Bilingualism and (outward) over-explicitness in the choice of subject anaphoric devices[*]

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Abstract:

In this work we propose an explanation (the Decreased Activation Hypothesis) for some *prima facie* conflicting findings concerning the choice/interpretation of subject anaphoric devices in late bilinguals (LBs). While some studies report an overuse of overt pronouns (often claimed to be a default form employed by LBs), other studies report an overuse of lexical DPs (interpreted as a sign of LBs' over-explicitness). Our proposal is that over-explicitness in bilinguals is just outward and the use of seemingly over-explicit forms (overt pronouns or lexical DPs) stems from LBs difficulty to cope with referents' activation. Then, starting from the observation that whenever overuse of overt pronouns is reported a null subject language is at least involved, and whenever overuse of lexical DPs is reported a non-null subject language is at least involved, we explore the way in which subject anaphoric devices are employed in (some) null subject languages and in (some) non-null subject languages, finally arguing that LBs of a null and a non-null subject language may choose to be seemingly overexplicit in two different ways.

Keywords: *Accessibility, Bilingualism, Over-Explicitness, Subject Anaphoric Devices*

1. Introduction

A recent discovery in the field of bilingualism is that bilinguals (in particular late bilinguals, henceforth LBs, i.e. adult speakers who have acquired a second language after puberty) tend to overuse overt subject pronouns in their null subject language, regardless of the fact that they have correctly set the relevant parameter and that their other language is also a null subject language. In specific, overt subject pronouns are used by LBs also in topic continuity and interpreted also as co-referent with

a topical antecedent at a higher rate with respect to native speakers of a null subject language, which prefer a null pronoun to pick up a topical antecedent.

An influential explanation for this finding is the Interface Hypothesis (Sorace and Filiaci 2006; Tsimpli, Ianthi, and Sorace 2006; Sorace 2011) which, in its more recent version, states that properties at the syntax-discourse interface are particularly vulnerable, and that bilinguals have more limited processing resources with respect to monolinguals: this makes it difficult for them to compute topicality. Overt pronouns thus represent a convenient 'default' strategy, in that, through their phi-features, they help identifying the intended antecedent, while, at the same time, they allow to avoid lexical retrieval, which may be costly for these speakers (Sorace 2011, 2016 a.o.). Another proposed explanation is the Pragmatic Principles Violation Hypothesis (Lozano 2016) which assumes that LBs will violate more often pragmatic principles banning redundancy than pragmatic principles banning ambiguity.

Other studies report that LBs overuse lexical DPs with respect to monolinguals, a data which does not seem to support the first explanation, but rather the view that LBs are "over-explicit" with respect to monolinguals (Ryan 2015 a. o.).

The question, however, is why LBs are over-explicit, and why over-explicitness is instantiated in two different ways: overuse (and interpretation also in co-reference with a subject antecedent) of overt pronouns, and overuse of lexical DPs.

On the basis of production data from LBs of two null subject languages, Di Domenico, Baroncini and Capotorti (2020) proposed that over-explicitness might be just outward, and that the specific problem that these speakers are faced with is in establishing the prominence of an antecedent (topicality) when more than one referent is active, because the presence of an additional character decreases referents' activation. If so, overt pronouns are not a default option for LBs of two null subject languages, but rather the sufficiently explicit device to employ in this condition.

In this work we will explore the possibility that what we will call the "Decreased Activation Hypothesis" can be extended to explain also the other data observed in the relevant literature. Starting from the observation/generalization that whenever overuse of overt pronouns is reported, a null subject language is at least involved, and whenever overuse of lexical DPs is reported a non-null subject language is at least involved, we will finally propose that there are two ways of being "seemingly over-explicit" (the "null subject language centered" strategy and the "non-null subject language centered" strategy) and that LBs of a null and a non-null subject language, given their bilingual competence, may choose one or the other. This requires on one side a comparative analysis of how anaphoric devices are employed in null and non-null subject languages, and on the other the assumption that bilingual speakers may choose among the options offered by their multilingual competence.

In Section 2 we will review some relevant literature concerning the use and interpretation of subject anaphoric devices by LBs. As we said, some studies report an overuse of overt pronouns while other studies report an overuse of lexical DPs. The baseline on which 'overuse' is calculated is usually represented by native, monolingual speakers.[1] In Section 3 we will explore how subject anaphoric devices are chosen and interpreted by native monolingual speakers of null and non-null subject languages. In Section 4 we will outline the core of our proposal, examining as well some cases which require an additional explanation. In Section 5 we will draw some conclusions.

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[1] An exception is Torregrossa and Bongartz (2018). We use the term "monolingual speakers" to refer to speakers who have grown with one language, which is the language they currently employ in everyday life. Of course a monolingual speaker may have (and this is generally the case) some knowledge of another language acquired later in life.

2. The use and interpretation of subject anaphoric devices by (Late) Bilinguals: a review of some relevant literature

2.1 The overuse and over-acceptance of overt pronouns

Tsimpli *et al.* (2004) examined a group of 20 adult speakers with Italian as a first language (L1) who had a minimum of 6 years of residence in Britain, and were hence very advanced (near-native, according to White and Genesee's 1996 criteria) speakers of English as a second language (L2), but still used their L1 on a regular basis. They found significant differences between this experimental group and a control group of 20 monolingual speakers of Italian in the interpretation of overt pronouns. [2] They used experimental bi-clausal sentences like those in (1), with a null or an overt pronoun in the temporal clause and two possible antecedents in the main clause. The temporal clause could either precede (1.a and 1.b) or follow (1.c and 1.d) the main clause:

(1)   a. Quando *pro* attraversa la strada, l' anziana signora saluta la ragazza
        when *pro* crosses the street the old lady greets the girl
    b. Quando lei attraversa la strada, l' anziana signora saluta la ragazza
        when she crosses the street the old lady greets the girl
    c. L' anziana signora saluta la ragazza quando *pro* attraversa la strada
        the old lady greets the girl when *pro* crosses the street
    d. L' anziana signora saluta la ragazza quando lei attraversa la strada
        the old lady greets the girl when she crosses the street

The experimental group showed a significantly greater tendency to interpret the overt pronoun as co-referent with the subject of the main clause, when compared to the control group. [3] No significant differences between the experimental and the control group were found in production, elicited through a story telling task. These differences in interpretation were assumed to be an effect of attrition on the L1 caused by the L2.

The authors distinguish between the setting of the null subject parameter on one side, and the way in which the options made available by the grammar (i.e. in null subject languages, the availability of null subjects and of the postverbal subject position) are assigned interpretable features relevant at the LF-interface, predicting that attrition will affect the latter only.[4] As an effect of attrition, an interpretable feature that is specified in the L1 will become unspecified due to the absence of a similar interpretable feature in the L2 in the same syntactic context.

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[2] These data were part of a more comprehensive study concerning the syntax of subjects in Greek and Italian speakers of L2 English living in Britain. The Greek experimental group did not significantly differ from the Greek monolingual controls in the interpretation and production of overt pronouns. They differed from controls in producing less postverbal subjects, and in a more ambiguous interpretation of preverbal and postverbal indefinite subject.

[3] Interpretations were elicited through a picture verification task. Participants had to choose one among three pictures as the antecedent of the pronoun (either the picture showing an old lady, or the girl, or someone else).

[4] This entails, according to the authors, that the interpretation of null subjects should not be affected by attrition, since the availability of null subjects is regulated by a parametric choice The authors also found, however, a significantly higher subject oriented interpretation of the null pronoun in sentences like (1.c) by LBs: an unexpected result, that they explain hypothesizing that the experimental group may treat the subordinate clause as a non-finite one (as in the English subject-control sentence *The old woman greets the girl when crossing the street*).

The results concerning the interpretation of overt pronouns were replicated by Sorace and Filiaci (2006), and by Belletti, Bennati and Sorace (2007), who studied L2 speakers of Italian with L1 English, with experimental materials similar to those employed by Tsimpli *et al.* (2004). While overt pronouns were significantly more interpreted in co-reference with the subject antecedent by the experimental group, no significant differences between the two groups were observed in the interpretation of null subjects.[5] Sorace and Filiaci (2006) first formulated the Interface Hypothesis, which states that properties at the syntax-discourse interface are more vulnerable than purely syntactic properties and subject to protracted optionality even in near-native speakers. Belletti, Bennati and Sorace (2007) also employed a story telling task which revealed significant differences between the experimental and the control group in production: the rate of overt pronouns in the experimental group (14%) was significantly higher than in the control group (4%). No significant differences were found for what concerns null pronouns or lexical DPs. One possibility to explain the data, as proposed by Belletti, Bennati and Sorace 2007, is that the strong (in the sense of Cardinaletti and Starke 1999) overt pronoun of Italian is re-analysed as weak, possibly on the basis of the L1 option, and hence used in the place of *pro* (the null analogue of the weak overt pronoun).[6]

The authors also mention (see their Footnote 17) an alternative possible analysis, according to which overt pronouns might be a "default" option that speakers resort to when they are faced with "different sorts of processing difficulties" (Belletti, Bennati and Sorace 2007: 673).

Suggestive evidence for this alternative analysis, pursued in greater details by Sorace (2011, 2016), could be provided by growing evidence showing that overt subject pronouns are overused also by LBs who speak two null subject languages.

Margaza and Bel (2006) administered a cloze task to intermediate and advanced learners of L2 Spanish with L1 Greek. The task included 40 empty subject positions (in matrix and embedded clauses) which participants had to fill. Results revealed significant differences between the intermediate group and the control group in matrix clauses, where intermediate learners admitted null subjects less often than the control group. No significant differences were observed, however, between the advanced group and the control group.

Learners of L2 Spanish with L1 Greek are also studied by Lozano (2006, 2018). Lozano (2018) administered an acceptability judgment task to intermediate and advanced (lower advanced and upper advanced) learners and a control group. L2 learners accepted overt pronouns at a significantly higher rate with respect to controls in topic continuity contexts.[7] In topic shift

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[5] Some interpretation differences were observed between (1.b) and (1.d) in the control group, and between (1.a) and (1.c) in both groups. We will deal with these differences in Section 3.

[6] This analysis might be reinforced, as the authors argue, by a weak use of the overt pronoun attested in Italian (Cardinaletti 2004a, 2004b; Frascarelli 2007). See Section 3, ex. (14) in particular. The strong/weak distinction of personal pronouns (Cardinaletti and Starke 1999) is based on a number of prosodic, morphological, syntactic, semantic and referential properties. From the referential point of view, weak pronouns are assumed to have a prominent antecedent, while strong pronouns a non-prominent one. Coherently, a null pronoun is a weak pronoun. Overt third person pronouns of the *lui/lei/loro* kind in Italian are usually strong pronouns, while *egli/ella/esso/essa* are weak pronouns. Since the latter are disappearing in colloquial Italian, a weak form of *lui/lei/loro* is assumed to be developing in current Italian. English personal pronouns are assumed to have a weak and a strong form which are not morphologically distinct (Cardinaletti 2004b: 133). An exception is 'it' which is only weak: it cannot be coordinated, modified, focalized; as an object pronoun, it must precede the particle in particle verb constructions (*They turned on it, Cardinaletti 2004b ex. (15.a)), while as a subject pronoun it cannot be separated from the verb by a parenthetical (*It, I think, is fine).

[7] Following Lambrecht (1994: 118) a topic is "the thing which the proposition expressed by the sentence is about". It is very often the case that topic and subject coincide, although the two notions should be kept separate.

contexts, however, L2ers did not significantly differ from controls: all groups accepted overt pronouns and did not accept null pronouns. While underlining the fact that the L1-L2 similarity does not facilitate the task, the author interprets these results in terms of the Pragmatic Principles Violation Hypothesis (Lozano 2016), according to which L2ers are more inclined to violate pragmatic principles banning redundancy than pragmatic principles banning ambiguity.

Di Domenico and Baroncini (2019) examined the productions of L1 Greek- L2 Italian speakers through a story telling task analogous to the one used by Tsimpli *et al.* (2004) and Belletti, Bennati and Sorace (2007). They had three different groups of bilinguals, and two control groups: bilinguals from birth living in Greece, bilinguals from birth living in Italy, late bilinguals living in Italy, Italian natives and Greek natives. LBs (as well as the two groups of bilinguals from birth) reached a near-native level of proficiency in Italian. The authors found that LBs used overt subject pronouns at a significantly higher rate with respect to all the other groups, while they did not differ in the amount of null subjects or lexical DPs employed. This suggests, as the authors acknowledge, that the overuse of overt pronouns characterizes LBs (and not bilinguals from birth) independently from cross-linguistic influence. Interestingly, the rate of overt subject pronouns used by late bilinguals in this study (14.50%) is similar to the one reported by Belletti, Bennati and Sorace (2007).

Taken together, these three studies support the view that cross-linguistic influence may not be involved in (or may not be the only cause of) the observed overuse (and over-acceptance) of overt subject pronouns by LBs.[8]

Sorace (2011, 2016) has suggested that computing topicality might be costly for LBs whose processing resources are more taxed (Clahsen and Felser 2006; Abutalebi 2008; Kroll and Bialystock 2013). Overt pronouns might be thought of as a convenient default option which LBs may resort to: with respect to null pronouns they may be unambiguous, since they have phi-features, while, at the same time, they allow the avoidance of lexical retrieval, which may also be costly for LBs.

Contemori and Dussias (2016) interpret their data along these lines. They investigated the choice of referring expressions in English by a group of highly proficient L1 Spanish- L2 English speakers, compared to a group of English monolingual speakers. They used an adaptation of Arnold and Griffin's (2007) task (Experiment 1), and of Hendriks, Koster and Hoeks (2014) task (Experiment 2). The first task is meant to elicit subject anaphoric devices in contexts of topic maintenance (with one referent, two referents of the same gender, two referents differing in gender) while in the second task there are contexts in which the topic is maintained and also contexts in which the topic changes (see also Section 3).

Experiment 1 reveals a significantly higher use of overt pronouns (and a lesser use of lexical DPs) by L2ers in all conditions, particularly significant in the condition with two referents differing for gender. Experiment 2 reveals marginally significant differences in the same direction: L2ers used less lexical DPs than native speakers in the conditions where the topic is maintained. No significant differences between the experimental and the control group were observed in topic shift contexts. The authors interpret their results assuming that L2ers choose overt pronouns because they are a default form which is easy to select and to produce. If there were cross-linguistic influence effects, the authors argue, the data would reveal a high rate of null pronouns, contrary to fact.

See Rizzi (2005, 2018) as well as Section 3 below for some discussion.
    [8] See also Bini (1993) for L1 Spanish- L2 Italian LBs and Judy (2015) for L1 Farsi- L2 Spanish LBs.

2.2 The overuse of lexical DPs

While Contemori and Dussias (2016) have found an overuse of overt pronouns by L2ers of a non-null subject language with a null subject L1, some studies report an overuse of lexical DPs by speakers with an analogous combination of languages.

Ryan (2015) analyses the use of referring expressions by a group of Chinese learners of English as well as by a control group of native speakers, through a film retelling task. As the author notes, evidence has been provided in the literature that second language learners appear to violate a principle of economy by producing anaphoric forms that are over-explicit, such as lexical DPs where pronouns or null pronouns ("zero anaphora", or "zero" in his terms) would be expected. The initial hypothesis investigated is whether this claimed over-explicitness might be simply a by-product of the use of different narrative strategies by second language learners, and hence the higher rate of more explicit devices in L2ers' narrations is due to the fact that less accessible referents are taken up. The author thus develops, on the basis of Toole (1996), a coding system to determine referents accessibility, estimated as the sum of multiple weighted factors (grammatical role, presence in main or embedded clauses, animacy, parallel function, main vs. secondary character). Differences are revealed in this respect between native speakers and L2ers, the latter referring to most accessible antecedents significantly more than native speakers, and to antecedents at a medium degree of accessibility significantly more than native speakers. When analysing referring expressions, however, it appeared that L2ers' use of high accessibility markers (particularly pronouns) was far lower than what could be accounted for by the observed differences in referents' accessibility, suggesting that over-explicitness did characterize these data. Ryan proposes that L2ers over-explicitness is in turn motivated by a concern for communicative clarity.

Chini (2005) analyses the productions in Italian of a group of 8 adult advanced learners of Italian with L1 German and of a control group of 13 native speakers of Italian, collected through a film retelling task. The advanced learners were also asked to produce a summary in their L1, i.e. German. She analyses the use of different referential forms in referents' introduction and reference maintenance contexts.[9] No differences were found in the referential forms employed for referents introduction: in all the three corpora, indefinite lexical DPs (or a few proper names for the protagonist) were used. As far as reference maintenance is concerned, the author distinguishes three situations: a) the reference maintaining devices which are employed just after the introduction of a referent (one or two sentences after) analysed in the three corpora; b) reference maintenance contexts as a whole (L2 and L1 Italian corpora); c) "anaphoric chains" (L2 and L1 Italian corpora), i.e. clause sequences where one and the same referent is addressed. As for the first situation, she found that lexical DPs are used by L2ers and L1 German speakers at a higher rate with respect to L1 Italian speakers, namely 44% by L2ers, 42% by L1 German and only 17% by L1 Italian speakers. Null pronouns are used by L2ers (18%) and by L1 Italian (12%), but almost never, as expected, by L1 German speakers. As for the (quite surprising) higher use of null pronouns by L2ers with respect to L1 Italian speakers, the author argues that null pronouns in L2ers appear to be used in the place of relative (or pseudo-relative) pronouns, which are very frequent in Italian but less so in L2ers.[10] In reference maintenance

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[9] Shifting of reference contexts are coded in the corpus, but unfortunately not counted or analyzed in the paper. The paper considers both reference to subjects and reference to objects, but we will be mainly concerned with reference to subjects, as in the rest of this work.

[10] The example in (i) is produced by an L2er, while an L1 Italian would produce (ii) (Chini 2005: 79):

contexts as a whole, definite lexical DPs were used four times more often in L2ers than in Italian natives. Overt pronouns are also used three times more by L2ers than by Italian natives, and also in contexts of high referential continuity. As the author argues, "this seems to be a typical co-referential choice for (these German) learners" (Chini 2005: 85). The use of null pronouns is lower in L2ers (22%) than in native speakers (34%). In anaphoric chains, a consistent use of null pronouns is observed in both L1(74%) and L2 (69%) Italian speakers. Lexical DPs (here proper names only) are very few in both groups. A remarkable difference is observed instead for what concerns overt pronouns (19% L2ers, 7% L1 Italian).[11] The author assumes that the over-explicitness found in L2ers is due in part to a source language influence. She observes, however, that most of the over-explicit expressions are found (at least in some narratives, no quantitative evidence is given) in transitions from main clauses to dependent clauses and at the beginning of scenes and sub-episodes, i.e. in contexts of syntactic and/or textual discontinuity which may discourage the use of implicit means.

Torregrossa and Bongartz (2018) analyse, through a story telling task, the production of referring expressions in Italian by 17 German-Italian bilingual adolescents (mean age 13 y. o., range 11.9-14.1) living in Germany. Their aim is precisely to identify over-explicit (over-specific in their terms) uses of referring expressions. In order to establish a base-line, instead of the usual comparison with a control group, they assess the accessibility of a referent considering the grammatical role of the antecedent (subject vs. non-subject) and the presence of intervening referents (competition).

They then focus on those contexts in which an overt pronoun or a lexical DP are used when a more reduced form (a null pronoun or a clitic) would be appropriate. They finally correlate their findings to an index of dominance, the Bilingual Index Score, for each participant (a negative number indicates dominance in German, while a positive one dominance in Italian). Considering the total amount of over-explicit forms in subject and object position (*N*=34), they found that the number of over-explicit lexical DPs (*N*=29) greatly exceeded (p<.001) the amount of overt pronouns (*N*=5). Furthermore, they found that the lower the Bilingual Index Score of the participants (i.e. the more dominant in German they were), the more over-explicit forms they produced in Italian. Considering the type of over-explicit forms mostly employed by their participants, the authors argue that the use of lexical DPs cannot be motivated by cross-linguistic influence, since lexical DPs are attested in both languages. Their findings, they suggest, are rather compatible with a processing account of bilinguals' difficulties with referring expressions. This study brings to light the fact that even simultaneous bilinguals may be over-explicit, to a certain extent.[12] It also indicates that over-explicitness inversely correlates

(i)	C'è	Charlie Chaplin	e	trova	una	bandiera
	there is	Charlie Chaplin	and	finds	a	flag
(ii)	C'è	Charlie Chaplin	che	trova	una	bandiera
	there is	Charlie Chaplin	who	finds	a	flag

[11] Clitics are also used differently in the two groups of speakers: 4% in L2ers, 16% in L1 Italian. Clitics are the second major device used by L1 Italian speakers, but the least used by L2ers. Since there is however no increase of lexical DPs in L2ers, we assume that lesser use of clitics entails that some overt pronouns might be used for object reference as well, and also that some null objects should be present in L2ers narratives.

[12] The authors do not give indications that concern the rate of over-explicit forms with respect to the total of referring expressions. Their data set consists of 298 referring expressions (p. 13), plus 7 cases of clitic omission (p.17). This would give a percentage of over-explicit forms of around 11.15%. In the data set, however, forms used for referents introduction are included, and their amount is not specified. This means that the rate of over-explicit forms is certainly higher than 11.15%.

with dominance: this result is particularly interesting assuming that dominance is associated with lesser processing difficulties.

Leclercq and Lenart (2013) analyse the anaphoric forms used by different groups of child and adult speakers acquiring French and English while retelling a short film (a 5m. cartoon with two protagonists, a dog and a boy). While children tended to use under-explicit forms when compared to adult native speakers, adult L2 speakers of French and English were over-explicit. Here we will briefly report on the results that concern only subject anaphoric devices used by adult native speakers of French and English, and advanced L2 adult speakers (L1 French-L2 English; L1 English-L2 French).[13] Although French and English are two non-null subject languages, Leclercq and Lenart's (2013) data reveal that null pronouns (zero forms in their terms) are quite attested in the L1 English speakers' productions (21.35%): coordinated structures are quite frequently used when reference is maintained to the same topic. This is not so in the L1 French speakers' productions, where null pronouns amount to 4.35%. Interestingly, this characteristic is not transferred in L2 French, where the rate of null pronouns is 1%: the authors suggest that either these speakers are sensitive to the property of the L2, or that they disfavour the null pronoun option due to their tendency to be over-explicit. L2 productions indeed generally display a higher proportion of lexical DPs in both French and English when compared to the productions of L1 speakers. In L2 English, where we observe the highest proportion of lexical DPs, overt pronouns are reduced with respect to the productions in the other groups. The authors interpret over-explicitness as a means to avoid ambiguity.[14] As they underline, over-explicitness is attested also in advanced learners, which suggests "a deeply ingrained tendency to overspecification among learners" (Leclercq and Lenart 2013: 27).

2.3 Some discussion and an alternative proposal

In Table 1 we briefly summarise the results of the studies reviewed so far.

	STUDY	LAN-GUAGE(S) INVESTI-GATED	LANGUAGES OF THE PARTICI-PANTS	MODALITY	OVER-EXPLICIT SUBJECT ANAPHORIC DEVICE
1	Tsimpli *et al.* 2004	Italian	L1 Italian L2 English	Interpretation Production	Overt pronouns
2	Sorace and Filiaci 2006	Italian	L1 English L2 Italian	Interpretation	Overt pronouns
3	Belletti, Bennati and Sorace 2007	Italian	L1 English L2 Italian	Interpretation Production	Overt pronouns
4	Margaza and Bel 2006	Spanish	L1 Greek L2 Spanish	Production	Overt pronouns

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[13] Leclercq and Lenart (2013) had 10 experimental groups (with 6 to 10 participants in each group): L1 French children (4, 7, 10 y. o.), L1 English children (4,7,10 y. o.), L1 French-L2 English adults (intermediate; advanced), L1 English-L2 French adults (intermediate; advanced). There were also two control groups: adult L1 English speakers and adult L1 French speakers.

[14] Under-explicitness in children is interpreted as reflecting children's difficulty in taking into account the addressee's perspective.

5	Lozano 2018	Spanish	L1 Greek L2 Spanish	Acceptability	Overt pronouns
6	Di Domenico and Baroncini 2019	Italian (Greek)	L1 Greek L2 Italian	Production	Overt pronouns
7	Contemori and Dussias 2016	English	L1 Spanish L2 English	Production	Overt pronouns
8	Ryan 2015	English	L1 Chinese L2 English	Production	Lexical DPs
9	Chini 2005	Italian (German)	L1 German L2 Italian	Production	Overt pronouns Lexical DPs
10	Torregrossa and Bongartz 2018	Italian	German-Italian 2L1	Production	Lexical DPs (overt pronouns)
11	Leclercq and Lenart 2013	English French	L1 French-L2 English; L1 English-L2 French	Production	Lexical DPs

Table 1 – Summary of the results of the reviewed studies

The studies reviewed so far, thus, report that LBs (and in one case, i.e. Torregrossa and Bongatrz, 2018, also unbalanced bilinguals from birth) differ from native speakers in their choice/interpretation of subject anaphoric devices in different ways. In specific: a) LBs overuse overt pronouns and/or interpret/accept overt pronouns as co-referent with a topical antecedent in their null subject L2 when their L1 is a non-null subject language (Tsimpli *et al.* 2004; Chini 2005; Sorace and Filiaci 2006; Belletti, Bennati and Sorace 2007) but also when their L1 is a null subject language (Margaza and Bel 2006; Lozano 2018; Di Domenico and Baroncini 2019). b) LBs overuse overt pronouns in their non-null subject L2 when their L1 is a null subject language (Contemori and Doussias 2016). c) LBs overuse lexical DPs in their null subject L2 when their L1 is a non-null subject language (Chini 2005; Torregrossa and Bongartz 2018). d) they overuse lexical DPs in their non-null subject L2 when their L1 is a non-null subject language (Leclercq and Lenart, 2013) but also when their L1 is a null subject language (Ryan 2015). A generalization that seems to emerge in this variegated picture is the following:

(2)   a. Whenever overuse of overt pronouns by LBs is observed, a null subject language is at least involved.
       b. Whenever overuse of lexical DPs by LBs is observed, a non-null subject language is at least involved.[15]

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[15] As far as we know, the only exception to this generalization is reported in Torregrossa *et al.* 2017, with Greek-Albanian bilingual children overusing lexical DPs. Adult-like use and interpretation of the referential properties of pronouns, however, is a late acquired competence in monolingual and bilingual children (see Sorace *et al.* 2009; Papadopoulou *et al.* 2015 a. o.), so we believe that this finding does not represent a counterevidence to the generalization in (2), which is intended as pertaining to LBs.

As we have seen, each author has proposed an explanation for her data: an explanation which seems, however, to conflict, at least in part, with the data brought to by other studies.

Cross-linguistic influence, in particular the influence of English into Italian, could explain the data of Tsimpli *et al.* (2004), Sorace and Filiaci (2006) and Belletti, Bennati and Sorace (2007). Recall that English was the L2 of Tsimpli *et al.*'s speakers and the L1 of Sorace and Filiaci's and Belletti, Bennati and Sorace's speakers. The idea that cross-linguistic influence is the determining factor causing the overuse/over-acceptance of overt pronouns, however, does not explain why LBs with two null subject languages overuse/over-accept overt pronouns. Further-more, cross-linguistic influence does not explain why overt pronouns are overused by LBs of a non-null subject language with a null subject L1. As Contemori and Dussias (2016) explicitly argue, if there were cross-linguistic influence effects, the data would reveal a high rate of null pronouns in the English productions of L1 Spanish LBs, contrary to fact. As highlighted since early studies concerning anaphora resolution in bilinguals, however, divergent patterns which involve proper syntactic violations (such as the use of null subjects in a non-null subject language) are not expected in near-native speakers (Tsimpli *et al.* 2004; Sorace and Filiaci 2006; Belletti, Bennati and Sorace 2007). Therefore, it is not surprising that we do not find null pronouns in the productions of this experimental group: these L2 speakers have acquired that there is no zero option in their L2 (i.e. they have correctly set the null subject parameter to the L2 value), and that, consequently, overt pronouns (or lexical DPs) must be used to pick up the current topic. What is surprising in Contemori and Dussias' data is that their LBs are, unexpectedly, under-explicit: they use less lexical DPs than English native speakers, particularly in the condi-tion with two referents which differ for gender. This fact can be explained assuming that overt pronouns are used as a default form by these speakers, but the idea that overt pronouns are a default form for LBs does not explain the conspicuous amount of data showing the opposite pattern, i.e. a higher use of lexical DPs by LBs with respect to native speakers. Chini (2005) has found both overuse of overt pronouns and overuse of lexical DPs in the production of her L1 German-L2 Italian speakers, and she attributes this pattern to an influence of German into Italian. Cross-linguistic influence is instead excluded by Torregrossa and Bongartz (2018) as the factor determining an overuse of lexical DPs in the Italian productions of their German dominant bilinguals, since, as the authors argue, lexical DPs are attested both in German and in Italian. Their data are better explained, as they argue, through a processing account of bilin-guals' difficulties with referring expressions. The question is, however, what kind of processing difficulties are bilinguals (LBs in particular) faced with. One possibility is that, as suggested by Sorace (2011, 2016 in particular), their difficulty is precisely in computing topicality.

In Di Domenico, Baroncini and Capotorti (2020) we analysed the subject anaphoric devices produced by three groups of speakers (Greek Natives, Italian Natives and L1 Greek-L2 Italian near-native LBs). Participants had to watch a short silent movie and then tell the story. We first counted the amount of *pros*, overt pronouns and lexical DPs produced by the three groups of speakers and we found no differences in the amount of lexical DPs produced. We also found that overt pronouns were significantly overused by LBs (both with respect to Greek natives and Italian natives), in line with much current literature. Finally, we found a nearly significant higher amount of *pros* in Greek natives with respect to the other two groups. We then analysed the occurrence of the different kinds of anaphoric devices in terms of topicality. The analysis revealed that the higher use of *pro* by Greek natives was properly significant in topic shift contexts: *pro* in Greek is more used in topic shift contexts than in Italian (see Torregrossa, Andreou and Bongartz 2020 for similar findings), and LBs do not transfer this property of their L1 into their L2. This means that they are able to compute topicality.

We also found that the overuse of overt pronouns by LBs was highly significant in topic continuity, again in line with much current literature. We further analysed the occurrence of overt pronouns in terms of number and kind of active referents, and we found that all groups of speakers use overt pronouns particularly when there are two active referents which differ in gender (and/or number), and LBs at a significantly higher rate with respect to the two groups of native speakers. Most of the overt pronouns used in topic continuity by LBs were in this specific context.

We interpreted these findings as follows: LBs have difficulties in computing topicality in contexts in which there is more than one active referent. As Arnold and Griffin (2007) have shown, the presence of an additional character decreases referents activation, and English (native) speakers tend to use more explicit devices in contexts with two referents. Going back to our LBs, in these contexts, decreased referents' activation makes the topic/non-topic distinction unclear, and so overt pronouns are the right device to pick up a referent whose status is unclear in terms of topicality.

Their over-explicitness, thus, is just outward. Furthermore, they do not have general difficulties in computing topicality, since they use *pro* in their L2 Italian as Italian native speakers do.

An explanation in terms of decreased activation, furthermore, naturally explains why overt pronouns may be used by LBs of two null subject languages in the place of *pro,* but not the reverse.

Our data do not support the view that overt pronouns are used as a default option by LBs, because they are used in the same contexts (2 referents with a gender and/or number mismatch) in which they are used by native speakers. Overt pronouns, furthermore, are not used to avoid lexical retrieval, since a comparable amount of lexical DPs is used by the three groups of speakers, as we have seen.

On the basis of Di Domenico, Baroncini and Capotorti (2020), we thus formulate the Decreased Activation Hypothesis:

(3)   a. The Decreased Activation Hypothesis (DAH)
        In the presence of two (or more) potential referents, their level of activation decreases.
        In this condition, LBs treat each referent as non-prominent (non-topical).

In the next sections, we will explore the possibility that the DAH can be extended to account for all the data concerning LBs reviewed so far. Before doing so, however, we will try to find an explanation for the generalization in (2), which may suggest a difference in the way subject anaphoric devices are chosen/interpreted in null and non-null subject languages.

3. The choice and interpretation of subject anaphoric devices in null and non-null subject languages

Languages avail themselves of different devices to pick up a referent that has been previously introduced in the discourse. An interesting question is how speakers make their choice among the various possibilities made available by their language. A basic tenet shared by models stemming from different theoretical backgrounds, such as Grice's (1975) Maxim of Quantity, Chomsky's (1981) Avoid Pronoun principle, Cardinaletti and Starke's (1999) "Choice of a Pronoun" principle and Ariel's (1990, 2001) Accessibility Theory, states that a device should be as minimal as possible.

According to Ariel (1990, 2001) referring expressions (NP types, in her terms) are ranked on a universal scale of accessibility which proceeds from low (more explicit) to high (less explicit) accessibility markers.

Each referring expression encodes a specific degree of mental accessibility of its referent: the less accessible a referent is, the more conspicuous/explicit (in terms of informativity, rigidity and degree of attenuation), the referential marker used by the speaker will be. Lexical DPs, thus, are ranked higher than overt pronouns, which are in turn ranked higher than null pronouns. Wherever two forms are available in a language, they are assumed to occur in the same hierarchical order cross-linguistically. Referents' accessibility is in turn a function of factors such as salience, competition, and distance. [16]

Cardinaletti and Starke's (1999: 154) Semantic Asymmetry #1 similarly states that deficient (i.e. weak and clitic) pronouns must have an antecedent prominent in the discourse. [17]

Although there is perhaps still much to be done to establish the factors determining prominence (see also Cardinaletti and Starke 1999, fn. 11), there is general consensus on factors such as syntactic position (the subject is more prominent than the object) and topicality (the topic is more prominent than the non-topic).

It is well known that languages differ in the syntactic constraints that allow subject pronouns. The availability of null subjects (*pros*) is possible due to the positive setting of the null subject parameter (Taraldsen 1980; Rizzi 1982). Null subjects are not allowed in English and other non-null subject languages, with very limited exceptions such as ellipses and coordinated structures or some peculiar written and oral registers (Haegeman 2007; Weir 2009). An interesting question is whether this difference entails a different use of overt pronouns in null and non-null subject languages. If, however, overt pronouns in non-null subject languages can be weak or strong, and *pro* is just the null analogue of a weak pronoun (Cardinaletti and Starke 1999; Cardinaletti 2004a, 2004b, see also fn. 6 above) this difference is not predicted by the grammar.[18]

Still, languages may differently employ the possibilities offered by their grammar, and in what follows we will examine how subject anaphoric devices are used in null and non-null subject languages.

We will take into account mainly Italian (as representative of null subject languages) and English (as representative of non-null subject languages), assuming that, *modulo* some cross-linguistic micro-variation (for some examples see Section 2 above, as well as Di Domenico and Matteini 2021, a. o.) these considerations can be extended among the languages of each group.

A first issue we will explore concerns the division of labour between null and overt subject pronouns in Italian.

Seminal work by Calabrese (1986a, 1986b) has highlighted that, when there are two grammatically possible antecedents for a pronoun, null pronouns in Italian co-refer with/signal a topical antecedent (the "subject of primary predication", or Thema, in Calabrese's terms), which is in turn the "expected" antecedent. Overt pronouns ("stressed" in Calabrese's terms) instead co-refer with/signal an "unexpected", non-topical antecedent.

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[16] A referent is less accessible if there are competing active referents or if it is more distant from the device that picks it up. As for salience: "the more salient the antecedent, the more highly accessible it is deemed." (Ariel 2001: 32).

[17] Strong and deficient pronouns, however, are not necessarily morphologically and phonologically distinct for Cardinaletti and Starke (1999).

[18] *pro* shares with its overt (weak) counterparts all syntactic and semantic properties but has different phonological properties (Cardinaletti 2004a: 132).

So, in (4) the null pronoun (*pro*) is interpreted as co-referent with *Carlo*, while the overt pronoun (*lui*) is interpreted as co-referent with *Sandro*:

(4)   a. Dopo che Carlo$_i$ rimproverò Sandro$_j$ *pro*$_i$/ lui$_j$ cominciò a   piangere
            after that C.   reproached S.   *pro*/ he began   to cry
            'After Carlo reproached Antonio, he began to cry'
                                    (*Some Properties of the Italian Pronominal System: An Analysis
                                    Based on the Notion of Thema as Subject of Predication,* Calabrese 1986b: 26)

This effect stems from the combined effect of the two principles in (5) and (6):

(5)   a. Assign the feature [+stressed] to a pronominal X only when the occurrence of the
            referent of X is not expected
                                                            (*Pronomina*, Calabrese 1986a: 7)

(6)   a. A pronominal in position of Thema is expected to have a referent of another Thema
                                    (*Some Properties of the Italian Pronominal System: An Analysis Based
                                    on the Notion of Thema as Subject of Predication,* Calabrese 1986b: 31)

Experimental evidence provided by Carminati (2002) confirms Calabrese's analysis. Through a series of experiments testing the interpretation of overt and null pronouns in bi-clausal sentences analogous to (4), she shows that in Italian *pro* looks for an antecedent in a prominent syntactic position, i.e. the preverbal subject position (Spec, IP for Carminati 2002).[19, 20]

Another use of the overt pronoun in Italian, of a different nature, is when focalization is involved, as in (7) below:

(7)   a. Lui ha   fatto   questo (non Carlo)
            he   has   done   this   (not C.)
            'He did this (not Carlo)'
                                                            (*Pronomina*, Calabrese 1986a: 9)

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[19] See Cardinaletti (2004a) for the idea that *pro* and overt pronouns occupy two distinct subject positions. As noted by Cardinaletti (2004a: 149) a principle like (6) could not fit her analysis, *pro* occupying a subject position (spec, AgrSP) distinct from the position reserved to subjects of predication (spec, SubjP).

[20] It is worth noting that Carminati (2002: 34) explicitly assumes that the subject is the topic of the sentence, and this might well be the case in her experimental materials: in bi-clausal sentences like (4), without a context, we expect the subject (and not the object) to be interpreted as the topic. Calabrese's (1986a, 1986b) Thema is partially different from 'subject' as well as from 'topic'. He notes indeed that a post-verbal subject cannot be the antecedent of a pronoun (either null or overt), as shown in (i), while the benefactive dative argument of verbs of the *piacere* type in Italian are the preferred antecedents of *pro*, as shown in (ii):

(i)   Quando è arrivato Carlo$_i$, *pro*$_{*i}$/lui$_{*i}$ ha parlato
      when   is arrived Carlo *pro*/ he   has spoken
(ii) Poiché   a   Carlo$_i$ è   piaciuta   Maria$_j$,   *pro*$_{i/*j}$ vuole   rimanere   qui
      since   to   Carlo   is   pleased   Maria,   pro   wants   remain   here
A left-dislocated topic, instead, is not a possible antecedent of the null pronoun, as shown in (iii):
(iii) Poiché   a   Mario$_i$ Carla$_j$ gli   ha   dato   un   bacio,   *pro*$_{*i/j}$ è felice
      since   to   Mario   Carla   him   has   given   a   kiss,   *pro*   is happy
We will assume therefore that *pro* looks for an antecedent which is both a topic and a subject, i.e. an 'aboutness subject' in Rizzi's (2018) terms.

Since null pronouns cannot be focalized, when focalization is involved null pronouns are excluded, so that there is no possible division of labour between null and overt pronouns under focalization.

Leaving aside the case of focalization, thus, there seems to be a division of labour between null and overt pronouns in Italian, with null pronouns picking up the topical subject, and overt pronouns the non-topic, non-subject antecedent (Calabrese 1986a, 1986b; Carminati 2002).

These biases however appear to be less clear in some peculiar syntactic environments. One of these environments is discussed in Rizzi (2018), and concerns the interpretation of *pro* in bi-clausal main/complement clauses like (8):

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

Here, the preference for the subject/topic antecedent *Francesca* (the aboutness subject in Rizzi's terms) is by far less clear, with *pro* being able to co-refer with *Maria* as well. Rizzi (2018) assumes that c-command weakens what he calls the "Calabrese effect", proposing an extra principle like (9):

(9)   a. A subject pronoun is expected to have the referent of a c-commanding DP
                           (*Subjects, Topics and the Interpretation of Pro*, Rizzi 2018: 516)

As c-command makes every DP a potential antecedent for a pronoun, the Calabrese effect is visible when there is no c-command, i.e. with pre-posed adjunct adverbial clauses (as in (4) above) and in discourse sequences.

This might also explain the weaker subject bias of the null pronoun detected by some studies (Tsimpli *et al.* 2004; Sorace and Filiaci 2006; Belletti, Bennati and Sorace 2007 a. o.) in bi-clausal constructions such as (10.a), with respect to (10.b):

(10)   a. L' anziana signora saluta la ragazza quando *pro* attraversa la strada
            the old   lady   greets the girl   when *pro* crosses   the street
         b. Quando *pro* attraversa la strada, l' anziana signora saluta la ragazza
            when *pro* crosses   the street the old   lady   greets the girl

In sentences like (10.a), Belletti, Bennati and Sorace (2007) found a preference of the 40% only for *l'anziana signora* as the antecedent of *pro*. In (10.b) the same preference reaches 90%. The weak preference for the subject antecedent in (10.a) can be explained assuming that in this configuration not only the subject, but also the object antecedent (Pesetsky 1995) c-commands *pro*, while in (10.b) they do not, and hence the "Calabrese effect" is visible.

Belletti, Bennati and Sorace (2007) also note that the interpretation of the overt pronouns differs in (11.a) and (11.b):

(11)   a. L' anziana signora saluta   la ragazza quando lei attraversa la strada
            the old   lady   greets the girl   when she crosses   the street
         b. Quando lei attraversa la strada, l' anziana signora saluta la ragazza
            when   she crosses   the street the old   lady   greets the girl

While the interpretation of the overt pronoun as co-referent with the object antecedent (*la*

ragazza) is highly preferred in (11.a), i.e. 85%, it only reaches 23% in (11.b). In the latter case, the overt pronoun is interpreted as co-referent with an external referent in the 57% of the cases.

Here, we propose, the preference for an external referent possibly stems from the fact that constructions like (11.a) are frequently used in (semi-spontaneous as well as elicited) production with a specific purpose/meaning. In two production studies (Di Domenico, Baroncini and Capotorti 2020; Contemori and Di Domenico 2021), we found examples like (12) and (13):

(12)   a. mentre   lui è sceso   dalla   scala [.......]
            while   he is climbed-down from-the ladder
         b. passa un, *pro* presumo, allevatore
            passes a *pro* guess1S   farmer
            'While he is down the ladder a farmer, I guess, passes by.'

(13)   a. Minnie è andata con Paperina al Parco Nazionale d'Abruzzo.
            Minnie went   with Daisy   to Abruzzo National Park
          b. Mentre lei scatta delle foto, Paperina passeggia.
            While she takes pictures, Daisy   walks around

In (12), the current topic, talked about in several previous sentences, is a peasant who is picking pears. The overt pronoun in (12.a) co-refers with this antecedent, but establishes a contrast with the referent introduced immediately after. Similarly, in (13.b) the overt pronoun co-refers with the subject antecedent of (13.a), but establishing a contrast with the other character. It is possible that in sentences like (11.b) the external referent bias of the overt pronoun instantiates the interpretive characteristics that overt pronouns have in (12.a) and (13.b).

Another use of the overt pronoun is described by Cardinaletti (2004a, 2004b) and Frascarelli (2007), where an overt (weak) pronoun can be used to restate the current topic (which is perhaps too distant) and can have a non-human antecedent, as *loro* in (14) below, taken from the novel *Novecento* by A. Baricco (adapted from Cardinaletti 2004b: 141):

(14)   a. (i quadri) *pro* stanno lì attaccati al chiodo, nessuno gli fa niente, ma loro a un certo punto,
            fran, cadono giù come sassi
            (the paintings) They stay there, hanged to the nail, nobody does them anything, but they,
            suddenly, *fran,* fall down as stones

To sum up, in Italian a null pronoun co-refers with an aboutness subject antecedent, provided c-command does not interfere. An overt pronoun signals instead a topic shift, or a contrast as in (7), (12) and (13). In some cases, such as (14), it is used to restate the current topic, the latter an emerging peculiarity quite rarely attested and subject to individual variation (Cardinaletti 2004a, 2004b; Frascarelli 2007). As noted by Calabrese (1986b) the expectation is that one will continue to talk about the current subject of predication: hence, the current aboutness subject is the most salient (i.e. accessible) antecedent (see also Crawley 1986; Carminati 2002; Colonna, Schimke and Hemforth 2012 a. o.). The division of labour between null and overt pronouns in Italian thus appears congruent with Ariel's (1990, 2001) Accessibility Theory as well as with Cardinaletti and Starke's (1999) Semantic Asymmetry.

Di Domenico, Baroncini and Capotorti (2020) also show that overt pronouns are a marked choice in the production of Italian Natives, since they instantiate the 6.26% only of the anaphoric devices attested in the corpus. The analysis in terms of topicality and number

and kind of active referents confirms that overt pronouns are by far more used in topic shift contexts, and virtually absent in topic continuity. [21] In topic shift contexts, overt pronouns are significantly more used in the condition in which there are two active referents (i.e. two referents explicitly mentioned in the considered clause and/or in the clause preceding it) with a gender (or number) mismatch (14/24), and never in the condition with 1 referent. The 1 referent condition is instead the condition in which lexical DPs are mostly employed to realize a topic shift (in the 34 cases of topic shifts with 1 referent, 27 lexical DPs were employed). Since in this situation the antecedent of the topic-shifting anaphoric device is more distant, we may indeed assume that there is a ranking, with lexical DPs used to retrieve the less accessible antecedents and overt pronouns the more accessible ones. Similar findings concerning overt pronouns and lexical DPs characterize the productions of Greek Natives.[22] Finally, lexical DPs may also be used in topic continuity in Italian and Greek.

Let us now turn to English. Some authors (see e.g. Azar, Özyürek and Backus 2019 and the references quoted there) claim that in English, and in non-null subject languages in general, the topic/non topic distinction is not deemed as very relevant, and an overt pronoun can pick up either a topical as well as a non- topical antecedent. As we have seen, along the lines of Cardinaletti and Starke (1999) and Cardinaletti (2004a, 2004b) instead, overt pronouns in English can be weak – and so they pick up a topical antecedent – or strong, signalling a topic shift.[23]

In (15) we report an example taken from Michaelis and Francis (2007) which illustrates these differences, with topic shifting pronouns in bold and topic continuing ones in italics:

(15) a. My sister has a, *she* just had a baby.
      b. **He**'s about five months old,
      c. and **she** was worrying about going back to work and
      d. what *she* was going to do with him.

Various experimental and corpus studies seem to suggest, however, that the preferred interpretation of overt pronouns in English is towards the subject/topic antecedent, while in production overt pronouns are used in topic continuity, particularly when there is a single active referent (Arnold and Griffin 2007). Using the weak/strong distinction, this would be equivalent to say that in English weak pronouns are more widespread than strong pronouns.

Arnold (2010) proposed the term "first-mentioned bias" to account for this preference.

Arnold *et al.* (2000) for instance, conducted an eye-tracking study where participants viewed a picture while listening to a four-sentences story describing it. The first sentence introduced the two characters (either of the same gender or of different genders), while the third sentence contained a pronoun which referred either to the first – or the second – mentioned character, for a total of four conditions. They found that participants did not immediately converge on

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[21] Six of the seven overt pronouns in the corpus which are not in topic shift contexts encode either focalization or the kind of contrast involved in (11) and (12) above, or are an instance of the weak, emphatic pronoun described by Cardinaletti (2004a, 2004b) and Frascarelli (2007).

[22] Lozano (2016) found similar data concerning the distribution of overt pronouns in Spanish Natives' productions.

[23] The correlation of the weak/strong distinction with prosody is still unclear. Earlier studies (e.g. Sheldon 1974) suggest that when a pronoun is 'accented' it is meant to refer to the non-subject antecedent. Similarly, Calabrese (1986) proposes that overt pronouns in Italian are equivalent to English stressed pronouns. According to Gargiulo, Tronnier and Bernardini (2019) however, prosodic prominence of the pronoun signals its non-preferred interpretation, both in Swedish and in Italian.

an interpretation of the pronoun referent when the pronoun referred to the second-mentioned character in the same gender condition. In this condition, participants did not look at the target more than the competitor, as they did in the other conditions, where either a gender or an accessibility cue was present. Corpus studies, furthermore, report a relatively high frequency of lexical DP subjects (particularly in written registers) with a "switch topic" function (Michaelis and Francis 2007 a.o.).

This pattern seems to be confirmed also in non-null subject languages other than English.

Gargiulo, Tronnier and Bernardini (2019) using sentences analogous to (1.d) have shown that in Swedish overt pronouns are significantly more interpreted as co-referent with a subject/topic antecedent (66% *vs.* 44%).

Hendriks, Koster and Hoeks (2014) examined Dutch speakers in comprehension and production. Restricting our attention to their young adults' group, overt pronouns were preferably used for topic maintenance in contexts with only one active referent. In the condition with two referents of the same gender, participants preferred a full DP to refer to the topical antecedent as well as to the non-topic. In comprehension, overt pronouns were interpreted as referring to the topic, i.e. to the subject of the previous clause. [24]

To sum up, while overt pronouns in Italian (and also in Greek and possibly Spanish) are typically used in co-reference with a non-topical antecedent, lexical DPs are preferred in English (and Dutch) in the same contexts, despite the fact that overt pronouns may also be strong in these languages.[25] Overt pronouns are more widespread as topic continuing devices, i.e. as weak pronouns, in English, Dutch and Swedish.

4. Two ways of being "seemingly over-explicit"

In 2.3, following Di Domenico, Baroncini and Capotorti (2020), we have proposed the Decreased Activation Hypothesis (here repeated for convenience) to explain the overuse of overt pronouns by LBs of two null subject languages, Greek and Italian:

(3)   a. The Decreased Activation Hypothesis (DAH)
        In the presence of two (or more) potential referents, their level of activation decreases.
        In this condition, LBs treat each referent as non-prominent (non-topical).

Assuming that when more than one referent is active the topic/non topic distinction is unclear (i.e. all referents are treated as if they were non-topical), LBs coherently use an overt pronoun to pick up a previously introduced referent (particularly when there is a gender/number mismatch, as native speakers of Italian, Spanish and Greek do).

Can the DAH be extended to explain the data reported by the studies reviewed in Section 2?

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[24] Hendricks, Koster and Hoeks (2014) found that young adult speakers of Dutch used more lexical DPs with two active referents when compared to children and elderly adults. It is worth noting that their materials contained two referents of the same gender and number, and that use of a pronoun would be ambiguous in this context in Dutch or English. Their interpretation of this result is different from Arnold and Griffin's: they assume that young adults are able to take into account the listener's perspective, avoiding the ambiguous pronoun. In Italian, an overt pronoun would not be ambiguous in this context as example (2) shows.

[25] As an anonymous reviewer notes, it may be the case that the overt pronoun in (at least canonical) null subject languages reinforces the features of the inflectional verbal affix (adding further specifications such as gender), while in non-null subject languages, given that inflectional agreement is limited or absent, the overt DP provides full specification.

The generalization in (2), here repeated for convenience, reveals that whenever overuse of overt pronouns is observed, a null subject language is at least involved, and whenever overuse of lexical DPs is observed, a non-null subject language is at least involved:

(2)   a. Whenever overuse of overt pronouns by LBs is observed, a null subject language is at least involved.
           b. Whenever overuse of lexical DPs by LBs is observed, a non-null subject language is at least involved.

As we have seen in Section 3, furthermore, overt pronouns are typically used/ interpreted in co-reference with a non-topical antecedent in null subject languages, while in non-null subject languages overt pronouns typically pick up a topical antecedent, and lexical DPs are preferred when a non-topical antecedent is addressed.

Let us assume that bilingual (or multilingual) competence implies the possibility of having at disposal a wider range of options with respect to monolingual competence (Belletti, Bennati and Sorace 2007; Di Domenico 2015; Caloi, Belletti and Poletto 2018) and that bilingual speakers (particularly if they are very advanced in both languages) are free to choose among these options, provided that their choices do not violate the grammatical constraints of the target language.

Assuming that decreased activation is the specific problem shared by all LBs, a speaker of a null and a non-null subject language can cope with this problem either overusing overt pronouns (the device specialized to pick up a non-topical antecedent in null subject languages) or overusing lexical DPs (the device preferred in non-null subject languages to pick up a non-topical antecedent). The German L1 – Italian L2 speakers investigated by Chini (2005) seem to opt for both solutions, in that they overuse overt pronouns and also lexical DPs. The L1 Italian – L2 English speakers studied by Tsimpli *et al.* (2004), the L1 English- L2 Italian speakers of Belletti, Bennati and Sorace (2007) and the L1 Spanish-L2 English speakers of Contemori and Dussias (2016) opt instead for the overt pronouns solutions, while the L1 Chinese – L2 English speakers studied by Ryan (2015) and the German-Italian bilinguals of Torregrossa and Bongartz (2018) opt for the lexical DPs solution. Torregrossa and Bongartz (2018) state that cross-linguistic influence cannot be the factor causing overuse of lexical DPs, since lexical DPs are attested both in Italian and in German: extending to German the considerations outlined in Section 3 for English, Dutch and Swedish, in German lexical DPs might be preferred to co-refer with a non-topical antecedent, so cross-linguistic influence might be implied in this result, though intended as a less automatic process than commonly assumed.

The lexical DPs solution is not adopted by speakers of two null subject languages (Margaza and Bel 2006; Di Domenico and Baroncini 2019) since overt pronouns are typically employed in null subject languages to pick up a non-topical antecedent. Similarly, the overt pronoun solution is not adopted by speakers of two non-null subject languages (Leclercq and Lenart 2013) since overt pronouns in non-null subject languages are not the preferred device to pick up a non-topical antecedent.

Crucially, however, the DAH predicts that we should not observe an over-explicit form when only one referent is active, as in this example from Italian, reported by Sorace (2016: 4):

(16)   a. Perché Maria è arrivata così tardi?
              why   Maria is arrived so   late
              'Why did Maria arrive so late'
           b. Perché lei si   era addormentata.

because she REFL*si* was asleep
'Because she fell asleep'

In this condition, one cannot reasonably maintain that *Maria* is not treated as a topic, and there is no reason why its activation should decrease. Unfortunately, it is impossible to check this feature in all the studies reviewed in Section 2, since an analysis in terms of active referents was not performed by the authors.[26]

Lozano (2016) reports that cases like (16) are very rare in the L2 Spanish productions of his L1 English speakers, which produced redundant overt pronouns mostly in contexts with two or more referents. In Di Domenico, Baroncini and Capotorti (2020), they were quite rare as well: 4 cases, three of which produced by the same speaker (which was a very advanced speaker of English, her L3).

Contemori and Dussias (2016), as we have seen, report however an overuse of overt pronouns also in the 1 referent condition, although less consistent than in the condition with two referents differing for gender.

These cases, which are not explained by the DAH, are possibly an instance of a more "direct" process of cross-linguistic influence from English (the L1 in Lozano's speakers, the L2 in Contemori and Dussias', the L3 in Di Domenico, Baroncini and Capotorti's speaker) in which the properties of an element in Language A are transferred to the 'equivalent' element in Language B (see Di Domenico 2015, 2020 for a description of this process): the subject bias of the English (weak) overt pronoun is transferred to the Italian (strong) overt pronoun.

5. Conclusions

In this work we have proposed the Decreased Activation Hypothesis as a unifying explanation for a set of *prima facie* conflicting data, which have been explained in partially conflicting ways, concerning the way in which bilinguals (in particular late bilinguals) choose and interpret anaphoric devices. We have proposed that the specific processing problem that LBs experience concerns referents' activation, which decreases in contexts with more than one referent, so that LBs treat all referents as non-topical, using a seemingly over-explicit device. This seemingly over-explicit device, as reported by the relevant literature, can be an overt pronoun or a lexical DP. The first step to explain this different choice has been the observation that null subject languages use preferably an overt pronoun to pick up a non-topical antecedent, while non-null subject languages use preferably a lexical DP to pick up a non-topical antecedent (despite the fact that the strong pronoun option is available also in non-null subject languages). Then, considering that whenever overuse of overt pronouns is reported at least one of the languages of the bilinguals is a null subject language, and whenever overuse of lexical DPs is reported at least one of the languages of the bilinguals is a non-null subject language, we have proposed that bilinguals of a null and a non-null subject language can choose one of the two options offered by their multilingual competence. With respect to other explanations proposed in the previous literature, we include in our proposal both processing difficulties (as in Sorace 2011, 2016) and cross-linguistic influence (as in earlier proposals as Tsimpli *et al.* 2004; Belletti, Bennati and Sorace 2007), although a kind of cross-linguistic influence interpreted as a choice

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[26] The materials in the Picture Verification task used by Tsimpli *et al.* (2004) and Belletti, Bennati and Sorace (2007), however, always contained two referents. Lozano (2018) had always more than one referent in his experimental sentences. Ryan (2015) reports over-explicitness particularly attested in contexts with less accessible referents.

among different possibilities offered by multilingual competence. We do not assume that overt pronouns are a default choice for LBs, otherwise overuse of lexical DPs would remain puzzling. Last but not least, we assume that LBs often claimed over-explicitness is just outward.

As a final remark we note that in order to strengthen our proposal it would be necessary to compare speakers of different combinations of languages with similar experimental materials, which in particular distinguish the conditions with one referent from the conditions with two or more referents, as well as the conditions of topic continuity from the conditions of topic shift. Perhaps this problem (comparability of experimental results) is more general in the field of anaphora resolution in bilinguals, and beyond: we hope to overcome it in future research.

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