



# Micro-variation in subject realization and interpretation: an introduction

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SPECIAL COLLECTION:  
MICRO-VARIATION IN  
SUBJECT REALIZATION  
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## **ABSTRACT**

In this introduction to the Special Collection of the same title, we start out by discussing some key issues addressed by recent research on micro-variation in subject realization and interpretation in anaphoric contexts (Section 1). This includes the status of some subject anaphoric devices in null vs. non-null subject languages, the possibility of micro-variation among null subject languages, and the way in which L2 speakers, elderly speakers and children deal with the task at stake and the factors that may influence this process. Then, we briefly summarize the seven contributions to this collection (Section 2) and relate the findings of each contribution to one another as well as to previous research (Section 3). As a whole, the studies in this collection not only shed light on many of the above mentioned issues, but they also raise novel research questions that open new perspectives of investigation into the choice and interpretation of subject referring expressions.

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The choice and interpretation of subjects in anaphoric contexts (i.e. when they are used to resume a previously introduced discourse referent) is affected by a number of factors which the relevant literature has extensively addressed. An influential model is Ariel's (1990; 2001) Accessibility Theory which assumes that choice/interpretation of an anaphoric referring expression is influenced by the prominence (accessibility) of the antecedent: the more prominent the antecedent, the less explicit the anaphoric device will be; the less explicit the anaphoric device, the more prominent the antecedent will be. Prominence of an antecedent is in turn a function of structural and discourse factors such as its subject/object status (with subjects more prominent than objects), its topicality (with topics more prominent than non-topics) and the presence/absence of competing antecedents. Accessibility Theory also assumes that whenever two forms are attested in a given language, they will occur in the same hierarchical order cross-linguistically.

As is well known languages differ with respect to the possibility of allowing sentences with a null subject. This possibility, i.e. the positive setting of the relevant parameter (Taraldsen 1980; Rizzi 1982) has a number of related subtle syntactic properties, such as the possibility of having post-verbal subjects, which are not, however, equally employed in all null subject languages (Gilligan 1987; Belletti 2001, 2004; Roussou & Tsimpli 2006; Ordoñez, 2007 a. o.). When we deal with anaphora resolution, we have thus a main divide, with non-null subject languages on one side (where only overt subjects – lexical or pronominal – can be used to retrieve a previously introduced discourse referent) and null subject languages on the other (which avail themselves of an extra device, i.e. *pro*, the null pronominal subject). This difference in the inventory of anaphoric devices is expected to have some impact on their antecedent retrieval properties.

An overt subject pronoun, for instance, is preferably interpreted as co-referent with a subject antecedent in a non-null subject language as English (Arnold *et al.* 2000; Arnold 2010), while in a null subject language as Italian, as we shall see, it is preferably interpreted in co-reference with a non-subject antecedent.<sup>1,2</sup>

It is also possible, however, that the division of labor among the different referring expression is not the same within the languages of each group, as we have seen above for the use of the post-verbal subject position available in null subject languages: a possibility made available by the grammar of some languages may be put to a different use in different languages sharing the same property.

Research on null subject languages has mainly focused on the null/overt pronoun division of labor, which has often been studied in fully ambiguous contexts, where a null or an overt pronoun and two possible antecedents for the pronoun are placed in bi-clausal sentences, as in (1) from Italian:

- (1) Quando Mario ha incontrato Gianni, *pro*/lui ha sorriso  
when Mario has met Gianni *pro*/he has smiled  
'When Mario met Gianni, he smiled'

In his seminal work, Calabrese (1986) proposed that in Italian, *pro* picks up an antecedent that is the subject of primary predication (or *thema*) of the preceding clause (*Mario* in (1)), while the overt pronoun picks up the 'unexpected' object antecedent (*Gianni* in (1)).

The characterization of the preferred antecedent of *pro* proposed by Calabrese (1986) ties together two of its peculiar properties that frequently co-occur (Rizzi 2005, 2018): the structural property of being a subject, and the d-linked (discourse linked) property of being a topic. As

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1 Arnold (2010) calls this preference of the English overt pronoun the 'first-mention bias'. According to earlier studies which have interpreted this effect as a 'parallel function strategy' (Sheldon 1974), if the English overt pronoun bears stress, it is instead interpreted as co-referent with an object antecedent. This does not necessarily entail, however, that the stressed English overt pronoun is the equivalent of the Italian overt pronoun. See Carminati (2002: Ch.1) for some discussion.

2 In Cardinaletti & Starke's (1999) terms, the English overt pronoun may be weak or strong (Cardinaletti 2004a and b), while the Italian overt pronoun is a strong pronoun. Cardinaletti (2004a and b) and Frascarelli (2007) signal however an ongoing change in Italian, whereby weak overt pronouns are also attested, mainly in informal contexts.

for the first property, Carminati (2002) has proposed the Position of Antecedent Hypothesis, providing experimental evidence confirming that *pro* in Italian is preferably interpreted as co-referent with an antecedent in Spec, IP, while an overt pronoun is preferably interpreted as co-referent with an object antecedent. The preferred interpretation of *pro*, however, seems to be weakened in certain structural environments, as also revealed by some experimental evidence (Carminati 2002, Sorace & Filiaci 2006), while it emerges particularly, as noted by Rizzi (2018), with preposed adverbials, such as (1), and in discourse sequences.<sup>3</sup>

It is also unclear whether the same interpretive preferences can be extended to other null subject languages. Filiaci (2010) and Filiaci, Sorace & Carreiras (2014), for instance, noted some differences between Italian and Spanish. In their self-paced reading study, Filiaci, Sorace & Carreiras (2014) found that while in Italian *pro* prefers an antecedent in subject position and the overt pronoun prefers a non-subject antecedent, the overt pronoun in Spanish has not a clear object bias. Chamorro, Sorace & Sturt (2016) and Chamorro (2018), instead, provided evidence suggesting that *pro* in Spanish does not have a clear subject bias. The clausal environments used by Chamorro (2018), however, were the same in which Sorace & Filiaci (2006) had found a weaker subject bias for *pro* in Italian, so it is possible, as Chamorro (2018: 13) suggests, that the unclear subject preference of *pro* in Spanish is akin to that found in Italian.<sup>4</sup> The evidence concerning the comparison of Spanish and Italian, hence, is not conclusive and the issue of micro-variation in the division of labor among referring expressions in null subject languages certainly deserves further investigation, expanding as well the inquiry to other null subject languages.

Giannakou & Sitaridou (2020), examined native speakers of Greek and native speakers of Chilean Spanish in production and comprehension. They found a clear difference between Greek and Chilean Spanish in the use and interpretation of overt subject pronouns. In production, although the use of overt subject pronouns was low in both groups, frequency was significantly lower in Greek than in Spanish. In comprehension, while Greek speakers consistently linked the overt pronoun to the object, in Spanish there was no strong bias towards any of the antecedents. The authors hypothesize that the difference may be due to the fact that the Greek third person overt subject pronoun has the same form of the demonstrative, (*aftós*, in the masculine singular nominative form). To this end, they conceived a follow-up study in which Chilean Spanish speakers had to interpret the demonstrative (*este* in the masculine singular form) instead of the personal pronoun (*él* in the masculine singular form) of the previous study. Results confirm that the interpretation of *este* is akin to that of *aftos*, i.e. it has a comparable object bias.

Furthermore, Giannakou & Sitaridou (2020) found that in both Spanish and Greek null subjects were allowed in topic shift contexts in production, and did not exhibit a clear subject bias

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<sup>3</sup> Rizzi (2018) assumes that this is so because c-command is not involved in these cases. When two possible antecedents for *pro* in the preceding clause c-command the null pronoun, there is no clear preference. In (i), for instance (Rizzi 2018: 516), *pro* can equally co-refer with either *Francesca* or *Maria*:

(i) Francesca ha fatto notare a Maria che *pro* era molto stanca  
Francesca has made notice to Maria that *pro* was very tired.FS  
'Francesca made Maria realize that she was very tired'

See also Footnote 4 here below.

<sup>4</sup> The relevant sentences were in the main-subordinate order with antecedents in the main clause, such as (i.a) in Sorace & Filiaci (2006) and (i.b) in Chamorro (2018):

(i.a) La madre dà un bacio alla figlia mentre *pro/lei* si mette il cappotto  
the mother gives a kiss to-the daughter while *pro/she* REFL*si* puts the coat  
'The mother gives a kiss to her daughter while she puts on her coat'

(i.b) La madre saludó a la chica cuando ella cruzaba una calle con mucho tráfico  
the mother greeted.SG to the girl when she crossed.SG a street with much traffic  
'The mother greeted the girl when she crossed a street with a lot of traffic.'

Carminati's (2002) interprets this weaker subject bias of *pro* assuming that the temporal adverbial clause is VP-adjoined: the object becomes thus a tempting antecedent since it sits within the currently parsed constituent when the pronoun is encountered. Parsing constraints are another factor which may influence pronoun resolution. See Fedele & Kaiser (2014) for some data and discussion on the interplay between parsing and syntactic constraints in pronoun resolution in Italian.

Following a suggestion by Luigi Rizzi (p.c.), we note however that the weaker subject bias of *pro* in (i) and (ii) can also be explained assuming that both the subject and the object (Pesetsky 1995) of the matrix clause c-command the pronoun in the adverbial clause.

in comprehension: this could suggest a difference concerning null subjects with Spanish and Greek on one side and Italian on the other, where, according to Calabrese (1986) and Carminati (2002) null subjects have a strong topic/subject bias.<sup>5</sup>

Some of the studies in this collection address the issue of micro-variation in the division of labor between null and overt subject pronouns in null subject languages, but before examining them we would like to highlight another dimension of variation that the relevant literature has addressed: bilingual speakers (in particular late bilinguals, i.e. following Sorace 2016, speakers who have started to acquire a second language after puberty) of a null subject language appear to over-use overt pronouns with respect to monolingual speakers, and to interpret them as co-referent with a subject antecedent to a greater extent than monolinguals. Many studies have confirmed this finding in bilingual speakers of a non-null and a null subject language (Tsimplici *et al.* 2004; Sorace & Filiaci 2006; Belletti, Bennati & Sorace, 2007; Serratrice, Sorace & Paoli 2004 a. o.), identifying cross-linguistic influence as its source, in a specific direction: the non-null subject language seems to influence what bilinguals do in their null subject language, regardless of the fact that the non-null subject language is the first or the second language of these speakers.

Interestingly, however, some studies revealed an over-use of overt subject pronouns also in bilingual speakers of two null subject languages (Sorace *et al.* 2009; Margaza & Bel 2006; Lozano 2006, among many others). The question then is whether subtle differences among the two null subject languages spoken by the bilinguals play a role (and hence cross-linguistic influence is again involved) or the over-use of overt pronouns by bilinguals is a peculiarity of these speakers. This in turn raises the question of why it should be so, and whether bilinguals are simply prone to be over-explicit (Hendriks 2003 a. o.), or have processing difficulties which emerge in anaphora resolution. Anaphora resolution is indeed a complex domain, particularly vulnerable in bilingual acquisition (possibly because it is at the syntax-discourse interface, as proposed by the Interface Hypothesis, see Sorace & Filiaci 2006, Tsimplici & Sorace 2006, Sorace 2011) and acquired late in first language acquisition (Sorace *et al.* 2009).

These considerations in turn prompted a line of research aimed at inquiring on possible cognitive factors influencing anaphora resolution, as well as its acquisition, in different populations of speakers.

Age-related differences in particular (in connection perhaps to working memory capacities, van Rij *et al.* 2013) appear to be relevant: children display preferences in anaphora resolution which partly differ from those of adults (Papadopoulou *et al.* 2015; Hendriks *et al.* 2014); young and elderly adults also differ, particularly in production (Hendriks *et al.* 2014).

## 2. The present collection

The present collection contains seven contributions that address different aspects contributing to variation in subject realization and interpretation in monolingual and bilingual speakers, ranging from interlingual differences and syntactic constraints (word order, intervention), to prosody, discourse and cognitive factors. As far as the languages investigated are concerned, three null subject languages are considered (Italian, Greek and Spanish) either individually or in mutual comparison (Italian/Greek; Greek/Spanish), or in comparison with a non-null subject language (Spanish/English; Italian/Swedish). Most contributions focus on adult L1 speakers, often compared to adult L2 speakers. Children as well as ageing adults are also investigated in some of the studies. Various experimental techniques are employed to test interpretation and/or production, ranging from semi-spontaneous and elicited production to multiple-choice tasks and eye-tracking measures.

### 2.1 The role of prosody in overt pronoun resolution in a null subject language and in a non-null subject language: A production study

Chiara Gargiulo, Mechtild Tronnier & Petra Bernardini investigate how prosodic cues influence overt pronouns interpretation in Italian and Swedish. A production task and a control

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<sup>5</sup> It is worth mentioning, however, that in the comprehension study Giannakou & Sitaridou (2020) used main-subordinate sentences with the antecedents in the main clause As we have seen (footnote 4 above), in this syntactic environment the subject bias of *pro* is weaker in Italian as well.

interpretation task were administered to 28 adult native speakers of Italian and 28 adult native speakers of Swedish. While in Italian, as we have seen, overt pronouns are preferably associated to object antecedents, in a non-null subject language like Swedish overt pronouns are assumed to be equally biased towards a subject or an object antecedent. In the production task, participants had to read out loud globally ambiguous bi-clausal sentences containing an overt pronoun and two possible antecedents (as in (1) above). Each sentence was preceded by a context sentence which made clear which was the intended antecedent (subject or object) for the pronoun. Results show that both Swedish and Italian participants use a longer inter-clausal pause and higher prominence (with prominence defined in terms of length, F0 and intensity) to signal the non-preferred interpretation of the overt pronoun. Variation lies in the interpretation preferences for the overt pronoun, which, as clearly revealed by the data of the interpretation task, display an object bias in Italian and a subject bias in Swedish.

## 2.2 The processing of subject pronouns in highly proficient L2 speakers of English

Carla Contemori & Paola Dussias deal with pronominal resolution in L2 speakers of a non-null subject language (English) whose L1 is Mexican Spanish. Previous studies on the acquisition of anaphora resolution in a non-null subject second language are quite rare, and have shown mixed results: while off-line tasks showed a native-like performance (Contemori *et al.* 2019), some studies based on on-line measures (Roberts *et al.* 2008) revealed a processing penalty experienced by L2ers when compared to native speakers, while other studies did not (Cunnings *et al.* 2017). The 24 L2 speakers examined by Contemori & Dussias – in comparison to a control group of 25 monolingual English speakers – are both late bilinguals and speakers who have been exposed to the L2 since early childhood having achieved a near-native competence. The authors use eye-tracking measures during listening (visual world paradigm) to explore whether gender information and the first-mention bias have similar rapid on-line effects during pronoun interpretation in the two groups of speakers. Their results did not show a delayed processing by L2ers when encountering the pronoun, but only an attenuated use of the gender information during pronoun resolution. When the complexity of the discourse is relatively low, as in the experimental materials of this study (as well as of Cunnings *et al.*'s), pronoun resolution by L2ers may not be associated with processing cost, even when their two languages have different sets of referring expressions and different interpretation biases, as English and Spanish.<sup>6</sup>

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

Panagiota Margaza & Anna Gavarró examine the distribution of null and overt subject pronouns in intermediate and advanced adult L2 speakers of Spanish (with L1 Greek) and of Greek (with L1 Spanish). Two control groups of L1 speakers of Spanish and L1 speakers of Greek were also involved, for a total of 180 participants (30 per group). The data were collected through two versions of a multiple-choice task (in fact, a two options choice, which for the experimental items was overt vs. null pronoun), one in Spanish and one in Greek. A quite unexpected result – with respect to the previous literature – is that Greek native speakers allowed a significantly higher rate of overt subjects than Spanish native speakers in topic continuity context. The experimental groups showed some differences, related to the L1 – L2 combination and the level of proficiency in the L2. In particular, the performance of the L1 Spanish – L2 Greek speakers was more native-like than the performance of L1 Greek – L2 Spanish speakers. In the latter groups only, Margaza & Gavarró found an intermediate/advanced difference, with only intermediate learners differing significantly from native speakers. As the authors argue, this asymmetry (as well as the native-like performance of L2 Greek speakers, even at the intermediate level) is not predicted by either version of the Interface Hypothesis (Sorace & Filiaci 2006; Sorace 2011).

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<sup>6</sup> As Contemori & Dussias underline, there are two main reasons why the experimental materials, and the related task, in their study (exemplified in (i)) were less complex for L2 speakers than the ones employed by Roberts *et al.* (2008) (exemplified in (ii)). The first is that their sentences (like those employed by Cunnings *et al.* 2017) were not globally ambiguous, the second is that in Roberts *et al.*'s materials the two referents introduced in the discourse had similar degrees of saliency:

- (i) A builder saw a doctor by the door. He briefly thanked the doctor/builder for his help
- (ii) Hans and Peter are in the office. While Peter is working, he is eating a sandwich.

The accessibility of the referents, they conclude, is an important factor in pronoun resolution.

As an explanation, the authors propose that if Greek defines a superset with respect to Spanish, Spanish learners of Greek will be less likely to accept a construction which is unacceptable in Greek, while the reverse is possible. Hence, assuming transfer to have a role, Greek learners of Spanish will be more likely to over-accept overt pronouns which are acceptable in Greek but not in Spanish.

## 2.4 Variation in the use and interpretation of null subjects: A view from Greek and Italian

Jacopo Torregrossa, Maria Andreou & Christiane Bongartz focus on the properties of *pro* in Greek and Italian, starting from the observation that a sentence like (2) (their ex. (4)) sounds quite unnatural in Italian, while its equivalent (3) (their ex. (3)) is perfectly natural in Greek, suggesting that a strong subject bias of *pro* holds in Italian but not in Greek:

- (2) Poiché Caterina ha severamente criticato Mario, (pro)  
Because c.F.SG. AUX.IND.PRES.3SG. severely criticize.PPT M.M.SG., pro  
era imbarazzato  
be.IND.IMP.F.3SG embarrassed.M.SG.
- (3) Epeidí i Caterina epékrine afstirá ton Mario, (pro)  
Because C.NOM.F.SG. criticize.IND.PF.3SG. severely M.ACC.M.SG. pro  
ítan ntropiasménos.  
be.IND.IMP.F.3SG. embarrassed.NOM.M.SG.

The results of an interpretation task and a production task involving native Italian and Greek speakers confirm the observation: while all participants prefer to interpret or use a null subject in coreference with a subject antecedent, Greek participants allow coreference of a null subject with an object antecedent to a significantly greater extent than Italian participants. The authors interpret this difference as stemming from the fact that syntactic prominence of the antecedent is a more reliable cue for anaphora resolution in Italian than in Greek. According to Tsimpli & Roussou (2006), indeed, subjects and objects in Greek may occur in the same clitic-shell, contrary to Italian (which does not allow VSO in broad focusthetic sentences).

## 2.5 Null and overt subject pronouns in topic continuity and topic shift: An investigation of the narrative productions of Italian Natives, Greek Natives and near-native second language speakers of Italian with Greek as a first language

Similar findings concerning the use of *pro* in Greek and Italian are reported by Elisa Di Domenico, Ioli Baroncini & Andrea Capotorti. The authors analyze the kind of subject referring expression (null and overt pronouns as well as lexical DPs) produced in elicited narrations by the three groups of speakers in terms of topicality and number and kind of active referents. Their results show that while *pro* differs in the productions of Greek and Italian natives (in that it is significantly more attested in topic shift contexts in Greek than in Italian), L2 speakers of Italian do not transfer this property of Greek into their Italian. On the contrary, while overt pronouns are equally employed by Greek and Italian natives, L2 speakers of Italian over-use overt pronouns, using them also in topic continuity. This result, that is in line with previous literature, cannot be due to cross-linguistic influence (since Greek and Italian do not differ in the use of overt pronouns) nor to a difficulty to cope with topicality, since L2 speakers were able to do so in the case of *pro*.

Further analyzing the data, the authors found that over-use of overt pronouns in topic continuity is attested particularly when two referents which differ for gender and/or number are active.

As Arnold & Griffin (2007) have proposed, attention is a limited resource, and the presence of an additional character decreases referents' activation as an effect of cognitive load. In this environment, as Di Domenico, Baroncini & Capotorti argue, the topic/non-topic distinction is less clear for L2ers, whose processing resources are more taxed (Sorace, 2016), and the overt pronoun is the sufficiently explicit (hence not over-explicit) device to employ for them.



## 2.6 Anaphora resolution and word-order across adulthood: Ageing effects on online listening comprehension

Georgia Fotiadou, Ana I. Pérez Muñoz & Ianthi M. Tsimpli investigate the role of ageing in the interpretation of two overt pronominal referring expressions in Greek (namely *aftós* ‘he’, and *ó ídhios* ‘the same’) using online (visual world paradigm) and offline (comprehension questions) measures. A group of young (mean age 23.51) and a group of elderly (mean age 67.97) adult speakers participated in this experimental study. Working memory scores differed significantly between age groups, with a higher capacity in young adults. Another factor, manipulated in the experimental materials, is clause-internal word order (SVO vs. OVS, both possible in Greek) in the presentation of subject and object antecedents.<sup>7</sup> On theoretical grounds, the authors assume that the interpretation of the subject pronoun *ó ídhios* should reveal a subject preference in both word orders (since the authors assume that, due to its lexical meaning, its interpretation is driven by parallelism), while *aftós* should prefer an object antecedent particularly in the SVO order. Age differences are expected in online processing (related to cognitive decline in the older participants), but not in the off-line task. Results partly confirm the predictions, with no age-related differences in the off-line task: both groups preferred a subject interpretation for *ó ídhios*, while preferences for *aftós* were at chance level, contrary to previous studies showing a clear object preference (e.g. Papadopoulou *et al.* 2015). In the on-line task, compared to *aftós* (where age-related differences were found in both word orders, with younger adults spending more time looking at the subject picture), the online processing of the pronoun *ó ídhios* is preserved in elderly adults when structural complexity is lower (i.e., in SVO).

## 2.7 Children’s subjects in Clitic Left Dislocations in Italian

A clausal type analogous to the Greek OVS sentences employed by Fotiadou, Pérez Muñoz & Tsimpli, is studied by Claudia Manetti & Adriana Belletti, who examine the choice of subjects by 4-6 y.o. Italian children in this specific syntactic configuration (Clitic Left Dislocations-CLLDs - of the kind: *Il gatto, il cane lo lava* ‘The cat, the dog washes it’).<sup>8</sup> In line with some of the previous literature, the authors assume that in the derivation of this structure a locality problem occurs: in its movement to the left peripheral topic position, the lexical DP object encounters an intervening subject. The type of subject modulates the type of intervention: if the subject is a lexical DP as well, we can have inclusion (if subject and object match for number) or intersection (if they mismatch for number). If the subject is pronominal, we have a disjunction relation. While the inclusion relation is too costly for pre-school children, the intersection relation can be mastered, and the disjunction relation is the easiest one (Friedmann *et al.* 2009, Belletti *et al.* 2012). The realization of subjects in CLLDs is compared to its realization in subject-clitic-verb structures (*Il cane lo lava* ‘The dog washes it’), both elicited by Belletti & Manetti (2019) through two picture description tasks in which children were asked to talk about the patient(s) of transitive verbs after hearing a patient-oriented question. In the ‘one patient condition’, the object topic need not be lexicalized (subject-clitic-verb structures are elicited), while in the ‘two patients condition’ the patient must be expressed, hence CLLDs were elicited. The elicitation of CLLDs included two conditions: a single agent vs. two agents. The authors find a significantly higher use of *pro* in CLLDs, in the ‘two agents condition’: plural *pro*, the authors argue, can have a generic interpretation. Hence its use allows children to avoid the lexical expression of the agent, determining a disjunction relation, which is the easiest intervention condition. Use of plural generic *pro*, thus, can be seen as a strategy to avoid a locality problem. Overt pronouns were never used, demonstrating that children at this age are well aware of the distribution of null and overt subject pronouns in Italian.

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<sup>7</sup> OVS structures employed in this study were structures in which the object is topicalized and resumed by a clitic pronoun (Clitic Left Dislocations), as in (i), Fotiadou, Pérez Muñoz & Tsimpli’s ex. (2.b):

(i) Ton Kosta ton sinandise o Janis  
the.ACC Kostas.ACC him met.3SG. the.NOM Janis.NOM  
‘Kostas, Janis met him’

<sup>8</sup> It is worth noting that in these structures the subject is post-verbal in Greek (as we have seen in fn.6 above), while it is pre-verbal in Italian. See Fotiadou, Pérez Muñoz & Tsimpli (*this collection*) for some discussion.

As we have seen, previous research on micro-variation in subject realization and interpretation in anaphoric contexts has brought to the fore a number of relevant research issues that concern the status of some subject anaphoric devices in null vs. non-null subject languages, the possibility of micro-variation among null subject languages, and the way in which populations of L2 speakers, elderly speakers, and children deal with the task at stake and the factors that may influence this process. Taken together, the studies in this collection not only shed light on many of these issues, but they also raise novel research questions that open new perspectives of investigation.

Gargiulo, Bernardini & Tronnier found that overt pronouns in Swedish are preferably interpreted as co-referent with a subject antecedent. This subject bias appears analogous to that described for English (Arnold 2010) and Dutch (Roberts *et al.* 2008; Hendriks *et al.* 2014) overt pronouns, suggesting that overt pronoun biases are quite uniform (and subject-oriented) in non-null subject languages. In null subject languages instead, overt pronouns are preferably strong, at slightly varying degrees depending on the language considered. Some of the studies in this collection indeed confirm micro-differences among null subject languages, not only for overt pronouns, but for null pronouns as well. *pro* in Greek seems to differ from *pro* in Italian in that the former has a less clear subject/topic bias in comprehension and is used to retrieve a non-subject/non-topic antecedent to a larger extent in elicited production (Torregrossa, Andreu & Bongartz; Di Domenico, Baroncini & Capotorti). A clear subject bias in Greek is instead displayed by the infrequent overt pronoun *o ídhios*, which Fotiadou, Pérez Muñoz & Tsimpli examine in comparison to *aftós*. Assuming that *aftós* has a more ambiguous nature than *o ídhios*,<sup>9</sup> and hence is more complex, Fotiadou, Pérez Muñoz & Tsimpli show that elderly speakers diverge from younger speakers when complexity (ambiguity, in this case) increases, an effect that only shows up in on-line processing. A different kind of complexity, namely unclear prominence of the antecedent, seems to tax L2 speakers, as suggested by Contemori & Dussias results in comparison to Roberts *et al.*'s (2008), as well as by the results obtained by Di Domenico, Baroncini & Capotorti.

The idea that factors contributing to complexity may be different for different populations of speakers is also highlighted by Manetti & Belletti's 4–6 y. o. children, who struggle with intervention effects. These children reveal as well that diverging patterns – in their case, the use of a plural *pro* subject with generic meaning – may not be determined by difficulties concerning the anaphoric devices *per se*, as these children appear to fully master the constraints regulating the null/overt option in Italian, a claim that could possibly be extended to elderly speakers and L2 speakers.

Patterns diverging from the baseline, furthermore, may not emerge if the task is relatively easy, as in off-line tasks and with non-ambiguous pronouns for elderly speakers (Fotiadou, Pérez Muñoz & Tsimpli). For L2 speakers, as we have seen, diverging patterns may not emerge in contexts in which prominence of an antecedent is clear, but also in the 'superset' language, as Margaza & Gavarró suggest.

Importantly, some studies in this collection show that L2 speakers of two null subject languages may indeed diverge from native speakers in anaphora resolution when the task/context is sufficiently complex. Cross-linguistic influence may play a role here, when, as Margaza & Gavarró show the two null subject languages of these speakers exhibit micro-differences.

Finally, in addition to the widespread and variegated micro-variation in subject realization and interpretation in anaphoric contexts brought to light by the studies in this collection, it is interesting to note that prosodic features may play the same role in otherwise unrelated languages. This is suggested by the fact that both speakers of a null subject language (Italian) and speakers of a non-null subject language (Swedish) use the same prosody (a longer inter-

<sup>9</sup> Fotiadou, Pérez Muñoz & Tsimpli unexpectedly found, for *aftós*, chance level preferences for subject and object antecedents. A similar, unexpected result concerning *aftós* is found by Margaza & Gavarró, in that the Greek native speakers they examined accepted it in topic continuity contexts at a rate which was higher than the acceptance rate of the Spanish speakers for the overt pronoun *él* in the same contexts. Di Domenico, Baroncini & Capotorti found instead that *aftós* is almost exclusively used in topic shift contexts by Greek natives in their narratives. These partly conflicting results suggest, also in the light of the results from previous literature, that the antecedent retrieval properties of *aftós* deserve further investigation.



clausal pause and a more prominent pronunciation of the pronoun) to signal the non-preferred interpretation of an overt pronoun, as found by Gargiulo, Bernardini & Tronnier.


## List of abbreviations

3 = third person, ACC = accusative, F = feminine, IMPF = imperfect, IND = indicative, M = masculine, NOM = nominative, PPT = past participle, PRES = present, REFL = reflexive, SG = singular.

## Competing Interests

The authors have no competing interests to declare.

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