

Crosslinguistic influence in English-Greek bilingual acquisition *

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Abstract

This study tests the proposal that structures which involve the syntax-pragmatics interface and instantiate a surface overlap between the two languages are vulnerable to crosslinguistic influence in bilingual acquisition (e.g. Müller & Hulk 2001). We investigate whether crosslinguistic influence occurs only in one direction – from English to Greek, in this case – in older bilingual children. The study considers experimental data from 32 English-Greek bilingual children, 16 Greek-dominant living in Greece and 16 English-dominant living in the UK and monolingual control groups regarding particular syntax-pragmatics interface and narrow syntax structures. Results reveal that certain structures are selectively vulnerable to crosslinguistic influence but only in the English-dominant bilinguals' grammar, which offers only partial support to the hypothesis.

Keywords: English-Greek bilingual acquisition, crosslinguistic influence, language dominance

1. Crosslinguistic influence at the syntax-pragmatics interface

Recent studies on bilingual first language acquisition have shown that even though bilingual children's language systems develop separately, the possibility of the two languages to have an influence on each other is not excluded (Müller & Hulk 2001). Syntax-pragmatics interface structures, which instantiate a surface overlap between the two languages have been found to be vulnerable to crosslinguistic influence in simultaneous bilingual acquisition (e.g. Paradis & Navarro 2003; Serratrice et al. 2004). According to this influential hypothesis, two conditions are necessary for crosslinguistic influence to occur: a) the structure under consideration should be relevant to the syntax-pragmatics interface, the most likely locus for crosslinguistic effects; b) there needs to be an overlap at the surface level between the two languages for this structure. This means that if language A allows for more than one possible grammatical analysis of a syntactic structure and if the input from language B reinforces one of these grammatical analyses, then crosslinguistic influence is expected from language B to language A, provided that the interface between syntax and pragmatics is involved.

While previous studies of crosslinguistic influence have typically considered early stages of bilingual acquisition (e.g. Müller & Hulk 2001; Paradis & Navarro 2003), this study investigates whether crosslinguistic influence occurs in 8-year-old English-Greek bilinguals, and whether, given prolonged and regular exposure to two languages,

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morphosyntactic options that are constrained by discourse pragmatics and instantiate a partial overlap between the two languages may still be susceptible to crosslinguistic influence even in older bilinguals. In order to test the claim about the particular vulnerability of syntax-pragmatics interface structures to crosslinguistic influence in bilingual acquisition it is crucial to also investigate structures that are not relevant to the syntax-pragmatics interface (Allen 2001; Unsworth 2003). Thus differently from previous studies that explored only syntax-pragmatics interface structures, the current study investigates narrow syntax structures as well in order to see the extent to which the syntax-pragmatics interface is more vulnerable to crosslinguistic influence than narrow syntax in older bilingual children. Another issue that is addressed in this study, but which has not been properly explored in the recent literature on crosslinguistic influence, is whether language dominance in the sense of the amount of input the bilinguals receive in each language plays a role in crosslinguistic influence.

To sum up, the aims of the study are: a) to investigate whether crosslinguistic influence occurs from English to Greek in the grammar of 8-year-old English-Greek bilingual children, b) to establish whether the syntax-pragmatics interface structures are more susceptible to crosslinguistic influence than purely syntactic structures, and c) to explore whether language dominance plays a role in crosslinguistic influence. The syntax-pragmatics interface structures that were investigated are: i) the distribution of null *vs* overt subject pronouns in [-topic shift] contexts and ii) the distribution of preverbal *vs* postverbal subjects in wide-focus contexts, and the narrow syntax structures that were examined are: i) the use of preverbal *vs* postverbal subjects in *what*-embedded interrogatives and ii) the placement of object pronouns in declaratives that is, the placement of object clitics in Greek and the placement of strong object pronouns in English.

2. Grammatical structures investigated

2.1 Null and overt pronominal subjects in Greek and English

Greek is a null subject language that permits finite sentences with unexpressed subjects, whereas English is a non-null subject language since it requires the subject in finite sentences to be overtly realised (Chomsky 1981; Rizzi 1982, among others)¹. Recent work has demonstrated that null and overt subject pronouns in null subject languages are not in free variation but there are discourse-pragmatic factors that govern their distribution (Dimitriadis 1996; Grimshaw & Samek-Lodovici 1998; Tsimpli et al. 2004). Thus, a null subject is preferred when it is coreferential with a prominent topic antecedent, whereas an overt subject pronoun is used to refer to a new or non-prominent antecedent. For example, a felicitous answer to the question in (1) requires the use of a null subject (1a) and not an overt subject pronoun (1b), which cannot corefer with the subject antecedent (the symbol @ indicates that the overt subject pronoun is pragmatically unacceptable in this context):

- (1) Jati pi_je sto vivliopolio i Eleni_j?
 ‘Why did Eleni_j go to the bookshop?’
 a Epidi *pro*_j ithele na agorasi ena vivlio.
 because wanted._{3S} to buy._{3S} a book._{ACC}

¹ In English null subjects are allowed in restricted registers as in e.g. diary style coordinate clauses but they are not allowed in subordinate clauses.

- ‘Because *(she) wanted to buy a book.’
 b @Epidi aftij; ithele na agorasi ena vivlio.
 because she.NOM wanted.3S to buy.3S a book.ACC
 ‘Because she_j wanted to buy a book.’

In Greek, the use of overt subject pronouns is a marked option that signals topic shift (Tsimpli et al. 2004). In contrast, overt subject pronouns in English are not obligatorily associated with topic shift and thus, they can occur both with [+/-topic shift] referents (Serratrice et al. 2004; Tsimpli et al. 2004). Therefore, in this context the overt pronominal subject *she* is obligatory in English and it can corefer freely with the subject antecedent.

2.2 Preverbal and postverbal subjects

It is commonly assumed that the availability of null subjects in null subject languages like Greek and Italian tends to co-occur with the availability of postverbal subjects in declarative sentences (Chomsky 1981; Rizzi 1982). In English, however, a non-null subject language, preverbal subjects are the main grammatical option². The discourse function of focalisation interacts with word order in Greek, and thus focussed material can appear either in preverbal position or in postverbal position (in situ) (e.g. Tsimpli 1995; Alexiadou & Anagnostopoulou 2000). Preverbal foci are not considered to be equivalent to postverbal ones, since there are subtle interpretative differences between the two options. Preverbal focus is typically associated with narrow contrastive focus readings as shown in (2), an example of subject contrastive focus (e.g. Tsimpli 1995; Alexopoulou 1999). The focused subject is accented, similar to English, and it appears in preverbal position in the leftmost part of the sentence (Capital letters indicate the lexical item that bears the main prosodic prominence of the sentence):

- (2) Q: Pios telefonise, o Janis i o Kostas?
 ‘Who phoned, Janis or Kostas?’
 A: [_F o JANIS] telefonise.
 [_F the Janis.NOM] phoned.3S
 ‘Janis phoned.’

Postverbal focus, however, can be associated with non-contrastive wide-focus contexts as shown in (3), an example of wide verb-subject focus (Alexopoulou 1999):

- (3) Q: Ti ejine to molivi tis Marias?
 ‘What happened to Maria’s pencil?’
 A: [_F to pire o PETROS].
 [_F it-CL took.3S the Petros.NOM]
 ‘Petros took it.’

In contrast, English resorts primarily to phonological means to mark the information status of elements within a sentence (Ladd 1996). Focalisation, therefore, is expressed mainly by prosodic means while maintaining the SV(O) structure, i.e. by stressing the

² Inverted subject constructions are also possible in English, but they are restricted to certain contexts, such as locative inversion or *there*-insertion constructions (Levin & Rappaport 1995).

focused element in-situ. Occasionally, syntactic means can also be used to signal focus in English, such as cleft constructions, as shown in (4) (e.g. Dyakonova 2004):

- (4) It was JOHN that Mary saw (not Peter).

Nevertheless, these structures are marked and not frequent in adult speech, and thus English relies mainly on phonological means in order to encode focus in various contexts (e.g. Alexopoulou 1999; Dyakonova 2004). English, therefore, does not employ word order as widely as Greek to mark different focus contexts. In particular, regarding subject placement, the preverbal subject position in English is not constrained in the same way as in Greek. Subjects are obligatorily preverbal regardless of the discourse context that the sentence, in which they appear, occurs, as shown for example in (5), a narrow contrastive focus sentence and in (6), a wide-focus sentence:

- (5) Q: Who broke the glass, John or Nick?
 A: [_F JOHN] broke the glass.
 (6) Q: What did John do?
 A: John [_F broke a GLASS].

2.3. Object pronouns in Greek and English

The Greek pronominal system consists of two types of pronouns: strong/emphatic pronouns, which can be found in subject or object position, and clitics, which are the short/non-emphatic forms of the strong personal pronouns of the first, second and third person singular and plural. Clitics are used when the speaker does not want to emphasize the pronoun. For the purposes of this paper we will focus on the direct object clitics that are presented in (7):

- (7) Singular number: ton/tin/to 'him/her/it'
 Plural number: tus/tis/ta 'them' (masc./fem./neut., respectively)

Object clitics are monosyllabic and unstressed forms that precede the finite verb forms and are used as direct objects of the verb (Holton et al. 1997). An example is given in (8):

- (8) I Maria to ekripse.
 the Maria_{NOM} it-CL hid_{3S}
 'Maria hid it.'

English has several subclasses of pronouns (e.g. personal pronouns) but object clitics are not instantiated. There are, however, third-person object pronouns that are distinguished with respect to gender and number (i.e. *him*, *her*, *it*, *them*). Object pronouns function mainly as the direct or indirect object of a verb and appear postverbally, as illustrated in the previous example.

2.4 The structure of *wh*-embedded interrogatives

English and Greek display overt *wh*-movement in both root and embedded *wh*-interrogatives. Although in both languages there is obligatory V-movement to C (Subject-Aux/Verb Inversion) in matrix interrogative clauses, Greek differs from

English in that the verb must be obligatorily in C (i.e. adjacent to the *wh*-expression) in embedded *wh*-questions as well (e.g. Tsimpli 1990; Panagiotidis & Tsipakou 2003). Interrogative clauses in Greek do not allow the SV(O) order and thus, the subject cannot intervene between the *wh*-phrase and the verb in Greek in embedded interrogatives, i.e. the subject cannot appear in the preverbal position and therefore it appears postverbally, as shown in (9):

- (9) a. Den thimate [ti forese i Eleni].
 not remember._{3S} what._{ACC} wore._{3S} the Eleni._{NOM}
 'She doesn't remember what Eleni wore.'
 b. *Den thimate [ti i Eleni forese].
 not remember._{3S} what._{ACC} the Eleni._{NOM} wore._{3S}
 'She doesn't remember what Eleni wore.'

In English, however, there is no verb-raising requirement in embedded *wh*-interrogatives, and the subject appears in the preverbal position, as illustrated in (10):

- (10) a. He doesn't remember [what Helen drank].
 b. *He doesn't remember [what drank Helen].

3. Hypotheses and predictions

The use of subjects in Greek, i.e. null and overt subject pronouns, preverbal and postverbal subjects, is predicted to be an area vulnerable to crosslinguistic effects from English, in English-Greek bilingual acquisition since: i) their use involves the syntax-pragmatics interface: their distribution is determined by discourse-pragmatic factors; and ii) there is a surface overlap between the two languages regarding these structures: Greek allows for both null and overt subjects and English provides extensive positive evidence for the overt subject option. Similarly, Greek allows for both preverbal and postverbal subjects, but English reinforces the preverbal subject option.

Null pronominal subjects are obligatory in [-topic shift] contexts in Greek, whereas overt pronominal subjects always signal [+topic shift]. Overt pronominal subjects, however, are prevalent in English and they are not necessarily discourse-marked as shifted topics, as in Greek. Thus, it is predicted that if there is crosslinguistic influence from English to Greek, the bilingual children should use pragmatically inappropriate overt pronominal subjects as coreferential with a subject antecedent, i.e. in [-topic shift] contexts, significantly more often than the Greek monolinguals. Similarly, in English, focus is mainly expressed by phonological means and subjects appear preverbally regardless of the focus context, while in Greek focus interacts with word order. Therefore, if there is crosslinguistic influence from English to Greek, the bilingual children should use preverbal subjects significantly more frequently than the Greek monolinguals in wide-focus contexts, in which postverbal subjects are the felicitous option.

In contrast the use of (i) *what*-embedded interrogatives with an overt subject and (ii) object pronouns in declaratives is not relevant to the interface between syntax and discourse pragmatics and hence they should not be particularly vulnerable to crosslinguistic influence. The bilinguals, therefore, are predicted to use the subjects appropriately in *what*-embedded interrogatives, that is, they should use preverbal subjects in *what*-embedded interrogatives in English (i.e. there is no verb-raising requirement) and postverbal subjects in Greek (i.e. there is verb-raising requirement).

The bilinguals are also expected to place the object pronouns appropriately in each language, i.e. object clitics should appear preverbally in Greek and object pronouns should occur postverbally in English.

To recapitulate, the hypothesis predicts that if there is crosslinguistic influence from English to Greek, the syntax-pragmatics interface structures in Greek should be found more susceptible to crosslinguistic influence from English than the narrow syntax structures in both the English-dominant and the Greek-dominant bilingual groups.

4. Methodology

4.1 Participants

The participants of the study were 32 English-Greek bilingual children (age range: 7;5-9;5; mean age: 8;1 years), two control groups of 15 Greek children (age range: 7;5-9;7; mean age: 8;1 years) and 15 English children (age range: 7;5-9;6; mean age: 8 years); two control groups of 13 English adults (age range: 22-25; mean age: 24 years) and 15 Greek adults (age range: 22-26; mean age: 24 years). The bilinguals had only been exposed to English and Greek from birth up to the time of testing on a regular basis. Sixteen of the English-Greek bilinguals were Greek-dominant, born and brought up in Greece and sixteen were English-dominant, born and brought up in the UK. The Greek and English monolingual children were age matched to the bilinguals, and they had not been exposed to any other language apart from Greek and English, respectively.

4.2 Materials and procedure

Four elicited production tasks and four acceptability judgement tasks were administered on a PC portable computer. Given that the test items in the two tasks had the same format, the elicited production tasks were carried out first to prevent any influence from the acceptability judgement tasks on the participants' oral responses. Every time the experiment was run the items' order of appearance was randomised in each task. A set of four practice items was used before the elicited production and acceptability judgement tasks to familiarize the participants with the task procedure. The experimental session in each language lasted 30-35 minutes. For the bilinguals the second session in the other language started an hour later to give them some rest between the two language experimental sessions.

The instructions were given in Greek during the Greek session and in English during the English session at the beginning of each task. The researcher tested all children and adults in their homes individually and the elicited production task was recorded. The elicited production tasks consisted of 6 test items and 3 fillers. For each test item the participant was shown one picture in Power Point and heard the question based on the picture's character(s). After hearing each question, the participants were instructed to give an oral response. Regarding null *vs* overt subject pronouns, a felicitous answer involved the use of a subordinate clause starting with '*Because/Epidi*' as an answer to a '*Why/Jati*' question including a null subject pronoun in Greek and an overt subject pronoun in English, coreferential with the picture's character mentioned in the question. In Greek a null subject pronoun coreferential with the prominent topic antecedent, i.e. the picture's character mentioned in the question, should be used, whereas in English the overt subject pronoun was obligatory. In the case of preverbal *vs* postverbal subjects, the felicitous answer to the wide-focus question, e.g. '*What happened to Mary's ball?*' required the use of postverbal subjects in Greek, whereas in English

preverbal subjects were the appropriate option. As for object pronouns, the pictures showed an animate character doing something to an object or another animate character and then the question was: ‘*What did X do to Y?*’. The felicitous answer was the use of a preverbal object clitic in Greek and a postverbal object pronoun in English. In *what*-embedded interrogatives the appropriate answer to the question ‘*What doesn’t grandmother remember?/Ti den thimate i jaja?*’ involved the use of a *what*-embedded interrogative with the verb adjacent to ‘*what*’ in Greek but not in English and the subject postverbal in Greek and preverbal in English.

The acceptability judgement tasks (forced-choice) consisted of 6 test items and 3 fillers each. For every experimental item the participants were shown an MPEG video, in which two hand puppets and another person (in most tasks) were present. Except for the *what*-embedded interrogatives, where only the two puppets participated, in the other tasks a native speaker of Greek/English was also present and asked the two puppets a question that they both answered. In the task for the *what*-embedded interrogatives, the puppets were not asked a question but for every test item each of the puppets used one sentence that included a *what*-embedded interrogative with a subject. After hearing each experimental item, the children were instructed to point to the puppet whose answer or sentence (in the case of *what*-embedded interrogatives) they thought was the most appropriate in English or Greek.

In all tasks, both sentences produced by the puppets in each experimental item had the same semantic content and they were lexically identical, but the structures of interest appeared in different positions (e.g. preverbal *vs* postverbal subjects), except the task for the null and overt subject pronouns, in which a null or overt subject pronoun was used instead in each of the puppets’ answers. In the task for null *vs* overt subject pronouns in both languages, one puppet used a subordinate clause with a null subject pronoun (the appropriate option in the Greek session) and the other puppet used an overt subject pronoun (the appropriate option in the English session). Regarding the task for preverbal *vs* postverbal subjects in wide-focus contexts, one puppet used a sentence with a postverbal subject (the felicitous option in the Greek session) and the other puppet used a preverbal subject (the appropriate choice in the English session). In the test sentences for object pronouns (preverbal object clitics in Greek), one of the puppets used a preverbal object pronoun (a preverbal object clitic was the appropriate option in the Greek session) and the other one used a postverbal object pronoun (the appropriate option in the English session). In the task for the embedded interrogatives, both puppets used a *what*-embedded interrogative in both languages. In one of the items the verb was adjacent to ‘*what*’ and the subject postverbal (the appropriate option in the Greek session) but in the other test item the verb was not adjacent to *what* and the subject preverbal (the appropriate option in the English session).

5. Results

In English, all groups exhibited 100% accuracy in their preferences in all structures and tasks, and thus there was no crosslinguistic influence from Greek to English, as predicted. In Greek, however, the groups did not perform identically. The Greek data were analysed using mixed A x (B x C) ANOVA with Group as the between-subjects variable, and Task, i.e. Elicited production (EP) and Acceptability judgement task (AJ), and Structure, i.e. null subjects, postverbal subjects, *what*-embedded questions, object clitics, the two within-subjects variables, followed by a series of one-way ANOVAs. The results from the mixed ANOVA showed a significant main effect for Group ($F(3, 58) = 31.62, p < .001$), for Task ($F(1, 58) = 30.20, p < .001$), and for Structure

($F(3, 174) = 37.35, p < .001$). The following interactions were also significant: Structure x Group ($F(9, 174) = 15.13, p < .001$), Task x Group ($F(3, 58) = 3.82, p < .005$), Structure x Task ($F(3, 174) = 7.34, p < .001$), Structure x Task x Group ($F(9, 174) = 3.12, p < .01$). In order to explore further the significant results from the mixed ANOVA, separate one-way ANOVAs were conducted for all structures with the elicited production and acceptability judgement tasks as the dependent variables.

5.1 Null vs overt subject pronouns and pre- vs postverbal subjects in Greek

Figure 1 presents the mean scores regarding the use of null vs overt subject pronouns and pre- vs postverbal subjects in wide-focus contexts in Greek. The results from the one-way ANOVA analysis showed a significant difference between the four groups ($F(3, 58) = 4.76, p < .01$). The Tukey Post Hoc test showed only one significant mean difference, that is, between the English-dominant bilinguals and the Greek adults ($p < .01$). There was a significant difference between the four groups regarding postverbal subjects in the elicited production (EP) ($F(3, 58) = 16.94, p < .001$), and the acceptability judgement (AJ) task ($F(3, 58) = 25.31, p < .001$).

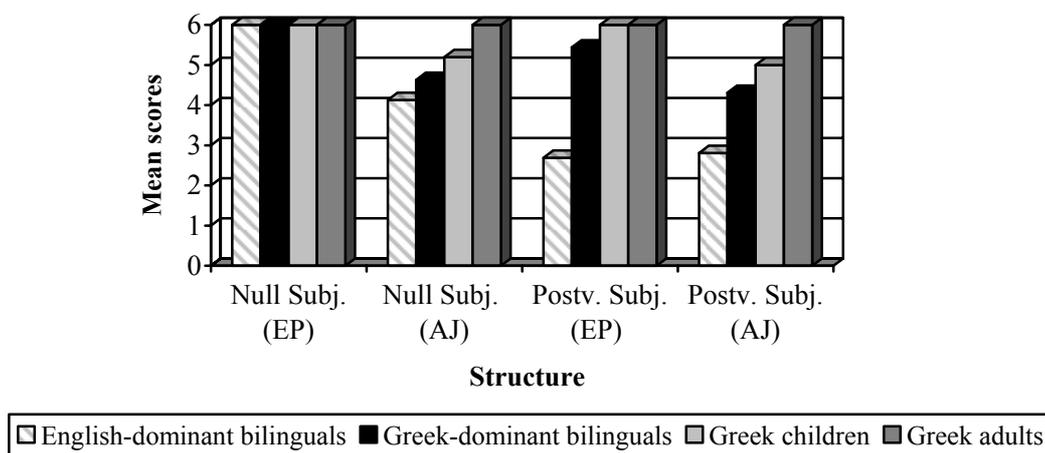


Figure 1. The use of null subjects in [-topic shift] contexts and of postverbal subjects in wide-focus contexts (mean scores, max. = 6)

The Tukey Post Hoc test indicated that the English dominant bilinguals were significantly different from all the other groups in both tasks (Elicited Production task: Greek dominant bilinguals ($p < .001$), Greek children ($p < .001$), Greek adults ($p < .001$); Acceptability Judgement task: Greek dominant bilinguals ($p < .01$), Greek children ($p < .001$), Greek adults ($p < .001$)).

5.2 What-embedded interrogatives and object clitics in Greek

Figure 2 presents the mean scores with respect to the use of *what*-embedded interrogatives and object clitics. The one-way ANOVAs showed no significant differences between the four groups in either task for object clitics but there was a significant difference between the four groups with regard to embedded interrogatives in the elicited production task ($F(3, 58) = 3.03, p < .01$), and the acceptability judgement task ($F(3, 58) = 15.66, p < .001$).

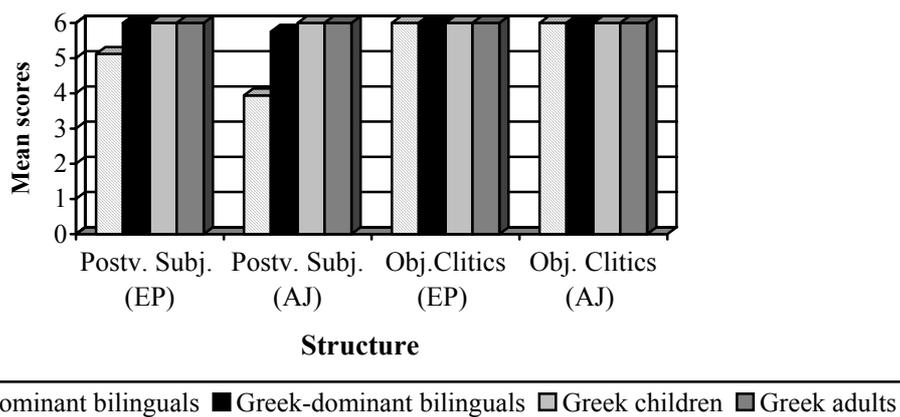


Figure 2. The use of postverbal subjects in *what*-embedded interrogatives and of preverbal object clitics in declaratives (mean scores, max. = 6)

The Tukey Post Hoc test revealed a significant difference between the English dominant bilinguals and the other groups in both tasks (Elicited Production task: Greek-dominant bilinguals ($p < .05$), Greek children ($p < .05$), Greek adults ($p < .05$); Acceptability Judgement task: Greek-dominant bilinguals ($p < .001$), Greek children ($p < .001$), Greek adults ($p < .001$)).

6. Discussion

The data presented support the prediction regarding the directionality of crosslinguistic influence, which occurred from English to Greek, but not vice versa, as expected. However, although it was predicted that crosslinguistic influence of English on Greek would be observed in both bilingual groups, it is only evidenced in the English-dominant bilingual group, and thus language dominance seems to be an important factor. The English-dominant bilinguals used and accepted inappropriate preverbal subjects in wide-focus contexts and in *what*-embedded questions in Greek, in which the verb was not adjacent to 'what', significantly more often than the other groups. Contrary to prediction, therefore, preverbal subjects were extended to both a syntax-pragmatics interface and a narrow syntax structure. These results highlight the importance of the surface overlap between the two languages regarding the use of preverbal and postverbal subjects for the occurrence of crosslinguistic influence in both the syntax-pragmatics interface and narrow syntax structures; but language dominance is a contributing factor as well.

One way to account for these findings is to propose that the same argument developed for interface phenomena also applies to narrow syntax: that is, there is a surface overlap between Greek and English, in the sense that Greek allows for both preverbal and postverbal subjects, but each of these options appears in specific discourse-pragmatic contexts and in specific syntactic environments (in subordinate clauses); the abundant evidence from English strengthens the preverbal subject option regardless of the discourse-pragmatic or syntactic environment and leads to its extension to the incorrect discourse-pragmatic or syntactic environment in the English-dominant bilinguals. The English-dominant bilinguals' preference for a preverbal subject in Greek in focused structures violates a discourse-pragmatic constraint, whereas in *what*-embedded interrogatives discourse-pragmatics is not relevant. The preference for preverbal subjects, however, carries over in both grammatical phenomena

from English because it is overwhelmingly frequent in the input obtained by the English-dominant bilinguals and also because it is not subject to any restriction, unlike in Greek.

The fact that crosslinguistic influence was not found in the Greek-dominant bilingual group could be explained on the basis that, contrary to their English-dominant bilingual peers, the Greek-dominant bilinguals' amount of exposure to English in general, and to preverbal subjects in particular, was not sufficiently high to affect Greek (see also Serratrice (in press) for a similar proposal). Therefore, even though a structure may overlap in the two languages, the possible crosslinguistic influence that would be predicted on structural grounds may not express itself if there is not sufficient input that would tip the balance in its favour.

Object clitics in Greek were not found to be subject to crosslinguistic influence in either bilingual group. Nonetheless, if narrow syntax structures are as vulnerable to crosslinguistic influence as interface structures, provided that there is a surface overlap (i.e. Greek instantiates both postverbal strong object pronouns and preverbal object clitic pronouns, while English allows only postverbal strong object pronouns), crosslinguistic influence could occur in this domain too. The manifestation of such crosslinguistic effects might be the misplacement of object clitics. Recent studies have reported that young bilingual children acquiring a Romance and a Germanic language commit this type of placement errors (Hamann & Belletti 2005; Belletti, this volume). These errors have been explained on the basis of the children's misanalysis of clitics as weak or strong pronouns (see Cardinaletti & Starke 1999) which could be due to the combined influence of the structural 'economy' of the weak/strong pronouns and the effects of the Germanic language, where clitics are not instantiated. It is possible that the older bilingual children tested in this study have passed through a similar stage in earlier developmental phases.

Contrary to prediction, overt subject pronouns were not found to be susceptible to crosslinguistic influence, although the use of null *vs* overt subject pronouns instantiates a surface overlap between Greek and English. Nevertheless, despite the fact that crosslinguistic influence in the distribution of overt subject pronouns was not found at this developmental stage, it is possible, as in the case of object clitics, that both the English-dominant and the Greek-dominant bilinguals might have passed through earlier developmental stages in which they did overuse overt subject pronouns inappropriately. Similarly, the Greek-dominant bilinguals may have passed through an earlier developmental phase in which they used to overextend preverbal subjects, but due to less sustained and regular exposure to English they may have converged with the Greek monolinguals sooner than the English-dominant bilinguals.

Alternatively, the fact that both narrow syntax and interface structures were found to be susceptible to crosslinguistic influence could be explained on the basis that the crosslinguistic effects do not pertain to the representational level, but rather to the level of processing. We cannot explore properly this proposal based on the off-line data of the present study. It is, however, possible to hypothesize that this type of account allows us to integrate one of the more puzzling features of the original hypothesis, that is, the bilingual learners' reliance on surface input patterns. Studies in monolingual acquisition have shown that many of the characteristics of child grammar which were considered to be exclusively grammatical in nature can be best explained as having a syntactic basis compounded with the inefficiency of processing resources (Avrutin 1999; Rizzi 2002).

It is generally assumed that monolingual children are not dependent on the surface features of the input during the acquisition of their native language, i.e. monolingual children do not formulate rules/generalizations on the basis of surface patterns (e.g. *wh-*

extraction) (Roeper & de Villiers, 1994; Radford 2004, among others). Some studies have also shown that bilingual children do not make errors of transfer, acceleration or delay while acquiring the syntax of one of their languages due to the presence of the other language (Paradis & Genesee 1996), while other studies have shown that young and older bilingual children are led astray by the surface overlap between languages (see, for example, Paradis & Navarro 2003). Thus, we could speculate that the surface overlap between the two languages is more puzzling for the bilingual children because their processing strategies rather than their grammars may be more dependent on surface input than in monolingual children. In other words, bilingual children, because of the increased processing burden of handling two languages, may employ shallow processing strategies, especially when dealing with structures whose instantiation, in one of their languages, is subject to complex conditions in certain discourse-pragmatic or syntactic contexts (see Clahsen & Felser's 2006 study with adult late bilinguals).

Sorace (2005) suggested that lack of efficiency in syntactic processing in bilingual speakers may, at least partially, be due to insufficient practice in, and exposure to, a language. Therefore, it is possible that the resort to shallow processing may be affected by the overall quantity of input received, since with less input children have fewer opportunities to coordinate the selection of syntactic options with the appropriate syntactic or discourse-pragmatic conditions.

It is important to note that the English-dominant bilinguals can, and occasionally do, use postverbal subjects in Greek in the particular discourse-pragmatic and syntactic contexts appropriately. Thus, although their grammatical knowledge may not be affected, this is clearly not sufficient to ensure consistently target-like performance in subject placement in structures both at the syntax-pragmatics interface and narrow syntax. Therefore, these bilinguals are not consistent in applying the appropriate syntactic constraints for the position of subjects in *what*-embedded interrogatives and the appropriate discourse-pragmatic constraints for the placement of subjects in the wide-focus contexts tested. The overwhelming frequency and less constrained use of preverbal subjects in the English input could influence the English-dominant bilinguals' effective processing of the Greek input, leading them to produce and accept pragmatically and syntactically inappropriate preverbal subjects significantly more often than the Greek-dominant bilinguals and the Greek monolingual groups (see also Hertel 2003 and Belletti et al. 2005) for overuse of preverbal subjects in inappropriate discourse contexts in Italian and Spanish respectively).

7. Conclusion

The current study provides evidence that crosslinguistic influence can be evident in later developmental stages and it can unidirectionally affect both narrow syntax and syntax-pragmatics interface structures in 8-year-old English-Greek bilingual children. Crosslinguistic influence from English to Greek was found to be constrained by conditions that were partly different from those hypothesized by recent studies. A surface overlap between a bilingual's two languages may provide a potential for crosslinguistic influence; this particular factor seems to be the main determinant of the directionality of crosslinguistic influence. Crosslinguistic effects, however, were not found in all syntax-pragmatics interface structures, and they were not restricted to this interface, since they were also evident in one of the narrow syntax structures. Moreover, the occurrence of crosslinguistic influence seems to be at least partially affected by the quantity of input received, since crosslinguistic effects were present only in the English-dominant bilinguals. The crosslinguistic effects found in the English-dominant

bilinguals could be argued to be relevant to the representational or processing level but the off-line data of this study do not allow us to draw any definite conclusions at this stage. Future research should find theoretically and methodologically appropriate ways to disentangle processing and representational effects in bilingual language acquisition.

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