The study involved adult individuals with no (or not obvious or known) pathological problems related to language. Crucially, the older participants did not suffer from any significant age-related cognitive decline.

A Wilcoxon-Mann-Whitney test was performed and showed no statistically significant difference in the variable Age between the two monolingual groups for each set of data, i.e. production in Study 1 ($z = –0.217$, $p = 0.828$) and interpretation in Study 2 ($z = –0.095$, $p = 0.924$). The wide age range was deliberately decided because one of our aims was to also inquire into the effects of aging in production and interpretation of subject reference. The factor of Age was submitted to regression analyses examining the role of age in producing and resolving subject reference in Greek and Spanish and compares the results in the two languages. Due to space constraints, it is not possible to report these results here. The findings of the present research should therefore be interpreted in light of the existing age discrepancy in the composition of the groups of participants in each study.

6 Study 1: Production (Story-telling task/Narratives)

Production data were collected using the two picture story description tasks by Hickmann (2003), the Horse Story and the Cat Story, consisting of sequences of successive pictures that form stories with animal characters. Such production data tend to be representative of authentic language use. The method has been extensively employed in related research on subject expression and reference (e.g. Silva-Corvalán 1994; Hendriks 2003; Montrul 2004a; 2016; Tsimpli & Sorace 2006; Belletti et al. 2007; Arnold et al. 2009; Iverson 2012; Leclercq & Lenart 2013; Pinto 2013; 2014; Tsimpli et al. 2014; Hendriks et al. 2014; Andreou 2015; Montrul & Sánchez-Walker 2015).

The picture-sequences consisted of black and white drawings presented to participants in paper in a pre-established order. The Horse Story comprised five pictures and the Cat Story six pictures. The stories differ in the status of their animate referents (see Hickmann 2003 for details). The Horse Story works well for eliciting expression of TC contexts while the Cat Story is a good instrument to elicit natural expressions of TS contexts. In line with Hickmann (2003), the participants were instructed to pretend to tell the stories to an imaginary listener who could not see the pictures and did not know the plots. It was thus assumed that there was no situation of shared knowledge between the interlocutors, which could affect the choice of referring expressions (Hickmann 2003; Sorace 2004; Hendriks et al. 2014). For both stories, the average duration of recordings per participant was 3–4 minutes. All narratives were transcribed using standard orthographic transcription and the data were coded and annotated in a database, which, after being finalised and cleaned, comprised 1,872 clauses coming from 80 (=40*2) narratives (890 clauses in Spanish and 982 clauses in Greek). Each clause, i.e. each utterance containing a verb, was the basic unit of analysis. The following subject structures were excluded from the analysis: non-referential subjects or impersonal verbs, direct speech, fixed expressions or fillers, uses of first or second person, nominalization of clauses, proverbs, formulaic chunks, codeswitching, verb phrase ellipsis, false starts, incomplete sentences and any unclear utterances.

The relevant linguistic variables of the annotation of the narratives for the purposes of data analysis were: Category of Subject (NS, LS, OSP), Discourse Value (TS, TC, Focus) and Ambiguity. Subject-headed relative clauses were not considered in the analyses because of their dependence on the head of the noun phrase (see e.g. Dimitriadis 1996; Montrul & Rodríguez Louro 2006; Shin 2012; 2016). The contents of the narratives triggered mostly third-person animate subjects in singular. Instances of other persons were ruled out from the analyses. Plural number and inanimate referents, although rare, were included. Infinitives in Spanish, whether adjuncts or complements, were regarded as clauses (see Torrego 1998; Zagona 2002). The production data were also qualitatively analysed for each category of subject (LS, OSP, NS) in each context (TC, TS).

Research questions

(a) Is Greek different from Spanish in the production of third-person null and overt subjects?
(b) If so, in which contexts and what causes divergence?

Rationale for the predictions

Spanish and Greek are similar but not identical NS languages; they should not be equivalent in the distribution of third-person subjects. Differences are expected in the relative frequency and/or the scope of OSP while they should be (more) similar in the scope of NS.

There seem to be differences in the scope of third-person OSP between the languages suggesting the possibility of a more widespread use of OSP in Spanish than in Greek. This hypothesis is based on the following rationale:

(a) In Greek, third-person OSP is deictically marked because it is the demonstrative which can assume anaphoric function, whereas in Spanish the personal pronoun has not such status. The deictic nature of the Greek pronoun renders its use less frequent as it is more discoursively marked than the Spanish one.
(b) Spanish syncretism in the inflectional marking of subject person renders verb morphology ambiguous in certain paradigms, which could lead to use of OSP for person disambiguation purposes regardless of context. In Greek, there is no verb inflectional ambiguity which would trigger OSP use to the same extent.

(c) Previous research on Greek and Spanish AR indicates that in neutral (non-focused) contexts the Spanish OSP establishes coreference to subjects more often than the Greek OSP. This suggests that in Spanish the OSP is more easily used in TC, hence its scope seems to be wider than in Greek.

Predictions

Monolingual Greek and Spanish performance is expected to be in accordance with accessibility models, which may apply with flexibility because of stylistic choices and presence of contextual, grammatical and semantic cues. Specifically, in oral production, the speakers are expected to produce contextualised sequences of sentences in narratives mainly encoding TC with NS and TS with LS or OSP in non-focused contexts. The frequency of NS is predicted to be significantly higher than that of LS and OSP. Due to general pragmatic and economy principles, monolingual groups are expected to use non-ambiguous NS in TS contexts, but much less so than in contexts of TC.

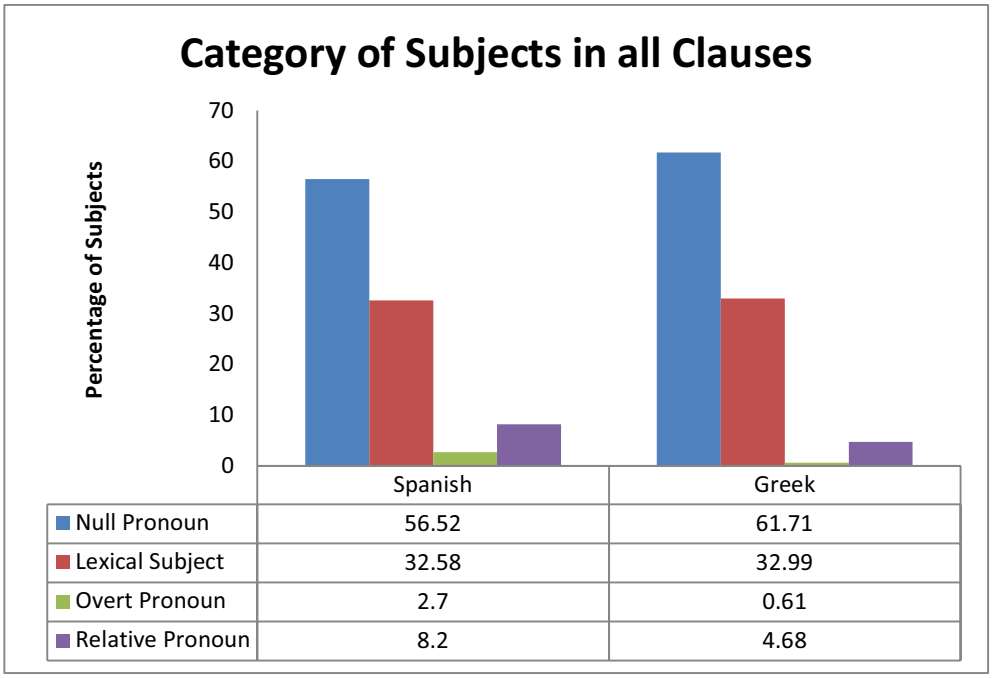
Differences between the languages are expected to arise in the use of OSP. Greek speakers are not expected to use OSP in TC except in cases of focus. Spanish speakers are expected to use non-focused OSP in TC to a small extent since tolerance of OSP redundancy has been attested in previous research (e.g. Alonso-Ovalle et al. 2002; Keating et al. 2011; Georgopoulos 2017; Lozano 2018). The Greek OSP is predicted to be relatively rare compared to its Spanish counterpart manifesting a narrower scope.

Statistical analysis

Pearson Chi-square tests examined the association between speaking group (Spanish or Greek) and a set of linguistic categorical variables: category of subject (NS, LS, OSP), use of subjects in TC contexts (NS, LS, OSP) and use of subjects in TS contexts (NS, LS, OSP).

6.1 Overview of the results

More than half of subjects were null considering all clauses (matrix, embedded) and all contexts (focus, TC, TS) (Figure 1). Greek speakers manifested the greatest rate of NS



	Spanish	Greek
Null Pronoun	56.52	61.71
Lexical Subject	32.58	32.99
Overt Pronoun	2.7	0.61
Relative Pronoun	8.2	4.68

Figure 1: Category of subjects in all clauses.

(61.71%), showing a statistically significant difference from Spanish (56.52%) [Pearson χ^2 (1, N = 1,872) = 5.21, p = 0.022]. LS were used at a similar rate by both groups (almost 33%). OSP frequency was very low compared to NS and LS. In Spanish, OSP were used significantly more (2.7%) than in Greek (0.61%) [Pearson χ^2 (1, N = 1,872) = 12.87, p < 0.001].

Five out of twenty-four OSP in Spanish were instances of the demonstrative *este* used either in focus (N = 2) or in TS (N = 3). In Greek, two out of the six occurrences of OSP were instances of the demonstrative *ekinos*.

6.2 Discourse-pragmatic use of subjects

When a referent was introduced into the discourse for the first time in subject position, the subject referent was tagged as a being focused (new information). If the new referent introduced in existential/presentational constructions was one of the story participants (*horse*, *cow*, *bird*, *little birds*, *cat*, *dog*), it was considered to be presentational focus. If the referent was not focused, it was tagged as topic (old information) in contexts of TC (subject referent maintenance, i.e. coreference), or contexts of TS (change of subject referent, i.e. non-coreference). Both groups produced comparable rates of subjects in focus and topic contexts. Clauses introducing focused subjects, i.e. 219 clauses (11.7%), were excluded. Moreover, all *who*-RC (N = 119, 6.4%) were also excluded. Therefore, 1,534 clauses (82%) were finally included in Study 1. Table 8 lists the basic features of the subjects that were considered in the analyses.

Table 8: Features of subjects considered in the analyses.

Features of subjects %				
Number	92.5%	singular	7.5%	plural
Animacy	98.2%	animate	1.8%	inanimate
Definiteness (LS)	98.5%	definite	1.5%	indefinite
Position (LS, OSP)	74.1%	preverbal	25.9%	postverbal

6.2.1 Topic Continuity

Quantitative analysis

The preferred way of expressing TC in Spanish and Greek was by far using NS (93.67% and 95.79% respectively), as shown in Figure 2 and Table 9.[2] In both groups of speakers, LS were also used to express TC at a small rate, which was similar in the Spanish and Greek monolingual performance (5.91% vs 4.04%). The frequency of OSP was insignificant.

Qualitative analysis

Subject distribution in TC was scrutinised on the three categories of subjects used (NS, LS, OSP). NS were principally used in contexts of TC, as in (13) and (14).

(13) *Spanish*
Un gato observaba a los pajaritos. Al parecer ∅ quería hacerles daño, ∅ se los quería comer.
'A cat was observing the little birds. Seemingly, [he] wanted to harm them, [he] wanted to eat them.'
(S72, age: 40)

[2] The percentages are given in slanted numbers in the tables.

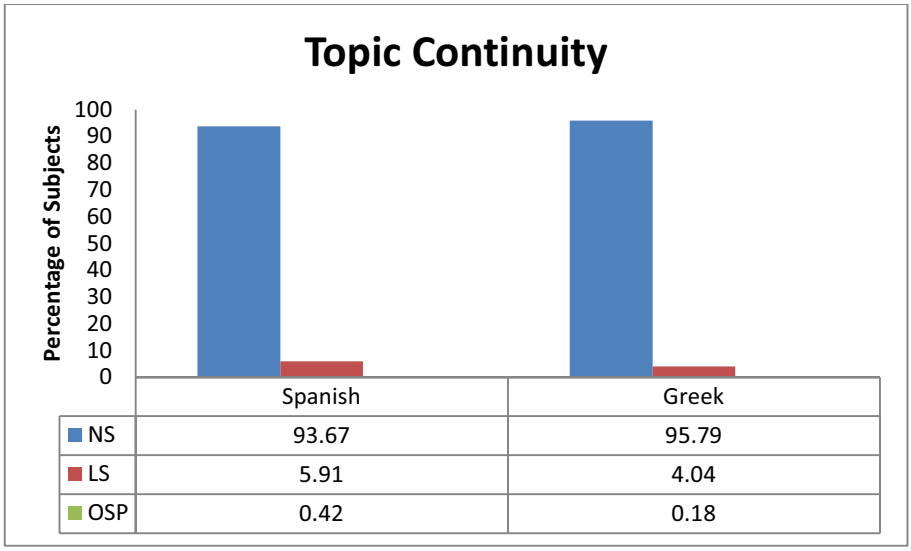


Figure 2: Use of subjects in TC contexts.

Table 9: Use of subjects in TC contexts.

	Spanish	Greek	Total
Null Pronoun	444	546	990
	93.67	*95.79*	*94.83*
Lexical Subject	28	23	51
	5.91	*4.04*	*4.89*
Overt Pronoun	2	1	3
	0.42	*0.18*	*0.29*
Total	474	570	1,044
		100	*100*

(14) *Greek*
To aloγaki perni fora ke ∅ prospathi ∅ na piðiksi to fraxti. Loγo tis viasinis tu omos, ∅ skonðafti ke ∅ pefti. ∅ Spai to fraxti
'The little horse speeds up and [he] tries to jump the fence. Because of his hurry though, [he] stumbles and [he] falls. [He] breaks the fence'
(S93, age: 52)

Both monolingual groups used LS in TC, which may be overly informative, hence infelicitous. TC involves subject maintenance; thus, overt subjects are not required. There were fifty-one cases of LS in TC (4.9%) overall with Greek and Spanish speakers performing similarly. Table 10 shows the N and percentage of LS in TC as well as the N and percentage of speakers who produced such instances and the maximum N of LS in TC per speaker.

The qualitative analysis showed that most cases involved non-redundant (felicitous) LS in TC (N = 40, 78.4%) while 21.6% of LS in TC (N = 11 out of 51) were redundant (infelicitous), i.e. their omission would not affect the interpretation or style of the utterance.

Three OSP emerged in TC, two in Spanish and one in Greek, involving contrastiveness or emphasis expressed with personal pronouns used anaphorically or deictically, as in (15)–(17).

Table 10: Use of LS in TC contexts in all groups.

Group	LS in TC		Speakers using LS in TS		Maximum N of LS in TC per speaker
	N	%	N	%	N
Spanish	28/474	*5.91*	15/20	*75*	4
Greek	23/570	*4.04*	13/20	*65*	3

(15) *Spanish*
Ella recién había tenido estos pajaritos y tenía que alimentarlos, porque así es en la familia de los pájaros. ∅ Dejan a las crías en el nido y **ellos** salen a buscar el alimento y lo traen en su piquito para sus bebés.
'She recently had these little birds and had to feed them, because this is the way in the birds' family. [They] leave the young in the nest and **they** leave to look for food and [they] bring it in their beak for their babies.'
(S69, age: 70)

(16) *Spanish*
El caballo intentó pasar sobre la cerca, pero corrió mal y se tropezó en la cerca, entonces la desestabilizó y la rompió. Y a la vez **él** se pegó muy fuerte y cayó al piso.
'The horse tried to pass over the fence but [he] ran badly and [he] tripped over the fence, then [he] destabilised it and [he] broke it. And at the same time **he** got hurt very badly and [he] fell on the ground.'
(S73, age: 28)

(17) *Greek*
Arxizi na skarfaloni xoris **ute ki ekini** na proseksi oti akrivos apo piso tis vriskete o kalos angelos ton mikruliðon.
'[She] starts to climb without **[her neither]** noticing that right behind her the good angel of the little ones turns up.'
(S93, age: 52)

The OSP *ellos* in (15) could be regarded as redundant. In (17) the focaliser particle *ki (ke)* 'and/too/neither' in Greek clearly conveys focus (see Holton et al. 2012).

6.2.2 Topic Shift

Quantitative analysis

TS was mostly expressed with LS in both Greek and Spanish (Figure 3, Table 11). In Greek, speakers used LS in TS more often than in Spanish (74.71% vs 66.52%) and this difference was statistically significant [Pearson χ^2 (1, N = 490) = 3.96, p = 0.047]. In Spanish, OSP were used significantly more than in Greek (8.15% vs 1.95%) [Pearson χ^2 (1, N = 490) = 10.11, p = 0.001]. Both groups employed NS in TS similarly (25.32% and 23.35% in Spanish and Greek respectively). The relative frequency of NS was overall much higher than that of OSP.

Qualitative analysis

Both groups of speakers predominantly used LS in TS as shown in (18) and (19).

(18) *Spanish*
Finalmente **el gato** baja del árbol, porque **el perro** lo sale persiguiendo y **el pájaro adulto** se acerca al nido.
'Finally **the cat** gets down the tree, because **the dog** starts chasing him and **the adult bird** approaches the nest.'
(S66, age: 29)

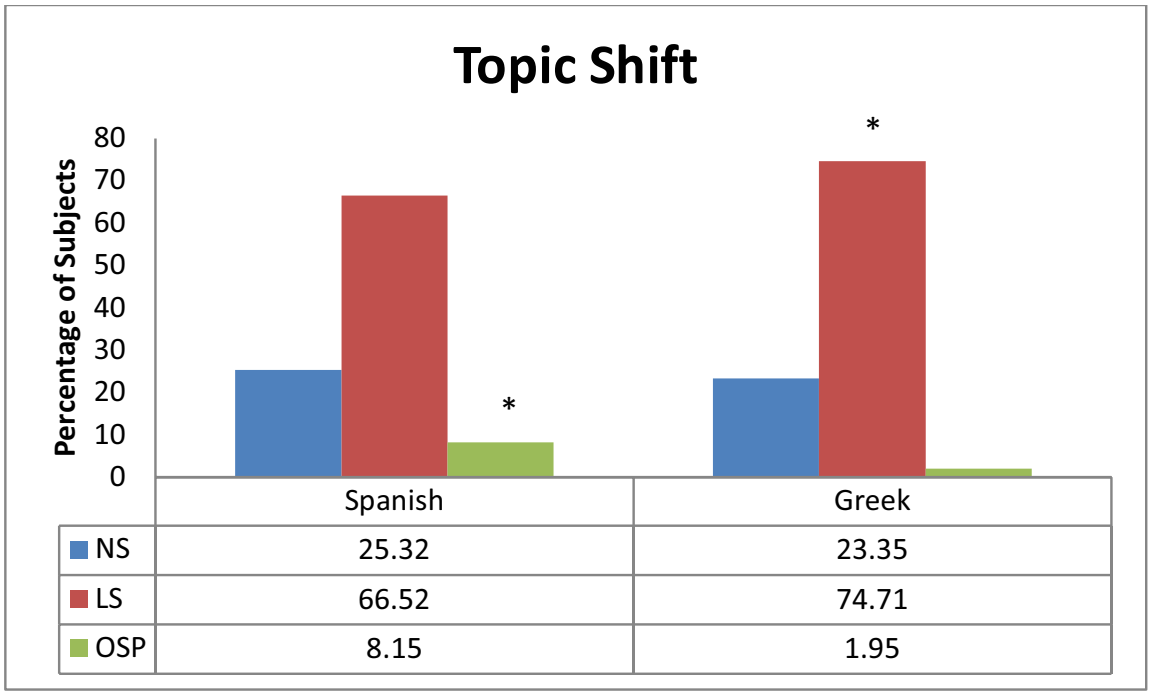


Figure 3: Use of subjects in TS contexts.

Table 11: Use of subjects in TS contexts.

	Spanish	Greek	Total
Null Pronoun	59	60	119
	25.32	*23.35*	*24.29*
Lexical Subject	155	192	347
	66.52	*74.71*	*70.82*
Overt Pronoun	19	5	24
	8.15	*1.95*	*4.9*
Total	233	257	490
	100	*100*	*100*

(19) Greek
I mama *endometaksi erxete me ena skulikaki sto stoma.* ***O skilos*** *katalaveni* ***i poniri i ɣata*** *ti pai na kani.*
'**The mother** in the meanwhile comes with a little worm in her mouth. **The dog** realises what **the sneaky cat** is going to do.'
(S94, age: 66)

There were twenty-four cases of OSP in TS in the corpus, which was 4.9% of the TS contexts. Most of these cases (N = 19) were produced in Spanish and the remaining (N = 5) in Greek.

In Spanish, eleven out of twenty speakers used nineteen OSP in TS (8.15%) with each speaker producing a maximum of three OSP, as seen in (20)–(25). Sixteen OSP involved personal pronouns and three OSP demonstratives (e.g. 24, 25).

(20) tras él hay un perro que lo jala de la cola y consigue que **él** no llegue y no pueda trepar hasta el nido.
'behind him there is a dog who pulls him from the tail and manages that **he** does not reach and is not able to climb to the nest.'
(S67, age: 59)

(21) Luego la vaca se aleja y **él** corre para acercarse a la vaca.
'Then the cow walks away and **he** runs to come near the cow.'
(S70, age: 39)

(22) le ladró muy fuerte para que **él** se ahuyentara.
'he barked at him very loudly so that **he** would be chased away.'
(S78, age: 45)

(23) se veían casi todos los días cada vez que **él** estaba en el prado.
'they saw each other almost every day every time **he** was in the meadow.'
(S84, age: 39)

(24) La mamá pájaro estaba con sus polluelos en el nido y **estos** gritaban de hambre. Entonces **ella** voló a buscar comida y los dejó solitos.
'The mother bird was with her chicks in the nest and **they** were crying because of hunger. Then **she** flew to find food and left them alone.'
(S82, age: 39)

(25) El caballito, al saltar la cerca, dio un mal paso y **ésta** se quebró.
'The little horse, when jumping the fence, took a bad step and **it** broke.'
(S75, age: 46)

In nine out of nineteen Spanish contexts of OSP in TS (47.4%), the verbs were in third-person singular past imperfect (seven cases, e.g. 23) or subjunctive (two cases: 20 and 22) involving forms with ambiguous morphology in terms of person features. In (22), there is no ambiguity since subjunctive in the embedded (complement) clause marks obligatory disjoint reference between the OSP *él* and the subject on which it depends (*el perro*). In this context the OSP was not crucial since the verb form in this type of embedding disallows same reference (TC) interpretation and there were only two possible antecedents. In six out of nine OSP in TS involving ambiguous verbal morphology in Spanish, the OSP was not required for disambiguation. Overall, from nineteen OSP in TS, six were required to disambiguate reference (e.g. 25) or to avoid temporary ambiguity (e.g. 21). In the remaining thirteen cases (e.g. 22, 23), the presence of OSP was not vital for referential disambiguation. In sum, even in TS most of OSP in Spanish, i.e. thirteen out of nineteen (68,4%), would not cause ambiguity if omitted, hence they could be regarded as redundant.

In Greek, four out of twenty of speakers used five OSP in TS (1.95%) as shown in (26)–(30). In (26) and (27), the OSP are focused by the focus-associated operator *ki/ke* ('too'). All five OSP were required to disambiguate reference and/or to convey focus.

(26) I ajelaða ton kitakse, tin kitakse **ki aftos** ke pire tin apofasi na piðiksi ton fraxti.
'The cow looked at him, **he** looked at her **too** and decided to jump the fence.'
(S101, age: 42)

(27) I ajelaða lipate, to puli meni kataplikto, ala omos **ke afta** fanikan xrisima.
'The cow was sorry, the bird was surprised, but **they too** were useful.'
(S103, age: 64)

(28) Ti γrapose liγo prin **ekini** ftasi sti folia me ta tria pulakia.
'He grabbed her just before **she** reached the nest with the three little birds.'
(S101, age: 42)

(29) I manula exi petaksi makria ke **afti** vriski tin efkeria ke aneveni sto ðendro.
'The mammy had flown away and **she** [the cat] finds the opportunity to climb up the tree.'
(S93, age: 52)

(30) Ixe erthi i mama m' ena skulikaki sto stoma na ta taisi. **Afta** den to piran xambari.
'The mother had come with a small worm in the mouth to feed them. **They** did not realise it.'
(S95, age: 48)

A comparison of OSP use in TS between Greek and Spanish shows that OSP in Greek were typically used when required for ambiguity avoidance, while in Spanish more than half OSP were not in fact necessary for reference disambiguation.

Due to potential ambiguity of NS in TS, occurrences of NS in TS were marked as ambiguous or non-ambiguous after examining their context. If the context contained a NS in TS but not sufficient cues to identify its antecedent due to presence of competing referent(s), the NS was coded as ambiguous (infelicitous). Virtually all NS in TS were found to be non-ambiguous (N = 116, 97.5%), whereas only three NS were marked as ambiguous. Non-ambiguity was due to morphological, semantic or contextual cues. Table 12 shows the N and percentages of unambiguous NS in TS and the N of respective speakers. Examples are offered in (31)–(32).

(31) *Spanish*
la vaca está sanándole una herida. Seguramente ∅ se hirió y entonces ∅ lo está sanando.
'the cow is healing him the wound. Probably **[he]** was hurt and then **[she]** is healing him.'
(S68, age: 28)

(32) *Greek*
Tin ora pu i gata prospathi n' anevi pano sti folia, ∅ tin arpazi apo tin ura ke tin katevazi kato.
'At the time when the cat tries to climb up to the nest, **[he]** grabs her form the tail and [he] draws her down.'
(S105, age: 70)

6.3 Discussion: Comparison between Greek and Spanish

Study 1 sought to discover whether Greek is different from Spanish in the distribution of third-person subjects in non-focused contexts in the production of narratives. The hypoth-

Table 12: Use of unambiguous NS in TS contexts in all groups.

Group	Unambiguous NS		Speakers using unambiguous NS		Maximum N of unambiguous NS per speaker
	N	%	N	%	N
Spanish	58/59	*98.31*	19/20	*95*	6
Greek	58/60	*96.67*	18/20	*90*	8

esis was that the two languages would differ in the distribution of OSP. The Spanish OSP was predicted to be more variable than the Greek OSP because of the deictic nature of the latter, which renders it less flexible and less ambiguous by comparison. The overall pattern of subject distribution in narratives was similar in Greek and Spanish. Considering all contexts, NS were used in more than half the time, LS hovered around 33%, while OSP were sparingly used in both languages. This is in line with related research on Greek and Spanish (e.g. Dimitriadis 1996; Montrul & Rodríguez Louro 2006; Pešková 2013; Georgopoulos 2017).

In TC contexts, Greek and Spanish speakers were not considerably different in the use of NS and LS overall. Redundancy with respect to LS was found to be context-dependent, thus LS in TC do not a piori imply infelicity. Moreover, TC was not strictly encoded with NS. Overall, despite statistical differences in the relative frequency of subjects used in TC, qualitatively both groups behaved similarly revealing a generally homogeneous behaviour on subject distribution, conforming to postulations of accessibility accounts (e.g. Ariel 1990; Gundel et al. 1993; Carminati 2002). Accordingly, null referential subjects display biases towards establishing coreference with highly salient antecedents, such as subjects. OSP in TC were scantly used in cases of contrast or emphasis conveying focused information, in accordance with the literature (Tsimpli 2011; Chiou 2012; Prentza & Tsimpli 2012; Lozano 2018). It was anticipated that in Spanish there might be some redundant OSP in TC, since some tolerance for redundancy thereof has been reported in previous research (e.g. Alonso-Ovalle et al. 2002; Keating et al. 2011; Georgopoulos 2017; Lozano 2018). However, this was not the case in the Spanish production in this study. The findings were along the lines of several other studies (e.g. Montrul & Rodríguez Louro 2006; Miltsakaki 2007; Mayol 2012; Montrul 2016).

TS contexts were encoded by mostly using LS in both languages, with Greek speakers using significantly more LS in this context than the Spanish speakers. Both groups also used a considerable amount of NS in TS, which was quantitatively similar. Although use of OSP was low in both groups, a significant difference arose in the OSP frequency, which was much lower in Greek than in Spanish. Since the rates of NS in TS were similar while the rates of LS and OSP were statistically different, the crosslinguistic difference seems to lie in the production of overt forms in TS. Greek speakers seem to counterbalance the restricted use of OSP in TS by instead using LS, whose production was more frequent in Greek than in Spanish in this discourse context. Aside from differences in relative frequencies, the use of OSP in both languages marked TS, sometimes combined with focus, in line with the literature.

NS were used in TS contexts in Greek and Spanish as in other studies (e.g. Blackwell 2003; Pinto 2014) without causing ambiguity. The anaphora pattern of NS as a minimal expression in non-coreference contexts was allowed by mutual knowledge from inferences and by cues in the context permitting grammatical and/or pragmatic recoverability (see Ariel 1990). Consequently, the omission of overt subjects in TS was guided by structural and contextual conditions without resulting in infelicity. This indicates that NS also involve the interface between syntax and discourse-pragmatics, like the OSP (see Sorace 2011; Tsimpli 2011).

The relative frequency of OSP was low in both groups in all contexts (Greek: 0.6%, Spanish: 2.7%) and particularly in TS (Greek: 2%, Spanish: 8.2%). This is line with related studies (e.g. Dimitriadis 1996; Shin & Cairns 2012) but raises the question of why OSP are so infrequent in the performance of monolinguals. Some factors are considered below.

(a) The paradigms of verb inflection in both languages are rich, i.e. every number/person combination has a different suffix; consequently, third person is distinguished uniquely (with some exceptions of inflectional syncretism). It follows that if recoverability is not at stake, OSP can be left out. This complies with the literature (see Section 2), according to which OSP are avoided unless their realisation has some semantic or pragmatic effect.
(b) Pešková (2013) argues that the low frequency of third-person pronouns is attributed to their anaphoric nature, i.e. to their interpretation as given information, and to the fact they are used in narratives (as opposed to interactive speech). Pinto (2014) affirms that contextual and grammatical cues (beyond verbal inflection) often render OSP pleonastic in NS languages (see also Arnold et al. 2009). Thus, accounts related to context and referential salience/accessibility may explain the attested low use of OSP in TS.
(c) As shown in Table 8, within the total of subject referents considered in the study, 1% of subjects involved inanimate entities, which are more often referenced by LS or NS than with OSP (e.g. Luján 1999b; Lozano 2009). In addition, 6.6% of subjects were in plural number, which has been found to trigger OSP less often than singular (e.g. Lozano 2009; Prada Pérez 2018). In addition, OSP are rarely used in embedded TC contexts when the embedded subject is coreferential with the matrix clause; hence, in some related studies such embedded contexts are excluded (Prada Pérez 2018). Including inanimate and plural referents as well as TC embedded clauses may have affected the relative frequency of OSP compared to the other subject forms.
(d) With respect to Greek, some of the causes of the infrequent occurrence of third-person singular OSP have been already mentioned in Section 3.1. The inherent deictic nature of the third-person pronoun *aftos* adds to its markedness resulting in speakers avoiding its use unless there is a particular purpose which justifies it (Dimitriadis 1996; Chiou 2012).

The properties of the Greek OSP contribute to its infrequency relative to Spanish. On the other hand, Spanish verb inflection exhibits syncretism in third and first person singular in certain paradigms. Shin (2014: 314) argues that "the tendency to express *él/ella* is related to contextual ambiguity", which is more likely in TS contexts, "and the potential for such ambiguity is greater with imperfect verbs." However, the findings in Filiaci (2011) on monolingual Spanish showed that verbal syncretism does not affect pronoun interpretation. Although influence of inflectional ambiguity in OSP expression in Spanish is not clearly established, it could reasonably be a potential factor in production of OSP when alternation of first- and third-person singular is involved. This, however, is not the case in the present production data. Moreover, the data of the Spanish narratives did not provide evidence suggesting that OSP were produced to compensate for inflectional ambiguity on the verb.

Irrespective of ambiguous verbal morphology, the qualitative analysis showed that even in TS contexts involving competing referents, most of OSP in Spanish (68,4%) would not cause ambiguity if omitted (see also Blackwell 2003). In Greek, on the other hand, all OSP in TS in the spoken corpus (N = 5) were clearly needed to remove referential ambiguity. The deictically marked OSP in Greek is used only when necessary, while the Spanish personal pronoun, not bearing an equally strong deictic component, is somewhat more variable, i.e. more liberally used in TS. These facts may explain the difference in the relative

frequency of OSP in TS between Greek and Spanish. It was thus observed that differences in OSP between the two languages as attested in narrative production of monolinguals seem to reside in the way OSP are used at the discourse-pragmatic level only in TS and not in TC contexts.

Overall, the expression of TS was according to predictions, with differences between Greek and Spanish found in the relative frequency and the scope of OSP. This may relate to the fact that the Greek OSP is deictically marked, while the Spanish OSP is deictically less marked. LS were mainly used in TS, followed in frequency by NS and only a low rate of OSP. The use of NS was felicitous since virtually no ambiguity emerged in TS. The findings are in accordance with accessibility accounts (e.g. Gundel et al. 1993; Ariel 1990) as well as with other studies (e.g. Dimitriadis 1996; Montrul & Rodríguez Louro 2006; Miltsakaki 2007; Mayol 2012; Lozano 2018). The deictic interpretation of the Greek OSP seems to be responsible for its more stringent use in narratives, which was also evidenced in AR, as shown in Study 2.

7 Study 2: Anaphora Resolution

The interpretation data were obtained using an experimentally based method, namely an off-line self-paced listening task in the form of an oral comprehension questionnaire, modified from Mastropavlou et al. (2014), which takes into account the PAH (Carminati 2002) and definiteness. The participants listened to recorded sentences and answered orally a comprehension question (included in the recording) for each sentence. The AR task did not offer options of potential antecedents for the participants to choose. The participants were instructed to answer orally to the comprehension question giving their first intuition.

The test sentences presented a sequence of two events in a subordinating discourse structure. There were two third-person singular referents in a matrix clause in the canonical word order (SVO), a subject and an object, matched in gender. The matrix clause was followed by an adverbial (temporal) clause consisting of either a NS or an unstressed OSP matched in gender and number with the two matrix antecedents. In the NS condition, an adverb was placed in the position of the subject to maintain the same number of segments across conditions. Half of the test sentences included feminine referents and the other half masculine referents. The verb of the embedded clause was always in past imperfect. Two variables were manipulated: the anaphoric subject in the embedded clause and the definiteness of the object in the matrix clause. The antecedent of the embedded pronoun could either refer to the subject or the object of the matrix clause, so the constructions were fully ambiguous.

The test sentences were sixteen, eight with a NS and eight with an OSP, presented in a randomised order with 1:1 ratio to the fillers and practice items at the beginning of the task. Equivalent versions of the oral questionnaire in Greek and Spanish were created. An example of an experimental item is (33), in which the matrix object is indefinite and the embedded subject is OSP.

(33) *Greek*

a. O ðiefthindis xeretuse enan jatro otan aftos evjene apo to asanser.
Pjos evjene apo to asanser?

Spanish

b. El director saludaba a un doctor cuando él salía del ascensor.
¿Quién salía del ascensor?

'The director was greeting a doctor when he was exiting the lift.
Who was exiting the lift?'

The experimental sentences and questions were recorded by a male native speaker of Greek or Chilean Spanish respectively, who produced the items naturally with clear voice and flattened prosody (neutral intonation).

Four conditions were included in the oral questionnaire with four experimental items in each condition. The matrix subject was definite in all conditions. It was followed by a definite or an indefinite object in the same clause and an embedded clause with a null or overt pronoun in subject position as shown below:

(i)	Definite matrix object – Null embedded subject	(DDN)
(ii)	Indefinite matrix object – Null embedded subject	(DIN)
(iii)	Definite matrix object – Overt embedded subject	(DDO)
(iv)	Indefinite matrix object – Overt embedded subject	(DIO)

After listening to each sentence, the participants answered who did the action of the embedded verb and their responses were recorded. They had to orally select the antecedent by linking the embedded subject to the matrix subject or to the (in)definite matrix object. Given that the referents in the matrix clause were of the same gender, they had to choose between two competing antecedents in subject or object position. In order to reduce metalinguistic awareness, the participants were prompted to answer as fast as they could.

The database comprised 640 responses coming from 40 speakers. The linguistic variables of interest in this case were (a) type of embedded subject (NS, OSP); (b) definiteness of the matrix object (definite, indefinite); and (c) antecedent preferences (AP). Information about the participants is given in Section 5.2.

Research questions

(a) Is Greek different from Spanish in the interpretation of anaphoric third-person null and overt subjects?
(b) If so, in which contexts and what causes divergence?

Predictions

In interpreting non-biased forward AR, Greek and Spanish monolingual speakers were expected to perform similarly in resolving NS according to the predictions of the PAH (Carminati 2002), thereby NS being assigned to matrix subjects. Considering, however, the findings in Mastropavlou et al. (2014), NS in Greek may reveal indeterminate antecedent preferences. In this case, the same would hold for Spanish. The Greek OSP was expected to consistently pick matrix objects, in line with the PAH. In Spanish, the OSP was expected to be either ambiguous or also attached to objects but less strongly so than in Greek. In other words, OSP were expected to show weaker resolution patterns in Spanish than in Greek and NS were expected to trigger relatively similar preferences in the two languages.

Since indefiniteness diminishes antecedent prominence, when an indefinite object is involved in the structure, the resolution of the NS may be more strongly directed to subject antecedents and the resolution of the OSP may be (more) biased towards object antecedents. Considering the findings in Mastropavlou et al. (2014), the matrix object definiteness was not expected to be significantly associated with antecedent preferences in Greek and the same would hold for Spanish.

The two languages were predicted to differ in the resolution of the OSP, with Greek being more rigid and Spanish more flexible. No categorical judgments were expected to be triggered in these contexts in any of the monolingual groups and conditions.

Statistical analysis

Pearson Chi-square tests examined the association between speaking group (Spanish or Greek) and condition DDN (subject or object), condition DIN (subject or object), condition DDO (subject or object) and condition DIO (subject or object) as well as associations between conditions for each group. Tests of proportions were performed in order to analyse proportions within a group, e.g. subject vs object antecedent in a specific group of speakers.

7.1 Results

Condition DDN

DDN: Definite Subject – Definite Object – Null Subject

(34) *Greek*
I jaja filuse ti nosokoma otan iði evaze to palto tis.

Spanish
La abuela besaba a la enfermera cuando ya se ponía el abrigo.

'The old lady was kissing the nurse when [adverb] was putting on her coat.'

Greek and Spanish speakers performed similarly in identifying the embedded pronoun in DDN condition [Pearson χ^2 (1, N = 160) = 0.025, p = 0.874], namely their matching decisions for the embedded NS did not show a preference towards either the subject or the object of the matrix clause (Figure 4, Table 13).

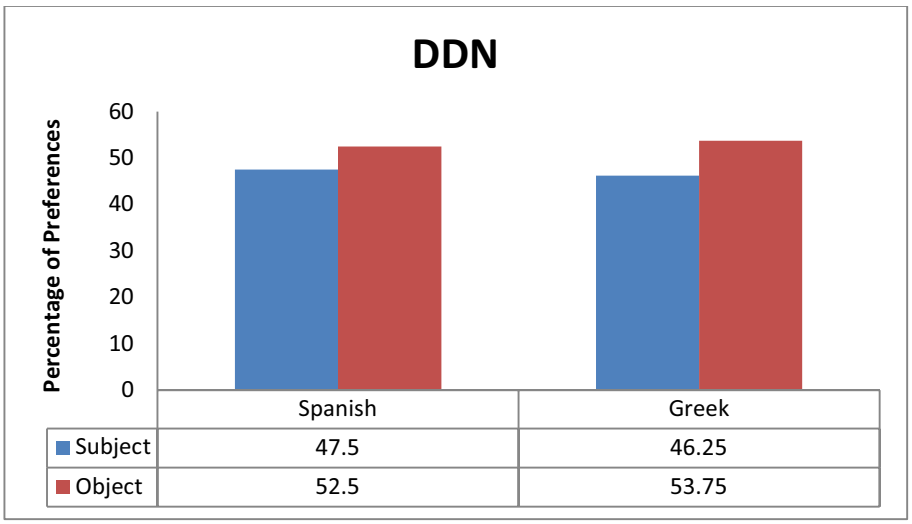


Figure 4: Group results in condition DDN.

Table 13: Group results in condition DDN.

	Spanish	Greek	Total
Subject	38	37	75
	47.5	*46.25*	*46.88*
Object	42	43	85
	52.5	*53.75*	*53.13*
Total	80	80	160
	100	*100*	*100*

Condition DIN
DIN: Definite Subject – Indefinite Object – Null Subject

(35) *Greek*
I jaja filuse mia nosokoma otan iði evaze to palto tis.

Spanish
La abuela besaba a una enfermera cuando ya se ponía el abrigo.

'The old lady was kissing a nurse when [adverb] was putting on her coat.'

Figure 5 and Table 14 show the results of the DIN condition. The resolution preferences were generally similar to those attested in the DDN condition. Greek and Spanish speakers exhibited a similar pattern with no bias towards either antecedent. There was no statistical difference between the groups [Pearson χ^2 (1, N = 160) = 0.225, p = 0.635]. No clear preferences were manifested, thus the AR patterns in DIN were at chance level with no significant difference between the groups. Pearson Chi-square tests showed no significant differences between the groups in DIN or between the participants' DIN and DDN preferences. Indefiniteness of the matrix object therefore did not appear to influence group preferences.

Condition DDO
DDO: Definite Subject – Definite Object – Overt Subject

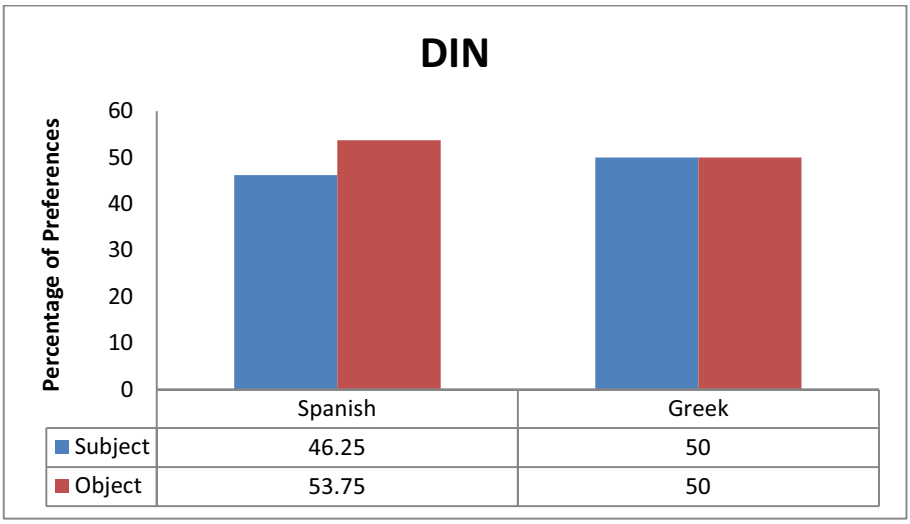


Figure 5: Group results in condition DIN.

Table 14: Group results in condition DIN.

	Spanish	Greek	Total
Subject	37	40	77
	46.25	*50*	*48.13*
Object	43	40	83
	53.75	*50*	*51.88*
Total	80	80	460
	100	100	100

(36) *Greek*
I jaja filuse ti nosokoma otan afti evaze to palto tis.

Spanish
La abuela besaba a la enfermera cuando ella se ponía el abrigo.

'The old lady was kissing the nurse when she was putting on her coat.'

Figure 6 and Table 15 show the results of the DDO condition. A statistically significant difference was observed between Greek and Spanish in the resolution of the OSP [Pearson χ^2 (1, N = 160) = 20.19, p < 0.001]. While in Spanish there was no strong bias towards an antecedent (48.75% for object), Greek speakers consistently linked the OSP to the object (82.5%) revealing a statistically significant difference in their preferences between the two antecedents (z = –4.874, p < 0.001). In Spanish, preferences in DDO were similar to those in DDN [Pearson χ^2 (1, N = 160) = 0.225, p = 0.635] and in DIN [Pearson χ^2 (1, N = 160) = 0.400, p = 0.527]. By contrast, Greek preferences in DDO were significantly different from those in DDN [Pearson χ^2 (1, N = 160) = 15.22, p < 0.001] and in DIN [Pearson χ^2 (1, N = 160) = 18.89, p < 0.001].

Condition DIO
DIO: Definite Subject – Indefinite Object – Overt Subject

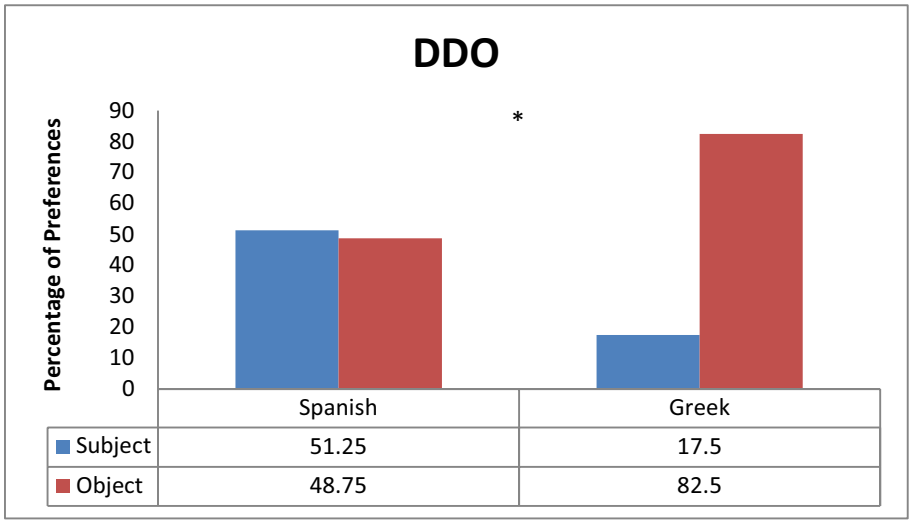


Figure 6: Group results in condition DDO.

Table 15: Group results in condition DDO.

	Spanish	Greek	Total
Subject	41	14	55
	51.25	*17.5*	*34.38*
Object	39	66	105
	48.75	*82.5*	*65.63*
Total	80	80	160
	100	*100*	*100*

(37) *Greek*
I jaja filuse mia nosokoma otan afti evaze to palto tis.

Spanish
La abuela besaba a una enfermera cuando ella se ponía el abrigo.

'The old lady was kissing a nurse when she was putting on her coat.'

Figure 7 and Table 16 display the results of the DIO condition. In Spanish, there was a preference towards the matrix object, but the difference between subject and object preferences (41.25% vs 58.75% respectively) was not statistically significant ($z = -1.541$, $p = 0.123$). A Pearson Chi-square test indicated no statistical difference between the DDO and DIO resolution patterns in Spanish [Pearson χ^2 (1, N = 160) = 1.609, p = 0.205]. The Greek group significantly favoured the object (77.5%) ($z = -4.310$, $p < 0.001$), although slightly less often than in DDO (82.5%), but with no statistical difference between DDO and DIO conditions [Pearson χ^2 (1, N = 160) = 0.625, p = 0.429]. A statistically significant difference was found between Greek and Spanish in resolving OSP in DIO [Pearson χ^2 (1, N = 160) = 6.47, p = 0.011] with Greek speakers consistently picking the object antecedent and the Spanish performing at chance.

Demonstrative pronoun resolution in Spanish

There was a clear difference in the OSP resolution patterns between Greek and Spanish groups. This finding brings into focus the fact that the Greek third-person OSP is identi-

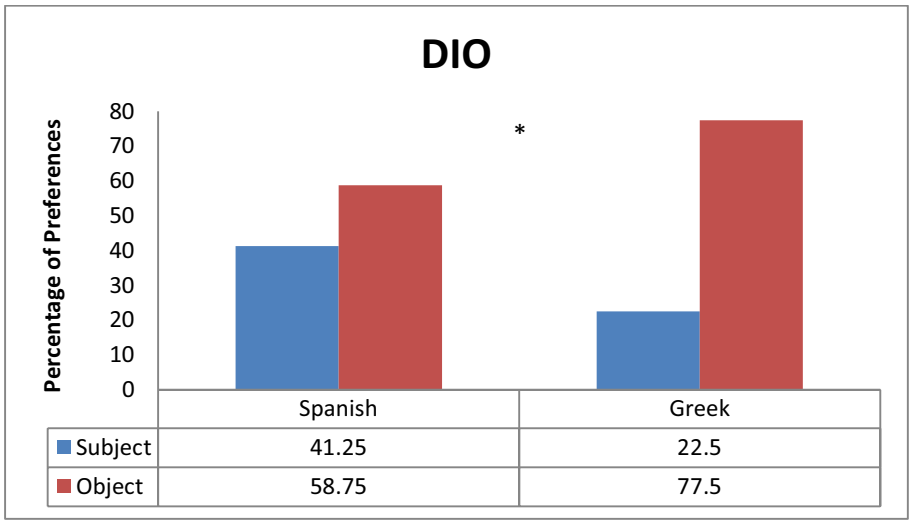


Figure 7: Group results in condition DIO.

Table 16: Group results in condition DIO.

	Spanish	Greek	Total
Subject	33	18	51
	41.25	*22.5*	*31.87*
Object	47	62	109
	58.75	*77.5*	*68.13*
Total	80	80	160
	100	*100*	*100*

cal in form with the demonstrative, with ambiguous use between deictic and pronominal interpretation, whereas in Spanish this is not the case. The inherently deictic nature of *aftos* thus renders its use comparable to the use of the demonstrative *este* in Spanish. Along these lines, a follow-up AR study was conducted using an online task with monolingual Chilean Spanish participants (N = 20, age range: 27–85,[3] mean: 45.1, SD: 16.1). The design of the task was the same as the one employed in the primary AR study with the following differences:

(a) The experimental items were only those involving DDO and DIO contexts, but instead of the personal pronoun *él/ella* the demonstrative pronoun *este/esta* was included in the sentences, as in (38).

(38) La abuela besaba a la enfermera cuando **esta** se ponía el abrigo.
'The old lady was kissing the nurse when **she** was putting on her coat.'

(b) The task was designed as an online questionnaire, which was sent via a hyperlink to the participants by email. The test sentences were 8 (4 in DDO, 4 in DIO) and the ratio to the fillers was 1:1. The same voice presented the sentences followed by the comprehension questions in the same fashion as in the main AR study. The participants were instructed to listen to the sentences only once and to respond as soon as they heard the question by clicking one of two given options involving the subject or the object antecedent. Differently from the main AR study, the participants could hear the sentences more than once since this was beyond control; hence, their responses could reflect metalinguistic processes. They also had to read and choose one of two possible answers, which was not the case in the main AR study. Although the data elicitation method was different from that of the primary study, the results indicated that the demonstrative *este* in Spanish behaved like *aftos* in Greek, as shown in Figure 8 and Table 17.

The difference between DDO and DIO involving the demonstrative was not statistically significant [Pearson χ^2 (1, N = 160) = 0.735, p = 0.391]. However, there was a statis-

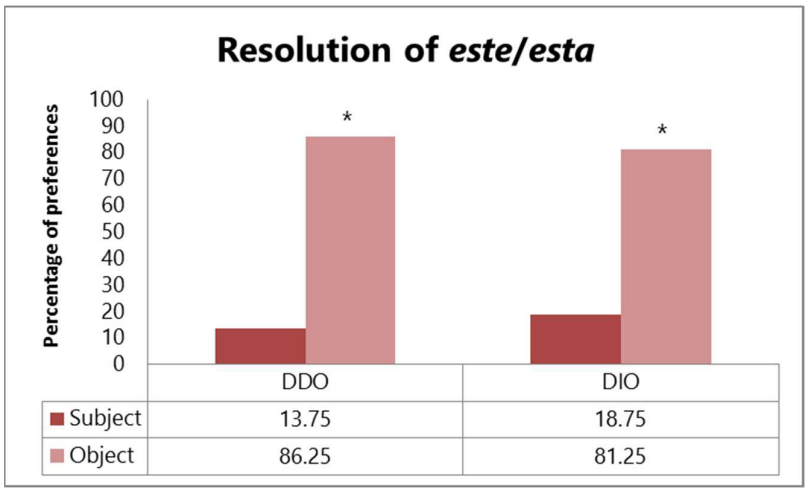


Figure 8: Spanish monolinguals: resolution of the demonstrative in DDO & DIO.

[3] Binomial logistic regressions showed no significant association between Age and AP in DDO (N of observations: 80, z = 0.66, p = 0.506) and DIO (N of observations: 80, z = 0.04, p = 0.964).

Table 17: Spanish monolinguals: resolution of the demonstrative in DDO & DIO.

	DDO	DIO
Subject	11	15
	13.75	*18.75*
Object	69	65
	86.25	*81.25*
Total	80	80
	100	*100*

tically significant difference between resolutions of the demonstrative and the personal pronoun in Spanish in DDO [Pearson χ^2 (1, N = 160) = 25.641, p < 0.001] and DIO [Pearson χ^2 (1, N = 160) = 9.643, p = 0.002]. Moreover, there was no statistically significant difference between Greek in DDO and the respective Spanish responses involving the demonstrative [Pearson χ^2 (1, N = 160) = 0.427, p = 0.514]. Similarly, no statistically significant difference was observed between Greek in DIO and Spanish in DIO containing the demonstrative [Pearson χ^2 (1, N = 160) = 0.344, p = 0.558]. Thus, the Greek OSP *aftos* behaved like the Spanish demonstrative *este*, while both forms were at odds with the Spanish personal pronoun (*él/ella*), which triggered similar preferences to the NS in interpretation.

7.2 Discussion: Comparison between Greek and Spanish

Study 2 sought to answer whether Greek is different from Spanish in the distribution of third-person subjects in non-focused contexts. The hypothesis was that the two languages would differ in the interpretation of OSP. The Spanish OSP was predicted to be more variable than the Greek OSP because of the deictic nature of the latter, which renders it less flexible and less ambiguous by comparison. Greek and Spanish speakers performed similarly in the conditions with NS (DDN, DIN) manifesting indeterminacy in their matching decisions. The indeterminate interpretation preferences in both Greek and Spanish suggest that the NS is ambiguous and flexible without necessarily signify TC. Definiteness of the matrix object did not seem to influence the resolution of NS in either group. According to the findings of this study, Greek and Spanish did not perform along the lines of the PAH on NS resolution since neither group manifested strong preferences towards an antecedent, against previous research findings (Greek: Prentza & Tsimpli 2012; Kaltsa et al. 2015; Papadopoulou et al. 2015; Spanish: Alonso-Ovalle et al. 2002; Iverson 2012; Filiaci et al. 2013; Clements & Domínguez 2016), but in line with others (Greek: Dimitriadis 1996; Mastropavlou et al. 2014; Spanish: Callahan et al. 2007; Iverson 2012; Chamorro et al. 2015). Mastropavlou et al. (2014), i.e. the original study adapted for the present research, reported similar results on NS resolution using a picture-matching task. Namely, adult Greek monolinguals (aged 20–28) did not show a clear bias towards an antecedent in the NS condition. The current study, therefore, replicated these findings.

On the other hand, in OSP resolution (DDO, DIO), Greek and Spanish speakers behaved significantly dissimilarly, according to the predictions. The Spanish speakers performed at chance level with unclear resolution preferences for the personal pronoun, similarly to NS resolution, whereas the Greek speakers strongly favoured the object antecedent, i.e. a disjoint interpretation. The OSP was clearly related to TS contexts in Greek and, by contrast, appeared to be ambiguous in Spanish. This accords with several Spanish studies which did not show clear resolution preferences for OSP (Alonso-Ovalle et al. 2002; Callahan et al. 2007; Keating et al. 2011; Jegerski et al. 2011; Filiaci 2011; Filiaci

et al. 2013), but contrasts with others reporting a bias in favour of the object antecedent (Gelormini-Lezama & Almor 2011; Iverson 2012; Shin & Cairns 2012; Chamorro et al. 2015). It is noteworthy that the OSP findings of the present study corroborated earlier findings in Mastropavlou et al. (2014) for Greek and Callahan et al. (2007) for Chilean Spanish. Monolinguals of Greek and Spanish manifested significantly different resolution preferences of OSP, according to the predictions. In line with production, differences in interpretation of OSP between the two languages were found in TS contexts. Definiteness of the matrix object had no effect on the resolution preferences of OSP in either group. A follow-up study showed that the Greek OSP behaved like the Spanish demonstrative pronoun *este* in strongly establishing coreference with the object antecedent.

8 Synthesising production and interpretation findings

Production data in Greek and Spanish showed that NS were mainly used in TC and less frequently (yet considerably) in TS, while in AR the acceptance of NS was equally divided between TS and TC contexts. NS were ambiguous in AR but unambiguous in production, even in TS. The inherent ambiguity of NS ceases to exist within contexts which provide the appropriate information to make its use contextually felicitous. Felicitous NS in TS in production indicate that NS can be also linked to prominent antecedents which are not preceding subjects (see Miltsakaki 2007; Pinto 2014; Frana 2017). The AR results were in line with previous research, confirming the predictions on OSP, but showing that NS were more variable than expected. The presumed TC contexts were found to be more ambiguous than anticipated, i.e. interpreted as TS half the time in both languages. This corroborates the fact that NS are inherently ambiguous and variable since they can be accepted in both TC and TS. Table 18 summarises the main findings and conclusions of the two studies on NS.

In line with the production findings, the OSP in Greek was strongly interpreted as co-referring to non-prominent antecedents (i.e. objects), as consistently reported in the literature (Dimitriadis 1996; Miltsakaki 2007; Prentza & Tsimpli 2012; Mastropavlou et al. 2014; Kaltsa et al. 2015; Papadopoulou et al. 2015). On the other hand, although in Spanish the OSP was principally produced in TS discourse contexts, the AR findings revealed a variable behaviour in OSP interpretation, similar to that attested for NS.

In AR, while NS did not favour subject coreference, the predictions were confirmed as to the fact that more similarities were observed with NS than with OSP resolution between Greek and Spanish. Resolving OSP was significantly different between the two languages due to the strong deictic feature of the Greek OSP. Filiaci (2010; 2011) found a similar divergence between Italian and Spanish OSP. While the Italian OSP (*lui/lei*) was

Table 18: Findings comparing Greek and Spanish on NS distribution.

Comparing Greek and Spanish on NS	
RQ:	Is Greek different from Spanish in the production and interpretation of third-person NS subjects?
Prediction	Greek and Spanish resemble in the scope of NS and allow NS in TS.
Confirmed	Yes
Finding	In both languages, NS were felicitously used in TS in production and were interpreted half the time as encoding TS in interpretation.
Possible explanation	NS are used due to economy principles. The felicitous use of NS in TS depends on presence of cues in the (extra)linguistic context.
Conclusion	NS are used in TS, thus involve external interface conditions.

consistently associated with TS, the Spanish OSP (*él/ella*) was easily processed in both TC and TS contexts. She attributed this difference to the nature of pronominal forms. The Spanish personal pronoun is "structurally deficient" or weak (Cardinaletti & Starke 1999), thus it may co-refer to topic/subject antecedents (Filiaci 2010: 180). In contrast, the Italian OSP, like the Greek OSP, is a strong pronominal, hence biased toward non-prominent antecedents.

Although the Spanish speakers' responses revealed chance performance in resolving the personal pronoun (*él/ella*), the demonstrative (*este*) was disjointly interpreted, consistently referring to the object antecedent, similarly to the Greek OSP *aftos*. Gundel (1996: 145) proposes that demonstratives indicate a referent which is "activated (readily accessible to consciousness)", i.e. recently mentioned or available in the extralinguistic context (see also Givón 1983; Sorace & Filiaci 2006; Prada Pérez 2009; Arnold et al. 2013). The Greek OSP *aftos* behaves like the demonstrative; hence its search space is more local, thereby identifying with the preceding object, similarly to the Spanish demonstrative pronoun. Table 19 summarises the main findings and conclusions of the two studies on OSP.

The OSP clearly marked TS in Greek but appeared to be unpredictable in Spanish. Definiteness of the matrix object had no effect on resolution preferences of OSP in either group, corroborating Mastropavlou et al.'s (2014: 26) claim that "markedness" of OSP is "stronger than definiteness of potential antecedents." Differences between Greek and Spanish were found in the scope of OSP, being wider in Spanish and narrower in Greek. The Greek OSP was interpreted as marking TS and its behaviour was found to be similar to the Spanish demonstrative *este*.

The Greek production and interpretation data were consistent on the scope of OSP, which was produced in TS contexts and disjointly interpreted in AR. The low percentages of responses assigning the OSP to objects in AR affirm that resolution decisions, even for the inherently marked Greek OSP, may show strong tendencies but are not categorical (see Tsimpli 2011). This means that the Greek grammar allows optionality to some degree with OSP. That being said, OSP resolution preferences in Greek were much stronger than those of NS. This was also illustrated in production, where the use of OSP was constrained by specific discourse features (TS, focus) with no deviations, while NS were more variable.

In Spanish a difference was observed between OSP production and interpretation. While it was always felicitously used in TS (and in TC conveying focus), in AR it was equally accepted in TC and TS contexts. The discourse behaviour of the Spanish OSP was thus similar to that of NS in that it may be ambiguous when decontextualised but normally

Table 19: Findings comparing Greek and Spanish on OSP distribution.

Comparing Greek and Spanish on OSP	
RQ:	Is Greek different from Spanish in the production and interpretation of third-person OSP subjects?
Prediction:	Greek and Spanish differ in the scope of the OSP.
Confirmed	Yes
Finding	Spanish OSP has wider scope than Greek OSP in production and interpretation.
Possible explanation	The Greek OSP is a strong pronominal with deictic features compared to the Spanish OSP, which is relatively weak, hence the different discourse properties of OSP shown in the two languages.
Conclusion	Crosslinguistic difference in the properties of the two pronominal systems (microparametric variation), thus the scope of OSP varies across the languages, being wider in Spanish and narrower in Greek.

unambiguous within a context. The fact that in Spanish the OSP was used in TS even when it was not crucial for reference disambiguation also indicates that it does not obey exactly the same pragmatic restrictions as the Greek OSP since its empirical orbit is somewhat wider than in Greek. The findings suggest differences in the division of labour of pronominal subjects between Greek and Spanish, related to the different morphological make-up of the languages.

Sorace (2011: 25) argues that it is appropriate to "differentiate structures on a gradient according to […] whether they are closer to the 'strongly biasing' syntactic end or to the 'weakly biasing' contextual end." OSP in Spanish and Greek need to satisfy both syntactic and pragmatic conditions. That said, if we were to put Spanish and Greek OSP in a gradient, the Greek OSP would be located towards the "strongly biasing syntactic end" with respect to the Spanish OSP, which would be situated closer to the "weakly biasing contextual end." Although both forms depend on discourse pragmatics, hence interface conditions, this is more evident in the Spanish OSP, since it was found to be ambiguous in interpretation and relatively flexible in production compared to the Greek OSP. The Spanish OSP distribution, therefore, seems to be determined by discourse-pragmatic contextual factors more actively than the Greek OSP, whose use is a more clear-cut phenomenon.

In sum, TC was found to be encoded in similar ways in both Greek and Spanish. NS presumably encoding TC were controversial in interpretation of ambiguous anaphora giving rising to inconsistent AR preferences in both languages. TS revealed significant differences between Greek and Spanish in production and interpretation of OSP. While in Greek the OSP was consistently used and interpreted as referring to non-prominent antecedents, in Spanish there was a notable discrepancy between OSP production, which was virtually exclusive to TS, and OSP interpretation, which was referentially undetermined between TS and TC.

9 Conclusion

The present research investigated third-person null and overt subject distribution in Greek and Chilean Spanish, two typologically similar languages, in adult monolingual-native performance considering the discourse contexts of TC and TS. The crosslinguistic comparison showed that NS distribution in Greek and Spanish is similar, while differences arise in the scope of OSP, according to predictions. The Greek OSP is deictically marked as it is identical in form with the demonstrative, thereby having a narrower scope compared to its Spanish counterpart. The deictic nature of the Greek OSP renders it relatively categorical. The findings also show the referential complexity of NS involving external interface conditions, i.e. discourse-pragmatic constraints. It was thus demonstrated that prototypical NS languages may present considerable differences, which in this case are attributed to the nature of the pronominal subjects.

In conclusion, the empirical data and analyses of the two studies on oral production and aural interpretation demonstrated microparametric variation in the distribution of Spanish and Greek pronominal subjects. The implications of the present study concern both theories of NS and our understanding of parameters offering a more refined view of the connection between pronominal subjects and NS licensing, as well as the nature of the D-feature and its interaction with the phi-features.

Abbreviations

AR Anaphora resolution
LS lexical subject(s)
MUC Morphological Uniformity Condition
NS null subject(s)
OSP overt subject pronoun(s)

PAH Position of Antecedent Hypothesis
SVO Subject Verb Object
TC topic continuity
TS topic shift

Competing Interests

The authors have no competing interests to declare.

References

Alexiadou, Artemis & Elena Anagnostopoulou. 1998. Parametrizing AGR: word order, V movement and EPP checking. *Natural Language and Linguistic Theory* 16. 491–539. DOI: https://doi.org/10.1023/A:1006090432389

Almor, Amit. 1999. Noun-Phrase Anaphora and Focus: The Informational Load Hypothesis. *Psychological Review* 106(4). 748–765. DOI: https://doi.org/10.1037/0033-295X.106.4.748

Almor, Amit. 2000. Constraints and mechanisms in theories of anaphor processing. In Matthew W. Crocker, Martib Pickering & Charles Clifton (eds.), *Architectures and mechanisms for language processing*, 341–353. New York: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511527210.016

Alonso-Ovalle, Luis, Susana Fernández-Solera, Lyn Frazier & Charles Clifton. 2002. Null vs. overt pronouns and the topic–focus articulation in Spanish. *Journal of Italian Linguistics* 14. 151–169.

Andreou, Maria. 2015. *The effects of bilingualism on verbal and nonverbal cognition: The* micro- *and macro-structures of narratives in the weak and the dominant language of the bilingual child*. Thessaloniki: Aristotle University of Thessaloniki PhD dissertation.

Argyri, Efrosyni & Antonella Sorace. 2007. Crosslinguistic influence and language dominance in older bilingual children. *Bilingualism: Language and Cognition* 10(1). 77–99. DOI: https://doi.org/10.1017/S1366728906002835

Ariel, Mira. 1990. *Accessing noun-phrases antecedents*. London & New York: Routledge.

Ariel, Mira. 2017. Pragmatics and Grammar: More pragmatics or more grammar. In Yan Huang (ed.), *The Oxford Handbook of Pragmatics*, 471–792. Oxford: Oxford University Press. DOI: https://doi.org/10.1093/oxfordhb/9780199697960.013.11

Arnold, Jennifer E., Elsi Kaiser, Jason M. Kahn & Lucy Kim. 2013. Information structure: linguistic, cognitive, and processing approaches. *WIREs Cognitive Science* 4. 403–413. DOI: https://doi.org/10.1002/wcs.1234

Arnold, Jennifer E., Loisa Bennetto & Joshua J. Diehl. 2009. Reference production in young speakers with and without autism: Effects of discourse status and processing constraints. *Cognition* 110(2). 131–146. DOI: https://doi.org/10.1016/j.cognition.2008.10.016

Barbosa, Pilar. 1995. *Null subjects*. Massachusetts Institute of Technology PhD dissertation.

Barbosa, Pilar. 2013. Pro as a minimal NP: Towards a unified theory of pro-drop. Unpublished manuscript. University of Minho. [As online at http://ling. auf.net/lingbuzz/001949]

Bel, Aurora & Estela García-Alcaraz. 2015. Subject pronouns in the L2 Spanish of Moroccan Arabic speakers. In Tiffany Judy & Silvia Perpiñán (eds.), *The Acquisition of Spanish in Understudied Language Pairings*, 201–232. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/ihll.3.08bel

Belletti, Adriana, Elisa Bennati & Antonella Sorace. 2007. Theoretical and developmental issues in the syntax of subjects: Evidence from near-native Italian. *Natural Language & Linguistic Theory* 25. 657–689. DOI: https://doi.org/10.1007/s11049-007-9026-9

Beys, Michael. 2009. Subject-to-Object Raising Constructions in Modern Greek. In Anastasios Tsangalidis (ed.), *Selected Papers from the 18th International Symposium on Theoretical and Applied Linguistics*, 105–113. Thessaloniki: Monochromia Publishing.

Blackwell, Sarah E., & Margaret Lubbers Quesada. 2012. Third-person subject reference in native speakers' and L2 learners' narratives: Testing (and revising) predictions of the Givenness Hierarchy for Spanish. In Kimberly Geeslin & Manuel Díaz-Campos (eds.), *Proceedings from the Hispanic Linguistics Symposium 2010*, 142–164. Somerville, MA: Cascadilla Proceedings Project.

Borer, Hagit. 1986. I-Subjects. *Linguistic Inquiry* 17. 375–416.

Callahan, Sarah M., Janet Nicol, Tracy Love & David Swinney. 2007. All pronouns are not created equal: The processing and interpretation of null and overt pronouns in Spanish. *Poster presented at the 20th Annual CUNY Sentence Processing Conference*, La Jolla, California.

Camacho, José A. 2013. *Null Subjects*. Cambridge Studies in Linguistics 137. Cambridge, UK: Cambridge University Press.

Cardinaletti, Anna. 2014. Cross-linguistic variation in the syntax of subjects. In M. Carme Picallo (ed.), *Linguistic Variation in the Minimalist Framework*. Oxford Scholarship online. DOI: https://doi.org/10.1093/acprof:oso/9780198702894.001.0001

Cardinaletti, Anna & Michal Starke. 1999. The Typology of Structural Deficiency. A Case Study of the Three Classes of Pronouns. In Henk van Riemsdijk (ed.), *Clitics in the Languages of Europe*, 145–233. Berlin: Mouton-De Gruyter. DOI: https://doi.org/10.1515/9783110804010.145

Carminati, Maria Nella. 2002. *The processing of Italian subject pronouns*. University of Massachusetts Amherst PhD dissertation.

Carminati, Maria Nella. 2005. Processing reflexes of the Feature Hierarchy (Person > Number > Gender) and implications for linguistic theory. *Lingua* 115. 259–285. DOI: https://doi.org/10.1016/j.lingua.2003.10.006

Chamorro, Gloria, Antonella Sorace & Patrick Sturt. 2015. What is the source of L1 attrition? The effect of recent L1 re-exposure on Spanish speakers under L1 attrition. *Bilingualism: Language and Cognition* 19(3). 520–532. DOI: https://doi.org/10.1017/S1366728915000152

Chiou, Michael. 2012. The meaning of going marked: neo-Gricean pragmatic analysis of the alternate set {zero vs. full pronoun/anaphor} in Modern Greek. *Glossologia* 20. 39–53.

Chomsky, Noam A. 1981. *Lectures on Government and Binding*. Dordrecht: Foris.

Clements, Maria & Laura Domínguez. 2016. Reexamining the acquisition of null subject pronouns in a second language. *Linguistic Approaches to Bilingualism*, 1–25. DOI: https://doi.org/10.1075/lab.14012.cle

Dimitriadis, Alexis. 1996. When pro-drop languages don't: Overt pronominal subjects and pragmatic inference. In *Proceedings of the 32nd Meeting of the Chicago Linguistics Society*, 33–47. Chicago.

Duarte, Maria Eugenia & Humberto Soares da Silva. 2016. Microparametric variation in Spanish and Portuguese. The null subject parameter and the role of the verb inflectional paradigm. In Mary Aizawa Kato & Francisco Ordóñez (eds.), *The Morphosyntax of Portuguese and Spanish in Latin America*. Oxford Scholarship Online. DOI: https://doi.org/10.1093/acprof:oso/9780190465889.001.0001

Enríquez, Emilia V. 1986. La presencia de los pronombres personales sujetos en el mundo hispánico. Estudio comparativo. *Anuario de Letras* 24(3). 47–70.

Filiaci, Francesca. 2010. Null and overt subject biases in Spanish and Italian: a cross-linguistic comparison. In Claudia Borgonovo, Manuel Español-Echevarría & Philippe

Prévost (eds.), *Selected Proceedings of the 12th Hispanic Linguistic Symposium*, 171–182. Somerville, MA: Cascadilla Proceedings Project.

Filiaci, Francesca. 2011. *Anaphoric preferences of null and overt subjects in Italian and Spanish: A cross-linguistic comparison*. The University of Edinburgh PhD dissertation.

Filiaci, Francesca, Antonella Sorace & Manuel Carreiras. 2013. Anaphoric biases of null and overt subjects in Italian and Spanish: a cross-linguistic comparison. *Language and Cognitive Processes*, 1–19. DOI: https://doi.org/10.1080/01690965.2013.801502

Frana, Ilaria. 2017. The Role of Discourse Prominence in the Resolution of Referential Ambiguities Evidence from co-reference in Italian. *International Journal of Linguistics* 9(3). 205–225. DOI: https://doi.org/10.5296/ijl.v9i3.11326

Gelormini-Lezama, Carlos & Amit Almor. 2011. Repeated names, overt pronouns, and null pronouns in Spanish. *Language and cognitive processes* 26(3). 437–454. DOI: https://doi.org/10.1080/01690965.2010.495234

Georgopoulos, Athanasios. 2017. Anaphora resolution in the interlanguage of Greek and English learners of Spanish: A corpus study. *Studies in Greek Linguistics* 37. 239–252.

Givón, Thomas. 1983. Topic continuity in discourse: The functional domain of switch reference. In John Haiman & Pamela Munro (eds.), *Switch-reference and universal grammar* 2. 51–82. Amsterdam & Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/tsl.2.06giv

Goodluck, Helen, Arhonto Terzi & Gema Chocano Díaz. 2001. The acquisition of control crosslinguistically: structural and lexical factors in learning to licence PRO. *Journal of Child Language* 28. 153–172. DOI: https://doi.org/10.1017/S030500090000461X

Gundel, Jeanette K., Nancy Hedberg & Ron Zacharski. 1993. Cognitive Status and the Form of Referring Expressions in Discourse. *Language* 69(2). 274–307. DOI: https://doi.org/10.2307/416535

Haegeman, Liliane. 1994. *Introduction to Government and Binding Theory*. Oxford: Blackwell.

Hendriks, Henriette. 2003. Using nouns for reference maintenance: A seeming contradiction in L2 discourse. In Anna Giacalone Ramat (ed.), *Typology and second language acquisition*, 291–326. Berlin: Walter de Gruyter. DOI: https://doi.org/10.1515/9783110891249.291

Hendriks, Petra, Charlotte Koster & John Hoeks. 2014. Referential choice across the lifespan: why children and elderly adults produce ambiguous pronouns. *Language, Cognition and Neuroscience* 29(4). 391–407. DOI: https://doi.org/10.1080/01690965.2013.766356

Hickmann, Maya. 2003. *Children's Discourse: Person, Space and Time Across Languages*. Cambridge, UK: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511486784

Holmberg, Anders. 2005. Is there a little pro? Evidence from Finnish. *Linguistic Inquiry* 36. 533–564. DOI: https://doi.org/10.1162/002438905774464322

Holmberg, Anders, Aarti Nayudu & Michelle Sheehan. 2009. Three partial null-subject languages: A comparison of Brazilian Portuguese, Finnish and Marathi. *Studia Linguistica* 63. 59–97. DOI: https://doi.org/10.1111/j.1467-9582.2008.01154.x

Holton, David, Peter Mackridge & Irene Philippaki-Warburton. 2012. *Greek. A Comprehensive Grammar*. 2nd edition. New York: Routledge.

Iatridou, Sabine. 1993. *On Nominative Case Assignment and a few related things*. In Colin Phillips (ed.), *Papers on Case and Agreement II. MIT Working Papers in Linguistics 19*, 175–196. Cambridge, MA: MIT.

Iraola, Maialen. 2015. *Anaphora Resolution in Children and Adults. An Experimental Study of Mature Speakers and Learners of Basque*. Tübingen: Narr Verlag.

Iverson, Michael Bryan. 2012. *Advanced language attrition of Spanish in contact with Brazilian Portuguese*. Iowa: University of Iowa PhD dissertation.

Jaeggli, Osvaldo & Kenneth Safir. 1989. *The null subject parameter*. Dordrecht: Foris. DOI: https://doi.org/10.1007/978-94-009-2540-3

Jegerski, Jill, Bill VanPatten & Gregory D. Keating. 2011. Cross-linguistic variation and the acquisition of pronominal reference in L2 Spanish. *Second Language Research* 33(2). 193–221. DOI: https://doi.org/10.1177/0267658311406033

Judy, Tiffany. 2015. Knowledge and processing of subject-related discourse properties in L2 near-native speakers of Spanish, L1 Farsi. In Tiffany Judy & Silvia Perpiñán (eds.), *The Acquisition of Spanish in Understudied Language Pairings*, 169–199. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/ihll.3.07jud

Kaltsa, Maria, Ianthi M. Tsimpli & Jason Rothman. 2015. Exploring the source of differences and similarities in L1 attrition and heritage speaker competence: evidence from pronominal resolution. *Lingua* 164. 266–288. DOI: https://doi.org/10.1016/j.lingua.2015.06.002

Keating, Gregory D., Bill VanPatten & Jill Jegerski. 2011. Who was walking on the beach? Anaphora resolution in Spanish heritage speakers and adult second language learners. *Studies in Second Language Acquisition* 33(2). 193–221. DOI: https://doi.org/10.1017/S0272263110000732

Koeneman, Olaf. 2006. Deriving the difference between full and partial pro drop. In Peter Ackema, Patrick Brandt, Maaike Schoorlemmer & Fred Weerman (eds.), *Agreement and argument structure*, 76–100. Oxford: Oxford University Press.

Leclercq, Pascale & Ewa Lenart. 2013. Discourse Cohesion and Accessibility of Referents in Oral Narratives: A Comparison of L1 and L2 Acquisition of French and English. *Discours* [Online], DOI: https://doi.org/10.4000/discours.8801

Liceras, Juana M., Anahí Alba de la Fuente & Cristina Martínez Sanz. 2010. The distribution of null subjects in non-native grammars: Syntactic markedness and interface vulnerability. In Michael Iverson, Ivan Ivanov, Tiffany Judy, Jason Rothman, Roumyana Slabakova & Marta Tryzna (eds.), *Proceedings of the Mind/Context Divide Workshop*, 84–95. Somerville, MA: Cascadilla Proceedings Project.

Liceras, Juana M., & Raquel Fernández Fuertes. 2017. Subject omission/production in child Bilingual English and child bilingual Spanish: the view from linguistic theory. *Probus*. DOI: https://doi.org/10.1515/probus-2016-0012

Lipski, John M. 1994. *Latin American Spanish*. London: Longman.

Lipski, John M. 2012. Geographical and Social Varieties of Spanish: An Overview. In José Ignacio Hualde, Antxon Olarrea & Erin O'Rourke (eds.), *The Handbook of Hispanic Linguistics*, 1–26. Blackwell Publishing Ltd. DOI: https://doi.org/10.1002/9781118228098.ch1

Lozano, Cristobal. 2009. Selective deficits at the syntax-discourse interface: Evidence from the CEDEL2 corpus. In Neal Snape, Yan-kit Ingrid Leung & Michael Sharwood Smith (eds.), *Representational deficits in SLA*, 127–166. Amsterdam & Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/lald.47.09loz

Lozano, Cristobal. 2016. Pragmatic principles in anaphora resolution at the syntax-discourse interface. Advanced English learners of Spanish in the CEDEL2 corpus. In Margarita Alonso Ramos (ed.), *Spanish Learner Corpus Research: Current Trends and Future Perspectives*, 236–265. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/scl.78.09loz

Lozano, Cristobal. 2018. The development of anaphora resolution at the syntax-discourse interface: pronominal subjects in Greek learners of Spanish. *Journal of Psycholinguistic Research* 47(2). 411–430. DOI: https://doi.org/10.1007/s10936-017-9541-8

Lubbers Quesada, Margaret & Sarah E. Blackwell. 2009. The L2 acquisition of null and overt Spanish subject pronouns: A pragmatic approach. In Joseph Collentine, Maryellen E. Garcia, Barbara Lafford & Francisco Marcos Marin (eds.), *Proceedings of the 2007 Hispanic Linguistics Symposium*, 117–130. Somerville, MA: Cascadilla Proceedings Project.

Luján, Marta. 1999a. A unified approach to control and obviation. In Jon A. Franco, Alazne Landa & Juan Martín (eds.), *Grammatical Analyses in Basque and Romance Linguistics*, 105–130. Amsterdam & Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/cilt.187.07luj

Luján, Marta. 1999b. Expresión y omisión del pronombre personal. In Ignacio Bosque & Violeta Demonte (eds.), *Gramática descriptiva de la lengua española*, 1275–1316. Madrid: Espasa Calpe.

Manolessou, Io. 2001. The Evolution of the Demonstrative System in Greek. *Journal of Greek Linguistics* 2. 119–148. DOI: https://doi.org/10.1075/jgl.2.05man

Mastropavlou, Maria, Maria Katsiperi, Georgia Fotiadou, Eleni Fleva, Eleni Peristeri & Ianthi M. Tsimpli. 2014. The Role of Definiteness in Anaphora Resolution. *Experimental Psycholinguistics*. Madrid 1–3 October 2014.

Mavrogiorgos, Marios. 2010. *Clitics in Greek. A minimalist account of proclisis and enclisis*. Amsterdam & Philadelphia: John Benjamins. DOI: https://doi.org/10.1075/la.160

Mayol, Laia. 2012. An account of the variation in the rates of overt subject pronouns in Romance. *Spanish in Context* 9(3). 420–442. DOI: https://doi.org/10.1075/sic.9.3.03may

Miltsakaki, Eleni. 2001. Centering in Greek. In Elizabeth Mela Athanasopoulou (ed.), *Selected Papers from the 15th International Symposium on Theoretical and Applied Linguistics*, 309–327. Thessaloniki: Aristotle University.

Montrul, Silvina. 2004a. Subject and object expression in Spanish heritage speakers: A case of morpho-syntactic convergence. *Bilingualism: Language and Cognition* 7(2). 125–142. DOI: https://doi.org/10.1017/S1366728904001464

Montrul, Silvina. 2004b. *The Acquisition of Spanish. Morphosyntactic Development in Monolingual and Bilingual L1 Acquisition and in Adult L2 Acquisition*. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/lald.37

Montrul, Silvina. 2016. Heritage language development: Connecting the dots. *International Journal of Bilingualism*, 1–17.

Montrul, Silvina & Celeste Rodríguez-Louro. 2006. Beyond the syntax of the Null Subject Parameter: a look at the discourse-pragmatic distribution of null and overt subjects by L2 learners of Spanish. In Vincent Torrens & Linda Escobar (eds.), *The Acquisition of Syntax in Romance Languages*, 401–418. Amsterdam: John Benjamins. DOI: https://doi.org/10.1075/lald.41.19mon

Montrul, Silvina & Noelia Sánchez-Walker. 2015. Subject expression in school-age Spanish-English bilingual children. In Ana M. Carvalho, Rafael Orozco & Naomi Shin (eds.), *Subject pronoun expression in Spanish: A crossdialectal perspective*, 231–248. Washington, DC: Georgetown University Press.

Ordóñez, Francisco. 2012. Clitics in Spanish. In José Ignacio Hualde, Antxon Olarrea & Erin O'Rourke (eds.), *The Handbook of Hispanic Linguistics*, 423–451. Blackwell Publishing Ltd. DOI: https://doi.org/10.1002/9781118228098.ch21

Ordóñez, Francisco & Antxon Olarrea. 2006. Microvariation in Caribbean/non-Caribbean Spanish interrogatives. *Probus* 18(1). 59–96. DOI: https://doi.org/10.1515/PROBUS.2006.003

Otheguy, Ricardo, Ana Celia Zentella & David Livert. 2007. Language and dialect contact in Spanish in New York: Towards the formation of a speech community. *Language* 83. 770–802. DOI: https://doi.org/10.1353/lan.2008.0019

Papadopoulou, Despina, Eleni Peristeri, Evangelia Plemenou, Theodoros Marinis & Ianthi M. Tsimpli. 2015. Pronoun ambiguity resolution in Greek: Evidence from monolingual adults and children. *Lingua* 155. 98–120. DOI: https://doi.org/10.1016/j.lingua.2014.09.006

Parodi, Teresa & Ianthi M. Tsimpli. 2005. 'Real' and apparent optionality in second language grammars: finiteness and pronouns in null operator structures. *Second Language Research* 21(3). 250–285. DOI: https://doi.org/10.1191/0267658305sr248oa

Pešková, Andrea. 2013. Experimenting With Pro-Drop in Spanish. *SKY Journal of Linguistics* 26. 117–149.

Pinto, Manuela. 2013. Tracking reference with null subjects. *Linguistics in the Netherlands* 30. 131–145. DOI: https://doi.org/10.1075/avt.30.10pin

Pinto, Manuela. 2014. Effects of L2 Exposure on L1 Grammar. In Chia-Ying Chu, Caitlin E. Coughlin, Beatriz Lopez Prego, Utako Minai & Annie Tremblay (eds.), *Selected Proceedings of the 5th Generative Approaches to Language Acquisition North America*, 79–89. Somerville, MA: Cascadilla Proceedings Project.

Prada Pérez, Ana. 2009. Variation in subject expression in Western Romance. In Sonia Colina, Antxon Olarrea & Ana M. Carvalho (eds.), *Romance Linguistics 2009: Selected papers from the 39th Linguistic Symposium on Romance Languages*, 267–284. Tucson, Arizona. DOI: https://doi.org/10.1075/cilt.315.16pra

Prada Pérez, Ana. 2010. Subject Position in Spanish in Contact with Catalan: Language Similarity vs. Interface Vulnerability. In Michael B. Iverson, Ivan Ivanov, Tiffany Judy, Jason Rothman, Roumyana Slabakova & Marta Tryzna (eds.), *Proceedings of the 2009 Mind/Context Divide Workshop*, 104–115. Somerville, MA: Cascadilla Proceedings Project.

Prada Pérez, Ana. 2018. Theoretical implications of research on bilingual subject production: The Vulnerability Hypothesis. *International Journal of Bilingualism*, 1–25.

Prentza, Alexandra & Ianthi M. Tsimpli. 2012. Resolution of pronominal ambiguity in Greek: syntax and pragmatics. *Μελέτες για την Ελληνική Γλώσσα, Πρακτικά της 33ης Ετήσιας Συνάντησης του Τομέα Γλωσσολογίας του Τμήματος Φιλολογίας της Φιλοσοφικής Σχολής του Α.Π.Θ.*, 197–208. Thessaloniki: Aristotle University.

Real Academia Española & Asociación de Academias de la Lengua Española. 2011. *Nueva gramática básica de la lengua española*. Barcelona: Espasa Libros.

Rizzi, Luigi. 1986. Null Objects in Italian and the Theory of pro. *Linguistic Inquiry* 17. 501–557.

Roberts, Ian & Anna Roussou. 2002. The Extended Projection Principle as a Condition on the Tense Dependency. In Peter Svenonius (ed.), *Subjects, Expletives, and the EPP*, 125–155. New York: Oxford University Press.

Sánchez-Naranjo, Jeannette. 2013. El efecto de la referencia disjunta en español: Diversas perspectivas sobre un fenómeno complejo. *Lingüística y Literatura* 64. 13–32.

Shin, Naomi L. 2012. Variable Use of Spanish Subject Pronouns by Monolingual Children in Mexico. In Kimberly Geeslin & Manuel Díaz-Campos (eds.), *Selected Proceedings of the 14th Hispanic Linguistics Symposium*, 130–141. Somerville, MA: Cascadilla Proceedings Project.

Shin, Naomi L. 2014. Grammatical complexification in Spanish in New York: 3sg pronoun expression and verbal ambiguity. *Language Variation and Change* 26. 303–330. DOI: https://doi.org/10.1017/S095439451400012X

Shin, Naomi L. 2016. Acquiring constraints on morphosyntactic variation: children's Spanish subject pronoun expression. *Journal of Child Language* 43. 914–947. DOI: https://doi.org/10.1017/S0305000915000380

Shin, Naomi L. & Daniel Erker. 2015. Childhood Acquisition of Spanish Subject Pronouns. In Ana M. Carvalho, Rafael Orozco & Naomi Shin (eds.), *Subject pronoun expression in Spanish: A crossdialectal perspective*, 169–190. Washington, DC: Georgetown University Press.

Shin, Naomi L. & Helen Smith Cairns. 2012. The Development of NP Selection in School-Age Children: Reference and Spanish Subject Pronouns. *Language Acquisition* 19(1). 3–38. DOI: https://doi.org/10.1080/10489223.2012.633846

Sifaki, Evi & Ioanna Sitaridou. 2007. EPP Revisited: Evidence from Null Subject Languages. In Eleni Agathopoulou, Maria Dimitrakopoulou & Despina Papadopoulou (eds.), *Selected Papers in Theoretical and Applied Linguistics*, *Volume 1, 17 International Symposium*, 188–198. English Department, Aristotle University. Thessaloniki: Monochromia.

Sifaki, Evi & Ioanna Sitaridou. 2009. It's all gone pro-drop! Unpublished manuscript. University of Roehampton & University of Cambridge.

Silva-Corvalán, Carmen. 1994. *Language contact and change: Spanish in Los Angeles*. Oxford, UK: Clarendon.

Silva-Corvalán, Carmen & Andrés Enrique-Arias. 2017. *Sociolingüística y Pragmática Del Español: segunda edición*. Washington, DC: Georgetown University Press.

Sitaridou, Ioanna. 2004. A corpus-based study of null subjects in Old French and Occitan. In Claus D. Pusch, Johannes Kabatek & Wolfgang Raible (eds.), *Romance Corpus Linguistics II. Corpora and Diachronic Linguistics*, 359–374. Tübingen: Gunter Narr Verlag.

Sorace, Antonella. 2004. Native language attrition and developmental instability at the syntax-discourse interface: Data, interpretations and methods. *Bilingualism: Language and Cognition* 7(2). 1–3. DOI: https://doi.org/10.1017/S1366728904001543

Sorace, Antonella. 2011. Pinning down the concept of "interface" in bilingualism. *Linguistic Approaches to Bilingualism* 1(1). 1–33. DOI: https://doi.org/10.1075/lab.1.1.01sor

Sorace, Antonella. 2012. Pinning down the concept of "interface" in bilingualism: a reply to peer commentaries. *Linguistic Approaches to Bilingualism* 2. 209–216. DOI: https://doi.org/10.1075/lab.2.2.04sor

Sorace, Antonella, Ludovica Serratrice, Francesca Filiaci & Michela Baldo. 2009. Discourse conditions on subject pronoun realization: Testing the linguistic intuitions of older bilingual children. *Lingua* 119. 460–477. DOI: https://doi.org/10.1016/j.lingua.2008.09.008

Spyropoulos, Vassilios. 2007. Finiteness and control in Greek. In William Davies & Stanley Dubinsky (eds.), *New horizons in the analysis of control and raising. Studies in Natural Language and Linguistic Theory* 71. 159–183. The Netherlands: Springer. DOI: https://doi.org/10.1007/978-1-4020-6176-9_7

Steward, Miranda. 1999. *The Spanish language today*. London & New York: Routledge.

Tammer, Castro. 2016. *Heritage and adult L2 acquisition of empty categories in a bidialectal bilingual context. Brazilian and European Portuguese in contact*. The Arctic University of Norway PhD dissertation.

Taraldsen, Tarald. 1978. On the NIC, vacuous application, and the that-trace filter. Ms., MIT. Bloomington: Indiana University Linguistics Club.

Torrego, Esther. 1998. Nominative subjects and pro-drop INFL. *Syntax* 1. 206–219. DOI: https://doi.org/10.1111/1467-9612.00008

Tsimpli, Ianthi Maria. 2011. External interfaces and the notion of 'default'. *Linguistic Approaches to Bilingualism* 1(1). 101–103. DOI: https://doi.org/10.1075/lab.1.1.17tsi

Tsimpli, Ianthi Maria, Maria Andreou, Eleni Agathopoulou & Elvira Masoura. 2014. Narrative production, bilingualism and working memory capacity: A study of Greek-German bilingual children. In George Kotzoglou et al, (eds.), *Selected Papers of the 11th International Conference on Greek Linguistics*, 1730–1942. Rhodes, University of the Aegean.

Tsimpli, Ianthi Maria & Antonella Sorace. 2006. Differentiating interfaces: L2 performance in syntax-semantics and syntax-discourse phenomena. In David Bamman, Tatiana Magnitskaia & Colleen Zaller (eds.), *Proceedings of the 30th Annual Boston Conference on Language Development,* 653–664. Somerville, MA: Cascadilla Press.

Tsimpli, Ianthi Maria, Antonella Sorace, Caroline Heycock & Francesca Filiaci. 2004. First language attrition and syntactic subjects: A study of Greek and Italian near-native speakers of English. *International Journal of Bilingualism* 8. 257–277. DOI: https://doi.org/10.1177/13670069040080030601

Van Esbroeck, Nele. 2014. *La variable sujeto: ¿Qué position ocupa el español chileno dentro del espectro de la variación dialectal?* Gent: University of Gent MA dissertation.

Zagona, Karen. 2002. *The Syntax of Spanish*. Cambridge, UK: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511613234

How to cite this article: Giannakou, Aretousa and Ioanna Sitaridou. 2020. Microparametric variation in the syntax of Spanish and Greek pronominal subjects. *Glossa: a journal of general linguistics* 5(1): 75. 1–42. DOI: https://doi.org/10.5334/gjgl.960

Submitted: 03 April 2019 **Accepted:** 25 February 2020 **Published:** 24 July 2020

]u[*Glossa: a journal of general linguistics* is a peer-reviewed open access journal published by Ubiquity Press. **OPEN ACCESS**