

**The Later Stages of Bilingual Acquisition:
Crosslinguistic Influence in Older English-Greek
Bilingual Children**

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PhD thesis

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Declaration

I declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text. This work has not been submitted for any other degree or professional qualification except as specified.

Στους γονείς μου Ελένη και Γιώργο, και στις αδελφές μου Βάσω και
Χαρούλα με όλη μου την αγάπη.

To my parents, Eleni and Jorgo, and to my sisters, Vasso and Haroula,
with all my love.

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Abstract

Previous 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. Recent studies have argued that syntax-pragmatics interface structures, which instantiate a surface overlap between the two languages are vulnerable to crosslinguistic influence in bilingual acquisition. Until now, this proposal has been mainly tested with young bilingual children. This thesis explores the possibility of crosslinguistic influence, and its restriction to interface domains, in older bilingual children. The study also aims to establish whether crosslinguistic influence occurs only in one direction, i.e. from English to Greek, in eight-year-old English-Greek bilingual children, and whether language dominance, intended as the different levels of exposure the bilinguals have to each of their two languages, is important for crosslinguistic influence to occur.

We present experimental data from thirty-two English-Greek eight-year-old bilingual children, sixteen Greek-dominant living in Greece and sixteen English-dominant living in the UK, and monolingual control groups. A series of elicited production and acceptability judgement tasks were administered to investigate whether specific syntax-pragmatics interface structures, i.e. the distribution of null and overt subject pronouns, and preverbal and postverbal subjects in wide-focus contexts, are more vulnerable to crosslinguistic influence from English to Greek than purely syntactic structures, i.e. the placement of object pronouns in declaratives and the placement of subjects in *what*-embedded interrogatives.

The prediction was that unidirectional crosslinguistic influence might occur from English to Greek in both bilingual groups and that the syntax-pragmatics interface structures would be found more vulnerable to crosslinguistic influence than the purely syntactic structures. The findings show that overt subject pronouns were not subject to crosslinguistic effects, while the placement of subjects both in wide-focus contexts (i.e. a syntax-pragmatics interface structure) and in *what*-embedded interrogatives (i.e. a purely syntactic structure) was vulnerable to crosslinguistic influence (albeit to different degrees) in the predicted direction, i.e. from English to

Greek, but only in the English-dominant bilinguals. This data suggests that current hypotheses on the conditions on crosslinguistic influence in bilingual grammars need to be revised. Crosslinguistic influence in this study is the outcome of the combination of different factors; the surface overlap between the bilinguals' two languages and language dominance seem to contribute to the occurrence of crosslinguistic influence in these older English-Greek bilinguals.

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Φρόσω Αργύρη

List of Abbreviations

NOM: Nominative

GEN: Genitive

ACC: Accusative

SG: Singular

PL: Plural

CL: Clitic

ASP: Aspectual morpheme

PERF: Perfective (aspect)

IMP: Imperfective (aspect)

PAST: Past

The symbol ‘*’ indicates ungrammatical sentences, while the symbol ‘?’ indicates sentences with a marginal status, and ‘@’ indicates pragmatically infelicitous sentences.

CHAPTER 1

Introduction

1.1. Introduction

Bilingualism is becoming an increasingly common phenomenon all over the world. Many become bilingual by learning a second language at some point in their life, whereas more and more children are exposed to two or more languages from birth and they are brought up in a bilingual environment, acquiring both languages simultaneously. The study of bilingual children from a linguistic perspective offers a unique opportunity to investigate universal and language specific mechanisms during the acquisition process, and to explore whether and how the two developing linguistic systems can interact with one another (Serratrice, 2000).

Crosslinguistic studies in the field of child language acquisition have mostly focused on comparing data from monolingual children that acquire different languages, but in the recent years researchers have started exploring the bilingual children's language development, hence acknowledging the empirical and theoretical contribution that research in bilingualism can make to the study of first language acquisition. Bilingual children are the ideal matched pair in that a number of possibly influential variables that may affect the process of acquisition, such as socio-cognitive development, are controlled in a bilingual situation (Meisel, 1990; De Houwer, 1990). Consequently, studies on childhood bilingualism can have important theoretical implications for the child language acquisition processes in general (De Houwer, 1990).

An issue of major concern in studies of bilingual children is whether and to what extent the two linguistic systems interact with each other. Most studies in the field of bilingual acquisition have shown that bilingual children are able to distinguish between their two languages from early on and thus it is suggested that the two grammars develop autonomously (e.g. Meisel, 1989; De Houwer, 1990). Current views, however, suggest that although the two languages develop separately, there may be some degree of contact between the two languages. More specifically,

according to a recent hypothesis structures that involve the syntax-pragmatics interface and instantiate a surface overlap between the two languages are vulnerable to crosslinguistic influence, whereas purely syntactic structures are not considered to be susceptible to crosslinguistic effects (e.g. Hulk and Müller, 2000; Müller and Hulk, 2001).

Until now, this proposal has been mainly tested with young bilinguals (but see Serratrice, 2005 and Serratrice, 2006), whilst in this study the aim was to evaluate its predictive and explanatory power in older English-Greek bilingual children. This thesis considers experimental data from eight-year-old English-Greek bilingual children. In particular, it is investigated whether there is crosslinguistic influence of English onto Greek with respect to a number of syntax-pragmatics interface and purely syntactic structures. Another question addressed in this study is whether language dominance, in the sense of the different levels of exposure the bilinguals have to the two languages, is important for crosslinguistic influence to take place, and thus English-dominant and Greek-dominant bilinguals were tested.

The results indicated the appearance of crosslinguistic influence from English onto Greek in some syntax-pragmatics interface and purely syntactic structures, but only in the English-dominant bilingual group. However, there are no crosslinguistic effects from Greek onto English, even in the Greek-dominant bilingual group. The bilingual data presented in this thesis suggest that it is a combination of different factors that determines crosslinguistic influence. In particular, the nature of the surface overlap between the two linguistic systems the bilinguals acquire and language dominance, defined as the amount of exposure the bilinguals have to each language, seem to contribute to the occurrence of crosslinguistic influence in these school-age English-Greek bilinguals.

1.2. Structure of the thesis

The six chapters that follow this introduction are the following. Chapter 2 reviews studies in childhood bilingualism with a particular emphasis on the issue of language differentiation. Studies of pragmatic, lexical and morphosyntactic differentiation are discussed in relation to the central issue of the separate development of two linguistic systems in cases of bilingual first language acquisition. The state of the art studies on

the major issue of crosslinguistic influence are also reviewed with a particular reference to the current views with regard to the conditions under which interaction between the two languages occurs in simultaneous bilingual children from birth.

Chapter 3 presents the morphosyntactic contrasts between Greek and English regarding the structures tested in the current study. A selected review of previous studies of the acquisition of the relevant structures in both Greek and English are also provided.

Chapter 4 includes the description of the methodology of data collection with particular reference to the design and procedure of the experimental tasks used, and to the description of the criteria and process of the subjects' recruitment. Detailed information is provided on patterns and amount of language exposure the bilingual children have to Greek and English on a regular basis. The description of the methodology of data collection is supplemented by Appendix I, in which the experimental items from all tasks in both languages are presented, Appendix II, which presents the instructions given to the participants during the administration of the tasks, Appendix III, which includes the questionnaire given to the bilingual children's parents, and Appendix IV, which exhibits the biographical data of the individual participants of the study. Chapter 5 is devoted to the presentation and statistical analysis of the study's results. Chapter 6 is a detailed discussion of the study's findings with respect to their implications for the issue of crosslinguistic influence and the conditions which may favour its operation in older simultaneous bilingual children. Some methodological considerations regarding previous research on crosslinguistic influence are also discussed. Chapter 7 includes concluding remarks regarding the study's empirical findings and provides some suggestions for future research.

CHAPTER 2

Theoretical Issues in Bilingual Language Acquisition

2.1. Introduction

This chapter reviews studies in simultaneous bilingual acquisition addressing various issues relevant to bilingual development in general and in particular the issue of language differentiation. The discussion of studies regarding the pragmatic, lexical and morphosyntactic differentiation observed in young bilingual children is associated with the central issue of the separate development of the bilinguals' two languages. Nevertheless there is also reason to believe that there must be a degree of interaction between the bilinguals' two linguistic systems, and thus the most recent studies on the crucial issue of crosslinguistic influence are also reviewed. Specifically, the studies discussed present the current views regarding the conditions that make crosslinguistic influences possible in childhood bilingualism in different grammatical domains.

2.1.1. Why study bilingual children?

Early childhood bilingualism is a widespread phenomenon and it is estimated that nearly half of the world's population is functionally bilingual and that most of these bilinguals are 'native speakers' of their two languages (De Houwer, 1995). Thus, as De Houwer (1995) has rightly pointed out, studies of child language should not focus predominantly on monolingual children but on the 'multilingual majority' as well. In recent years there has been an increasing number of studies on bilingual children along with the realisation of the theoretical implications that bilingual acquisition research can have to the study of first language acquisition in general.

The importance of studies on bilingual acquisition for addressing general issues prevalent in child language research has been highlighted by several researchers. De Houwer (1990) emphasises that bilingual children, growing up with two languages from birth, make ideal subjects for crosslinguistic research because a number of

possible influential variables that may affect linguistic development are controlled for. The bilingual child is the "perfect matched pair" (De Houwer, 1990: 1). The bilingual child is always at the same level of socio-cognitive development and hence the main two variables are the bilingual child's two different linguistic inputs. In a similar vein, Meisel (1990) has noted that various factors that may influence the acquisition process of a specific language, such as cognitive development and personality are controlled when studying bilingual children.

The study of bilingual children can contribute to theories of acquisition, since bilingual acquisition may prove revealing with regard to the potential linguistic abilities of children at a certain stage in development; it can inform the researchers about the limits of language acquisition (De Houwer, 1995). Furthermore, the importance of the input's nature in the bilingual acquisition process is acknowledged by a number of studies in bilingual children (De Houwer, 1990, 1995; Lanza, 1997; Serratrice, 2000). This finding in turn raises interesting questions in relation to the acquisition process in general. The role of the input in L1 acquisition is potentially almost as crucial as it seems to be for simultaneous bilingual acquisition. The input, however, the monolingual children obtain may be more homogeneous, i.e. less varied than the input the bilinguals receive, and thus the exact nature of its impact is much less apparent and can be easily ignored in the search for explanations of monolingual data. Consequently studies of bilingual children can greatly contribute to the debate within monolingual acquisition as to the role of the input (De Houwer, 1995; Serratrice, 2000).

Finally but not least, the study of bilingual children is directly relevant to many families raising bilingual children. Childhood bilingualism, unfortunately, is in many cases confronted with various concerns and prejudices. The most frequently articulated concern of a bilingual upbringing is that the bilingual child might be confused linguistically, cognitively, emotionally and even morally (Meisel, 2004). This type of uninformed concerns about early bilingualism has led a number of bilingual families to give up their children's bilingual upbringing. An enhanced knowledge, therefore, of how children acquire two languages in childhood may help more bilingual families to support their children's acquisition of the two languages of their environment.

2.1.2. What is meant by ‘Bilingual First Language Acquisition’?

There is a general consensus among researchers in child bilingualism that the simultaneous acquisition of two or more languages from birth can be considered as an instance of first language development in each of the child’s languages. According to De Houwer (1990) ‘Bilingual First Language Acquisition’ (BFLA) refers to situations in which a child is regularly exposed to two languages within the first month of birth onwards and she is addressed in both languages on a regular basis. Recent empirical evidence suggests that the age of first exposure to each of the bilingual child’s languages may affect the course of acquisition (De Houwer, 1995; Meisel, 2004). In particular, although much more research is needed to investigate this controversial issue, current research suggests that if bilingual acquisition begins approximately before the age of five, the course of acquisition seems to be identical to simultaneous acquisition of two languages from birth (Meisel, 2004). Conversely, successive bilingualism occurring approximately between ages five and ten can be considered as child second language acquisition and therefore more similar to adult second language acquisition than bilingual first language acquisition (Meisel, 2004).¹

As is apparent from the previous discussion, it is crucial for researchers in bilingual acquisition to indicate the exact time of their bilingual subjects’ initial and regular exposure to each of the two languages. This thesis in particular presents investigations of simultaneous bilingual acquisition of Greek and English in school-age English-Greek bilingual children who have been regularly exposed to both languages from birth up until the stage of data collection.

2.1.3. Bilingual environments

There are a number of environments in which a child can be exposed to bilingual input. In one case the parents can have different native languages, that is, one parent is a native speaker of the minority language and the other parent is a speaker of the dominant language (i.e. community language). Both parents speak their native

¹ See Hulk and Cornips (2005) for similarities and differences between child L2 and simultaneous bilingual acquisition from birth.

language to the child from birth, i.e. the so-called one-parent one-language strategy (Döpke, 1992). In another case both parents can share the same native language, which is different from the community language, and the parents speak the minority language at home between them and with the child. The child is in turn exposed to the community language through various input sources such as the nursery, childminders, visits of native speakers of the community language at home, etc. The two types of childhood bilingualism presented above obviously are a subset of the many and various possible bilingual environments in which a child may be raised, but for the purposes of this thesis it suffices to discuss these two types. As has often been noted both the type and the amount of input the bilinguals receive in each language are seen as being important in the developmental process (De Houwer, 1995). In both cases it is of great importance for the parents to establish a successful bilingual environment in order for the child to have a relative balanced exposure to both languages.

Both in the one-parent one-language approach and in the case in which both parents are speakers of the minority language, the parents should find ways to maximise the child's exposure to the minority language in order to increase the possibility that the child will eventually grow up speaking that language. The fact that one of the parents speaks consistently the minority language in the one-parent one-language strategy, or even in the case in which both parents exclusively use the minority language as the home language does not necessarily imply that the child will grow up speaking that language. The bilingual child, however, will certainly grow up speaking the language predominantly used in the society in which he lives and studies. Kessler (1984) has rightly pointed out that in order for bilingualism to be maintained, the continued and regular use of the bilinguals' two languages in communicative naturalistic settings is required.

The interaction with caregivers, relatives or friends that speak the minority language can greatly extend the child's exposure to this language. In this way, the amount of linguistic input in the minority language will be increased and at the same time the child will realize that the language not spoken by the community is also the language of another extended community. Even if the parents have decided to address the child in the minority language regardless of the presence of monolingual

speakers of the community language, this strategy works as long as the children are still very young (Döpke, 1992). In fact it is difficult to adhere to this strategy when children start attending school and hence their social network consists of a large number of monolingual speakers of the community language. For instance, it would be difficult for a Greek-speaking parent to continue speaking to her eight-year-old son in Greek in the presence of his monolingual English-speaking peers since in this way she would exclude her child's friends from the conversation.

Additionally, in the case of the one-language one-parent approach, in order for the child to get more balanced input in both languages it is crucial that the parent who speaks the language of the community also speaks or understands the minority language spoken by the other parent. If this is not the case then the parent who speaks the minority language will inevitably use the language of the community when the other parent is present in order for him/her to participate in the conversation. Therefore, it is most likely that the child will have restricted access to input in the minority language, since she will most probably be exposed to this language only if she is alone with the parent that speaks the minority language.

In order for a child to acquire two languages successfully it is not sufficient to be exposed to both languages from birth. It is important that substantial provisions are made to increase the bilingual children's exposure to the minority language so that the parent(s) is not the sole input source of that language. If that is the case, the input provided by the parent(s) alone may not be sufficient considering the overwhelming majority of the exposure the child has to the community language through the nursery and the school later on, family monolingual friends and peers speaking the community language, various social activities etc.

Furthermore, if the parents(s) are the only source of linguistic input in the minority language in an environment in which the community language is predominantly used, it will be more difficult for the child to grant the minority language the same status of a real community language, rather than being simply the way the child's parent(s) speaks (Serratrice, 2000). Therefore, the creation of a linguistic environment in which the child is exposed to the minority language in various naturalistic settings is of a great importance to the development of the child's linguistic identity in the minority language, a task that requires the deliberate effort

and commitment on the part of the parents. Consequently, the restricted access to linguistic input from the minority language and the failure to convey to the child the importance of the minority language having the status of a language of an extended community will almost certainly affect the developmental process of the minority language even if the children have been exposed to that language from birth (Sorace and Ladd, 2004).

2.2. Language separation: One system or two?

2.2.1. The single-system hypothesis

The issue of language differentiation, i.e. whether bilingual children begin with one linguistic system or whether they have two linguistic systems from the start has dominated the research in bilingual acquisition for the past two decades. A number of researchers (Leopold, 1949; Volterra and Taescner, 1978; Redlinger and Park, 1980; Vihman, 1985, among others) have claimed that bilingual children acquiring two languages simultaneously begin with one linguistic system that later separates into two systems, usually between the ages of 2 and 3 years (Paradis and Genesee, 1996).

The so-called 'single-system hypothesis' was mainly based on the observation that some bilingual children that acquire two languages from birth may initially go through a developmental stage in which they produce mixed utterances, that is to say, they appear to mix elements from the two languages. Thus, the occurrence of early mixed utterances was interpreted as an indication of a single initial language system. More precisely, the proponents of the single-system hypothesis argued that the presence of mixed utterances show that bilingual children start out with one undifferentiated system, without being aware that they are in fact dealing with two separate linguistic systems that consist of distinct, phonological, morphological, syntactic and pragmatic components.

Leopold (1949) was the first researcher to mention the presence of an initial 'mixed' or 'hybrid' system in young bilingual children. Leopold examined his daughter's bilingual acquisition of English and German and he reported an initial stage before the age of two when the child freely mixed English and German

vocabulary within two- and three-word utterances, which he interpreted as evidence that she 'built a hybrid system out of the elements of both' (Leopold, 1949, vol. III:179). However, the bilingual child also produced non-mixed English two- and three-word utterances; it is not clear why Leopold chose to focus on his daughter's mixed utterances. Moreover, it is very likely that the child's language mixing was affected by the presence of a bilingual speaker. Specifically, when the data was collected Leopold, who was a fluent bilingual speaker, was always present, and the English-speaking mother also spoke German, although not with her daughter (De Houwer, 1990).

Volterra and Taeschner (1978) analysed the production speech of two German-Italian bilingual children from approximately the age of 1;0 to 4;0. The fact that mixing is reported to occur most frequently at a very early stage of bilingual language acquisition, i.e. before the age of 2 years, while later on bilinguals seem to easily differentiate between the two languages, led Volterra & Taeschner to develop a three-stage model of bilingual children's early linguistic development.

Stage I includes a unified lexicon, i.e. the child has one lexical system that contains lexical items from both languages. During this stage according to Volterra and Taeschner, the bilingual child has a word in one language but lacks the synonym in the other language, and thus words from both languages are used in two- and three-word utterances. In particular, the bilingual children were found to use a few words that could be regarded as lexical equivalents across languages. However, the investigators pointed out that these lexical items are not considered as equivalent by the children, i.e. they are used in different contexts.

These findings have been mainly questioned on methodological grounds. De Houwer (1995) observed that the data collection procedures (i.e. they had audiotaped data) used by the investigators are problematic for the validity of their findings. The author noted that it is very difficult to understand how just on the basis of audiotaped data informed decisions could be taken as to whether a certain term was being used as a translation equivalent of another term or not. Another important criticism was raised by De Houwer (1987) who argued that the proof for the existence of Stage I ultimately depends on the absence rather than on the presence of certain forms, and this absence of such forms might in fact be the outcome of sampling limitations.

Moreover, the child's lack of production of an equivalent does not necessarily imply that it is not included in the lexicon, since the child may actually comprehend the equivalent, and thus this would constitute evidence for a dual lexicon (Lanza, 1997). An in-depth study of the child's semantic development would, however, be necessary to verify this.

In Stage II, two different lexicons emerge to which the same set of syntactic rules is applied. Regarding lexical development, it is not until this stage that the bilingual child is argued to be able to express the same concept in the two languages. To support this claim, the authors provide examples in which the children use 'exact translations' in both languages, i.e. the children appear to use a high number of equivalents during this stage. In a critical review of this stage, De Houwer (1990) emphasised that it is very unclear what the criteria would be for deciding whether the bilingual child is at Stage I or Stage II with regard to lexical development. In both stages the child is seen as producing words from both languages, some of which at more or less the same time of development may appear to be used as translation equivalents: even in Stage II an equivalent term may not appear until 3 months after a lexical item has been acquired in one language only (De Houwer, 1990).

Although the bilingual child is proposed to have two lexical systems, she still operated with one syntactic system. Focusing on three syntactic structures which differ in Italian and German (possessive structures, adjective constructions and negation) the authors provided evidence of syntactic mixing in the speech of the two bilingual children. Notice that the authors gave examples of syntactic mixing when Stage III had already started, and as a result, this empirical evidence was also questioned in terms of their sufficiency to support the hypothesised Stage III (Meisel, 1989). Another crucial point of criticism raised by Meisel (1989) is the vagueness of the authors' definition regarding the syntactic part of the proposed Stage II. More precisely, in Stage II the child is simply presented as using syntactic mixing without referring to any specific independent criteria on the basis of which the definition of Stage II was formulated. Furthermore, according to the authors, syntactic mixing may occur in the other stages as well, and hence one wonders how the alleged occurrence of syntactic mixing can be considered as a sufficient definition of Stage II (Meisel, 1989).

In Stage III the child speaks two languages differentiated both at the syntactic and lexical level while each language is associated with the person using that particular language. Nonetheless, according to Volterra and Taeschner, there were many examples of interference at the same stage. As De Houwer (1990) noted, the term 'interference' is not explained and the authors do not also indicate what proportion of examples of interference would be acceptable during Stage III. Therefore, De Houwer, argued that it is again impossible from the information given to decide what exactly would be considered as sufficient empirical evidence to indicate that the child is in Stage III. In summary, it has been widely argued that the three-stage model of bilingual children's early linguistic development is not supported by positive evidence, and hence its explanatory value is seriously questioned.

Redlinger and Park (1980) addressed the issue of whether the young bilingual children start with one system or with two separate systems and these researchers considered language mixing as evidence for the single-system hypothesis. The authors provided an analysis of the relationship between language mixing and linguistic development as measured by Mean Length of Utterance (MLU). They studied the speech of four bilingual children (two German-French, one German-Spanish and one German-English) who were around 2 years old. Their main finding was that rates of mixing were found to decrease with advancing linguistic development and with increased MLU.

Redlinger and Park argued that the early high mixing rates indicates the child's inability to distinguish the two languages. The progressive decrease of language mixing was considered to be evidence for the transition from a single undifferentiated system to two separate systems, when the bilingual child was able to differentiate between the two languages as a result of the more advanced linguistic competence.

However, certain discrepancies occurred in the data, namely the comparison of mixing rates and MLU values did not suggest an association between MLU and language mixing, since the degree of mixing was different among the four children for comparable MLUs. Redlinger and Park proposed that various linguistic and sociolinguistic factors, such as the nature of the input the children received, could account for these deviations. In particular, the high mixing rates for two of the

bilinguals as compared with a third bilingual child were attributed to the lack of strict language separation by person in the language input, i.e. the parents of these two children did not employ the one-person one-language strategy in contrast to the third child's parents.

In the light of the aforementioned discrepancies in the data, the authors' claim about the validity of the single-system hypothesis has been questioned. Specifically, Meisel (1989) argued that the sociolinguistic factors that Redlinger and Park suggested to account for the observed differences in language mixing rates among the four children seem to be the crucial ones, that is to say, the nature of the input the children obtain makes it possible to predict the occurrence of language mixing.

2.2.2. Alternative explanations of the early mixed utterances

Numerous researchers (Genesee, 1989; Meisel, 1989, 2004; De Houwer, 1990, 1995; Lanza, 1992, 1997; Genesee, Nicoladis and Paradis, 1995; Nicoladis and Genesee, 1996; Quay, 1995; Köppe, 1996; Paradis and Genesee, 1996, among others) have criticised the single-system hypothesis and they have claimed that the earliest mixed utterances of some bilingual children cannot be considered as evidence for the existence of an initial single language system. The evidence offered by proponents of the single-system hypothesis is not sufficient to support the hypothesis that bilinguals have to pass through an initial mixed stage which in turn should be explained as an outcome of their processing both languages as a single system.

In particular, Genesee (1989) pointed out that studies supporting the single-system hypothesis were weak on purely methodological and empirical grounds. Genesee crucially questioned the validity of the basic assumption of the single-system hypothesis, i.e. the assumption that early language mixing can be considered as evidence of a single-language system.

Instead, Genesee proposed context as the measure of language differentiation. More specifically, positive evidence for the single-system hypothesis would be the case in which bilingual children use items from both languages indiscriminately regardless of context. Conversely, the differentiated-language systems hypothesis would be supported if it could be demonstrated that children use items from their two languages differentially as a function of context. Genesee noted that most proponents

of the single-system hypothesis did not present or analyse their data by context. He further pointed out that Redlinger and Park's (1980) finding that mixing decreases over time with increased MLU does not necessarily imply that children start out with one language system which later differentiates into two; it could simply be explained in terms of the fact that the children are acquiring more complete linguistic repertoires and hence they do not need to resort to borrowing.

In addition, mixing might be accounted for in terms of acquisition strategies employed by the bilingual children and these strategies are independent of the issue of language representation. Language mixing could occur even though the child's languages have a separate representation for two reasons: in one case language mixing may occur because the language being used is incomplete and does not include the grammatical device required to express particular concepts. In the other case the grammatical device is available in the language currently in use but it may be more complex than the corresponding one in the other language. As a result, the child may choose to use the simpler device instantiated in the other language.

Moreover, Genesee also suggested another alternative explanation of language mixing, namely the role of input, a possibility that had not been seriously investigated. In particular, he noted that bilingual children's mixed utterances could be modelled on mixed input produced by adults or linguistically more mature children. In support of this proposal Bergman's (1976) study was reported, in which the bilingual child's use of the English possessive marker 's' in Spanish utterances could be traced to her nursery school teacher's use of the same structure. Furthermore, Redlinger and Park (1980) and Lanza (1992) have also claimed that children exposed to a considerable amount of mixed input and to interchangeable use of the two languages by the same interlocutor exhibit higher mixing rates than children who hear the two languages separately, i.e. when the one person-one language strategy is employed.

Genesee also emphasised that the differentiation of two languages minimally requires that the bilingual children be able to discriminate perceptually between their two languages. With this assumption in mind, he provided additional evidence about the plausibility of the claim that bilingual children are able to differentiate between their two languages from early on by reporting studies that examined the perceptual

abilities of infants. More specifically, infants have been found to be capable of sophisticated perceptual contrasts (Jusczyk, 1982) and infants of 6-17 weeks (Trehub, 1973) have been shown to be able to differentiate phonetic contrasts in languages they had never been exposed to. Another study demonstrated that 4-day-old infants from French-speaking families (Mehler, Lambertz, Jusczyk and Amiel-Tison, 1986) were at this very early age able to discriminate between French and Russian, showing a preference for French. Moreover, there is now a substantial body of research on infant perception that conclusively demonstrates this point (see Jusczyk, 2000, for an extensive review of the relevant literature).

2.3. Evidence for early linguistic differentiation in bilingual acquisition

Criticisms of studies supporting the single-system hypothesis were followed by a number of studies considering the evidence for the separate development of the bilingual child's two linguistic systems. Recent studies have demonstrated that bilingual children acquiring two languages simultaneously from birth are able to differentiate between the two languages at the lexical, morphosyntactic, phonological and pragmatic level. In general, contrary to the single-system hypothesis, not all children mix frequently during early stages and already by the age of 2 years they choose the language according to the addressee (Meisel, 2004).

2.3.1. Pragmatic differentiation in bilingual children

Recent empirical studies focusing on the differentiation of the two languages at the pragmatic level have shown that bilingual children as young as two are able to choose their language appropriately according to the context.

De Houwer (1990) investigated the language choice patterns in a bilingual English-Dutch child. The addressee was a major determinant in the selection of the language to use for this bilingual child. Thus, there was a very strong tendency for the bilingual child to use Dutch with monolingual Dutch speakers and English with English-speaking interlocutors, but she would occasionally use English when speaking to Dutch-English bilinguals.

Nevertheless, the bilingual child addressed some mixed utterances to her English-speaking mother and Dutch-speaking interlocutors. The analysis of the mixed utterances, however, revealed that the bilingual child had in fact a solid sophisticated knowledge of the language abilities of the people around her. More specifically, most of the Dutch utterances addressed to her English-speaking mother were single words but in the case of the English utterances addressed to the Dutch-speaking father and the Dutch-English bilingual investigator, the language was more complex.

De Houwer accounted for this pattern by suggesting that the child was aware of her interlocutors' linguistic competence in either language.² The investigator and the child's father were in fact fluent Dutch-English bilinguals, whereas her English-speaking mother's Dutch was basic and she did not use it often. Therefore, the bilingual child was obviously aware of her interlocutors' language abilities in the two languages, and although she normally used the language in which she was addressed, she also knew the limits in using the other language, depending on whom she was interacting with. Similarly, Deuchar and Quay (2000) reported two studies, i.e. McClure (1981) and Genishi (1981), which showed that the language proficiency of the interlocutor was important in influencing the language choice of bilingual Mexican-American 6-year olds.

Lanza (1992, 1997) has also showed that bilingual children as young as 2 can and do use their two languages in contextually sensitive ways. In a longitudinal study of a Norwegian-English child aged between 2;0 and 2;7, the author investigated the bilingual child's mixed utterances by looking at grammatical and lexical mixing and the context in which language mixing occurred. Grammatical mixing in the child's utterances was unidirectional, namely only Norwegian grammatical morphemes co-occured with both languages, whereas English grammatical morphemes were found only in English utterances. The author accounted for this situation in terms of the child's dominance in Norwegian. However, the pattern was different in lexical mixing, since the bilingual child's lexical mixing was higher with her Norwegian-speaking father than with her English-speaking mother. Lanza attempted to explain

² Research has shown advantages for bilingual children over their monolingual peers in different metalinguistic awareness tasks, such as syntactic awareness tasks (e.g. Galambos and Hakuta, 1988; Cromdal, 1999). According to Bialystok (2001) the fact that the bilingual child has two different language systems to examine may make structural patterns more noticeable and hasten the child's attention to the systematic features of language.

this pattern by examining the parents' discourse strategies towards their child's lexical mixing.

Thus, although the child's parents argued that they were both adhering to the one-person-one language approach when interacting with the child, after a detailed analysis of the discourse context different patterns emerged as to whether they negotiated a monolingual or bilingual context with their child. Specifically, when the mother was in conversations with the child, she was always very careful to negotiate a strictly monolingual context by questioning the child's use of Norwegian words in an otherwise English context, hence pretending not to comprehend the child's mixed utterances, as shown in (1):

(1) Siri (2;2) and her mother are in the kitchen. Siri is drawing and has just asked for more paper.

Siri

Mother

Siri run and find it.

Yeah/

Mama's standing right here.

//Mama løpe]] ('run')

Mama's got to look//after the food].

Mama løpel/ Mama løpel/

Mama løpe

What do you want Mama to do?

run/

Run.

Mama run/

Mama run. OK.

(Siri's mother goes off to get paper.)

In contrast, the father was not as careful in negotiating a monolingual context since he was more likely to accept the use of English words/utterances in a Norwegian context. In that case the conversation would continue without the father requesting clarification. An example in which a bilingual context was negotiated when the child was interacting with her father is shown in (2):

(2) Siri (2;4) and her father are reading a book.

Siri	Father
	Hva er det for noe?
	‘What’s that?’
<i>name?!</i>	
	En flodhest.
	‘A hippopotamus.’
ja/ ‘yes’	

Thereby, this empirical evidence suggests that if the adult negotiated a bilingual context with the child by accepting utterances produced by the child in both languages then the child was more likely to use mixed utterances than if the adult negotiated a monolingual context by accepting utterances from only one language. In summary, Lanza showed that aspects of the context, such as the language of the interlocutor and the communication strategies used with the bilingual child, had an influence on language choice by the child (see also Deuchar and Quay, 2000 for a similar proposal).

The effect of the interlocutor on language choice is also documented in other studies of bilinguals. Köppe and Meisel (1995) observed two young French-German bilingual children interacting with adult interlocutors who pretended to be monolingual. The results of the study showed that none of the two bilingual children deviated from using their interlocutor’s language starting from the time the study began, when one child was 2;0 and the other one 2;5.

To recapitulate, there is ample evidence indicating that young bilingual children are able to differentiate their language use according to the language of their interlocutor and his language proficiency, as well as the interactive strategy of the adult interlocutor towards the child’s mixing. Young bilingual children are very sensitive from early on to direct or indirect signals regarding the acceptability of language mixing and thereby they behave accordingly.

2.3.2. Separate syntactic and lexical development in bilingual children

Recent studies of developing bilinguals have established that young bilinguals' languages develop separately at the morphosyntactic level (e.g. De Houwer, 1990; Meisel, 1989; Paradis and Genesee, 1996). This has been demonstrated for instance by De Houwer (1990) who showed that the grammatical development in a bilingual child's two languages proceeds in a separate fashion. In her study on a bilingual English-Dutch child (2;7-3;4) she found that the child used English and Dutch in the same manner as monolingual children of her two respective languages. According to the author, the child was already a fully bilingual by the age of 2;7, i.e. the beginning of data collection, and thus she had already differentiated her two languages by that age.

De Houwer's research provides clear support of the separate development hypothesis regarding the bilingual child's morphosyntactic development in Dutch and English, that is to say, the young bilingual child can separate her two languages morphosyntactically from early on. For example the child's main clause declaratives, as shown in (3), and interrogatives, as illustrated in (4), were found to have fully adult word order in both Dutch and English, respectively:

(3) a. Papa ik komt. (3;3)

'Papa is coming.'

b. This is my dress. (2;7)

(4) a. Waar is de vis? (2;10)

'Where is the fish?'

b. Can I have some more? (2;10)

In other words, the author demonstrated that the child's developing morphosyntactic knowledge of one language could not function as a basis for her speech production in the other language, or vice versa.

Substantial evidence about the differentiated development in bilingual acquisition comes from Meisel's (1989) study on the syntactic development of two French-German bilingual children (1;0-4;0). Meisel focused on word order, a phenomenon

that is distinct in French and German, and thus able to serve as a test case to address the issue of language differentiation. German is commonly assumed to be a verb-second (V2) language since the finite verb obligatorily appears in the second position of a main clause, as in (5):

(5) Ich habe einen Brief geschrieben.

'I have written a letter.'

Additionally, placement of the finite verb in second position is also required if some other element (NP, adverb, complementiser, *Wh*-word) is fronted:

(6) Heute schrieb ich einen Brief.

Today wrote I a letter

'Today I wrote a letter.'

(7) Einen Brief schrieb ich heute.

A letter wrote I today

'I wrote a letter today.'

Objects and adverbs can be fronted in French as well for reasons of topicalisation, and this results in sequences in which the verb appears in third position: AdvSV(O) or OSV(Adv). Conversely, in German, the fronting of objects and adverbs triggers subject-verb inversion (given the verb-second requirement) resulting in OVS or AdvVS. Both bilingual children in Meisel's study were found to correctly use these structures with fronted constituents in the two languages. More specifically, whenever they fronted a constituent in French the verb appeared in third position, whereas in German the verb remained in second position, thus indicating the separate development of the bilingual children's two syntactic systems.

Paradis and Genesee (1996) studied three French-English bilingual children between 1;11 and 3;3. They assumed on the basis of previous studies that by the age of 2 the bilinguals have differentiated language systems but they wanted to investigate whether the grammars of bilinguals between the ages of 2 and 3 develop

independently. The analysis of the children's speech data, in which the authors focused on finiteness, negation and the use of pronominal subjects showed the separate development of the bilingual children's grammatical systems. In all three children the researchers found that the acquisition of finiteness, negation and pronominal subjects followed the same patterns as those of monolinguals.

The large gap between French and English in the emergence of finite utterances (i.e. English was lagging behind) and the absence of English utterances with postverbal negatives (e.g. 'I play not') indicated that the children did not transfer the verb-movement parameter from French to English, nor was the presence of French accelerating their acquisition of English syntax. Similarly the distribution of pronominal subjects in each language suggests that the bilinguals had appropriately classified French weak pronouns (i.e. pronominal subjects) as clitics and French strong pronouns and English pronouns as NPs. Specifically, each of the children produced a similar number of finite and non-finite utterances with pronominal subjects in English, whereas in French 100% of their utterances with pronominal subjects were finite (i.e. weak pronouns appear with finite verbs in French). These findings lead the authors to conclude that the children were acquiring French and English separately and autonomously, that is to say, they proceeded as if they were acquiring their two languages as monolinguals.

The previous studies provide evidence for the young bilingual children's ability to develop separate morphosyntactic systems. Several studies have also shown that before the age of two the lexical development of bilingual children is characterised by a substantial proportion of translation equivalents which lends support to the argument that bilingual children acquire two distinct lexicons. This evidence, therefore, contradicts Volterra and Taeschner's (1978) claim of an initial stage with only one lexical system.

Deuchar and Quay (2000) (see also Quay, 1995) have provided convincing evidence to support the separate development of the bilingual lexicon. The authors studied a Spanish-English bilingual child from the age of 0;10-2;3 and reported that she had equivalent terms in her two languages even in the first months of lexical acquisition. In particular, the researchers analysed audiovideo recordings and daily diary records kept by the child's mother. The authors noted that equivalents were

produced from the beginning of speech and increased with the increase in rate of vocabulary growth. For instance, in roughly the first six months of speech the bilingual child produced several equivalent pairs such as: *bye/tatai*, *hand/mano*, and *duck/pato*. As a result, this data provide no support for a single lexicon in the first six months of speech with ‘almost’ no equivalents, as argued in Volterra and Taeschner (1978).

In the same vein, Deuchar and Quay (2000) reported a study by Köppe (1997) who analysed the vocabulary of a French-German bilingual from the age of 1;5.24 based on recordings and a list of words made by the child’s mother when he was at the age of 1;6. The analysis of the data suggested that translation equivalents appeared quite early in the child’s speech, since five of the words appearing at 1;5.24 had equivalents. Over a quarter of a vocabulary of ninety-three words at the age of 1;8.8 consisted of French/German equivalents, e.g. ‘*oui / ja*’ (yes), ‘*aussi / auch*’ (also), and ‘*bras / arm*’ (arm).

To summarise, the vast majority of studies in the grammatical and lexical development in simultaneous bilingual language acquisition have convincingly shown that bilingual children possess early language differentiation at both the syntactic and the lexical level.

2.4. Crosslinguistic influence in bilingual acquisition

In view of what has been discussed in the previous section, the issue of language differentiation has been the main focus of research in bilingual acquisition until recently. Specifically, researchers have been predominantly addressing the issue of whether children that acquire two languages from birth begin with one language system or two differentiated linguistic systems (e.g. Genesee, 1989; Meisel, 1989).

Most importantly, at the present time there is a broad consensus among the researchers in the field of bilingual first language acquisition that children learning two languages simultaneously have differentiated linguistic systems from at least the stage of first words.

In other words, the assumption is that the course of grammatical development in each of the languages of bilingual children is not qualitatively different from the acquisition of the relevant languages by monolinguals. In this context, several studies

have reported the absence of interaction between the bilingual children's developing languages and they suggested that separation of two grammars also implies autonomous development without interaction (e.g. De Houwer, 1990; Paradis and Genesee, 1996).

Recently, however, the separate language hypothesis has been further refined. Although the bilingual children's languages may be represented in a separate fashion from early on, there are still questions with respect to the extent and nature of interactions between their two developing systems. In fact, some researchers have suggested that the notion of two differentiated grammatical systems does not necessarily preclude the possibility of contact between the two languages (Müller, 1998). The hypothesis that young bilingual children acquire two differentiated language systems, does not exclude *a priori* the permeability of the two linguistic systems, i.e. some degree of interaction between the two languages.

Recent research is seeking to refine our understanding of bilingual development by addressing precise questions about whether and to what extent interaction between the bilingual children's two linguistic systems occurs and, crucially, in which subcomponents of the grammar. Current research is more open to the possibility of interaction and crosslinguistic influence between the two languages, and thus the identification of constraints on crosslinguistic influence constitutes one of the main topics of research on bilingual acquisition. Numerous recent studies in child bilingualism have reported the existence of crosslinguistic influence from one language to another regarding specific structural areas (e.g. Müller, 1998; Döpke, 1998, 2000; Müller and Hulk, 2001; Serratrice, Sorace and Paoli, 2004, among others).

Genesee (2000) noted that autonomy and interdependence are not likely to be 'all or nothing', that is to say, if crosslinguistic influence occurs it can be predicted to occur in some bilinguals and in specific domains or features of their developing systems, whereas the rest of their grammars develop autonomously. The question that arises then is to predict the linguistic conditions under which crosslinguistic influence occurs and in which grammatical domains. Consequently, the challenge for the current research in bilingual acquisition is to determine the limits and the sources of crosslinguistic influence. If the two languages were to interact in all domains of

the linguistic system, there would not be much difference between the current proposal of two separate but non-autonomous linguistic systems and the unitary initial system proposed in the single-system hypothesis.

In other words, in order to argue that a bilingual child has separate but non-autonomous systems, research needs to demonstrate that crosslinguistic influence is not unconstrained and that it is a principled and systematic phenomenon (Paradis 2001; Paradis and Navarro, 2003). In an effort to meet this challenge, several researchers have demonstrated the importance of the structural properties of the bilinguals' two languages in crosslinguistic influence, whereas others have suggested language dominance to play an important role in the occurrence of crosslinguistic influence, and others have shown that in some cases the combination of these two factors can also determine crosslinguistic influence.

2.4.1. Crosslinguistic influence and the role of the surface overlap between the bilinguals' two languages

Several authors have explored the possibility that there are structural domains which are particularly vulnerable to crosslinguistic influence in bilingual acquisition. A number of studies have shown that the overlap between surface forms in the input plays a critical role in crosslinguistic influence, i.e. structural areas in which the two languages overlap are the ones where crosslinguistic influence is most likely to manifest itself (Müller, 1998; Döpke, 1998, 2000).

It has been claimed that it is input ambiguity in one of the bilinguals' two languages what makes such areas susceptible to crosslinguistic influence. The term 'ambiguity', as it is used in this context, refers to syntactic structures that may lend themselves to more than one analysis (e.g. Paradis, 2003; Meisel, 2004; Serratrice et al., 2004). In other words, the ambiguity is related to the possible alternatives that a child can entertain in the analysis of a particular structure in a single language. For instance, the input the children receive in German with respect to the position of finite verbs in subordinate clauses can be considered ambiguous in the sense that finite verbs do not always appear in the final position, thus the input contains evidence for more than only one analysis: it is both consistent with an analysis where finite verbs appear in the final position in subordinate clauses and with one where

they are not (Müller, 1998; see also Bernardini, 2003, for a similar proposal with respect to the positioning of adjectives in Italian, in which the input evidence is considered ambiguous on the basis that there are both pre- and post-nominal adjectives used in different contexts). The monolingual child is also presented with the same problem and an incorrect analysis may result in this case too. However, the bilingual child is exposed to another language in addition to the one containing ambiguous input, and thus the odds for an incorrect analysis may be favoured by independent input available in the other language. Specifically, in such a situation, the bilingual child is presented with input in one language that can lead to two competing analyses, and if, then, the other language provides positive evidence for one of the possible analyses, i.e. there is an overlap at the surface level between the two languages, crosslinguistic influence will be unilateral from the language presenting unambiguous input into the one exhibiting ambiguous input (e.g. Müller, 1998; Meisel, 2004).

Müller (1998), in particular, investigated the acquisition of word order in German subordinate clauses in bilingual children that had German as one of their languages. She found that only some of the bilinguals studied-but not all of them-displayed frequently target-deviant word orders in which the finite verb did not appear in the final position of the subordinate clauses, i.e. the children frequently used the main clause word order (i.e. V2) in subordinate clauses, as shown in example (8):

(8) *guck was is hier (3;7,17)

look what is here

‘Look what is here.’

The author reported that the error types found in the bilingual children were qualitatively similar to those made by some monolingual German children. There was, however, a quantitative difference between the monolingual and bilingual children, i.e. the latter produced erroneous word orders in German subordinate clauses much more frequently than their monolingual peers.

Müller argued that these problems arise because the input the children are confronted with are ambiguous, that is, the finite verb does not always appear in the

final position in German subordinate clauses in the adult speech, i.e. the input contains evidence for more than only one grammatical analysis. The quantitative difference between the bilingual and monolingual children was interpreted as evidence of crosslinguistic influence from English/French/Italian to German since the target-deviant structures the children used in German resembled the construction principles for subordinate clauses in the other languages. In other words, in the case of bilingual children, who are also exposed to another language, the wrong grammatical analysis of German subordinate clauses was further reinforced by the positive evidence from the other language.

Döpke (1998, 2000) also argued for crosslinguistic influence in the face of ambiguous input in a study of four German-English bilingual children, roughly between 2 and 4 years of age; all the children were simultaneously exposed to the two languages through the one-parent one-language principle from birth onwards. Focussing on verb-order phenomena the author reported that, in contrast to the monolingual German children, the bilingual children frequently produced target-deviant word order structures in their German verb phrase by overusing inappropriately the V_XP word order in certain structures, e.g. the bilinguals occasionally failed to move simplex verbs past negation, and thus negation appeared preverbally and not postverbally, as is appropriate in German. An example of an inappropriate NEG_V_XP structure, presented by Döpke (2000), is illustrated in (9):

- (9) *Hund nicht kommt rein (2;7)
 S NEG V+3SG separable prefix
 dog not come in
 ‘(The) dog doesn’t come in.’

In English, a head-initial language, the order inside the verb phrase is V_XP, whereas in German, a head-final language, the order is the exact opposite XP_V. However, in German the order V_XP is also attested but only in finite main clauses in which the verb moves to a higher C head in second position (V2) and the subject is in first position. Döpke’s argument is that the common word order pattern V_XP in German main clauses and English clauses in general led to an erroneous

overextension of this structure in the bilingual children's German, differently from what is found in the monolingual acquisition of German. In other words, the partial overlapping structures in the input, i.e. the V_XP order in German and English main clauses, being similar at the surface level, led to the overgeneralisation of these target-deviant structures in German.³

Thus, the previous studies showed that crosslinguistic influence is not unconstrained; two separate systems, and not one single system were developing simultaneously with a considerable degree of interaction and crosslinguistic influence in the acquisition of different structures due to the structural complexity and ambiguity of the dual input. In each of these cases a potentially possible structure in one of the languages was unduly strengthened because of parallels with the other language, and hence crosslinguistic influence occurred.

2.4.2. Crosslinguistic influence at the syntax-pragmatics interface

More recently, it has been argued that crosslinguistic influence in the face of ambiguous input is more likely to occur in very specific structural domains, namely the interface levels where syntax interacts with other cognitive systems. Within generative grammar, the most likely locus of crosslinguistic influence has been proposed to be the C(omplementiser)-domain where the anchoring of syntax to discourse occurs, i.e. the syntax-pragmatics interface (e.g. Hulk and Müller, 2000; Müller and Hulk, 2001).⁴ It is the C-domain, in which pragmatic and discourse related information is exchanged, that syntax generally interfaces with these other domains. According to Rizzi (1997) the role of the C-domain is to link the information present at IP (inflectional phrase) and VP (verbal phrase) to the

³ There were also very few instances in which German word order was used in the verb phrases of the children's English. The author argued that this phenomenon was too rare to identify its causes.

⁴ According to current definitions (e.g. Platzack, 1999; Tsimpli et al., 2004), the syntax-pragmatics interface is the interpretative component of natural language grammar usually associated with the LF level of syntactic representation: semantic and discourse-related features which are represented in the syntactic structure become available for further processing in central cognition in this domain. In contrast, "narrow" or "core" syntax is regarded as the computational system that operates exclusively on syntactic symbols (Avrutin, 1999; Burkhardt, 2005).

discourse; it is in this domain where syntactic and pragmatic levels of grammatical representations have to be coordinated (see also Platzack, 2001).⁵

The C-domain has been found to be problematic in several domains of language development. Platzack (1999, 2001) noted that very early first language learners, adult second language acquisition learners, children with specific language impairment (SLI) and Broca's aphasics have been shown to use non-target-like syntax at the C-domain, the highest structural level.⁶ This vulnerability was attributed to the fact that the C-domain represents an interface level connecting syntax with other cognitive systems and it is also seen as an interface level to discourse and pragmatics (Müller and Hulk, 2001). In a recent proposal, syntax-pragmatics interface structures, i.e. morphosyntactic options whose distribution is constrained by discourse-pragmatic principles and instantiate an overlap between the two languages at the surface level, are vulnerable to crosslinguistic influence in bilingual acquisition (Hulk and Müller, 2000; Müller and Hulk, 2001).⁷

According to Müller and Hulk (2001) (see also Hulk and Müller, 2000) 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 particular structure, while the underlying syntactic analyses for the overlap structure are different in each language. This means that if a structure in language A appears to allow for more than one grammatical analysis from the child's perspective, and language B provides evidence for one of these two analyses, then crosslinguistic influence is expected from language B to language A, given that the interface between syntax and pragmatics is involved. The idea is therefore that in such a situation the child is presented with competing evidence for what the underlying representation should be for the overlap structure on the basis that the surface forms from both languages could provide

⁵ The functions of topicalisation and focalisation are argued to be related to the C-domain (Rizzi, 1997).

⁶ Other studies have also shown that the coordination of syntactic and discourse-pragmatic information in general is a demanding task for monolingual children (Avrutin, 1999; Hyams, 1996, 2001) and atypical learners (Jakubowicz, Durand, Rigaut and van der Velde, 2001).

⁷ Syntax-pragmatics interface structures have also been found to be prone to crosslinguistic influence in different developmental domains, e.g. in English near-native speakers of L2 Italian (Sorace, 2003), in adult Russian learners of Greek (Tsimplici and Sorace, 2006), and in L1 Italian and Greek speakers under attrition from English (Tsimplici, Sorace, Heycock and Filiaci, 2004).

evidence for the grammatical system the child is converging on in one language (Paradis and Navarro, 2003).

Müller and Hulk (2001) substantiated the previous hypothesis by investigating the rate of object omission in German, Dutch, French and Italian monolingual children, and in three young German-French (1;5,24-5;10,8), Dutch-French (2;3,13-3;10,7) and German-Italian (1;8,28-6) bilingual children. In Dutch and German dropping topicalised objects is allowed in clause-initial position only, as illustrated in example (10) (from Müller and Hulk, 2001):

(10) Q: Kommst Du mit zur Titanic?

‘Will you come along to the Titanic?’

A: \emptyset hab ich schon gesehen.

‘I’ve already seen it.’

Therefore the Dutch and German children are confronted with a choice between null or overt objects and the selection of one or the other is pragmatically regulated, i.e. object drop is not permitted in sentence-internal position when the internal argument is not a topic.

Unlike German and Dutch, in French and Italian null objects are not allowed regardless of their topic status. Object noun phrases appear postverbally but pronominal object clitics appear preverbally, as shown in (11) and (12):

(11) Jean le_i voit ec_i .

‘John sees him.’

(12) Anna lo_i vede ec_i .

‘Anna sees it.’

The canonical postverbal object position is left empty, and thus this is an ambiguous piece of evidence for the bilinguals, namely that object drop is allowed in French and Italian. In other words, there is a surface overlap between language A

(French/Italian) and language B (Germanic).⁸ Note that the overlap between the two languages is considered to be at a very superficial level, i.e. even though the utterances in French/Italian shown above have an empty canonical object position, there is still evidence in the form of a preverbal object clitic (or an overt topicalised object) that this is not pure object drop. It is, however, assumed by the authors that the child ignores this evidence in the Romance input. Although it's generally not made explicit in the literature, a more general implication of this hypothesis is that bilingual children, at least with respect to syntax-pragmatics interface phenomena, rely on surface input rather than on abstract grammatical properties. Thus, the idea is that the topic drop which the child hears in the German/Dutch input provides positive evidence for object drop as a potential analysis of the French/Italian input (Unsworth, 2003).

The young Dutch and German monolingual learners go through an early developmental stage, prior to the instantiation of the C-domain, in which non-target object omissions are attested. French and Italian monolingual children also omit objects but to a lesser degree as compared to their Dutch and German monolingual peers. The bilingual children were found to omit objects in Italian and French at a higher rate than the monolingual children of each language. Some examples of object omission in the bilinguals' Italian and French presented by Müller and Hulk (2001) are shown in (13) and (14):

(13) Prendiamo.

we-take

⁸ Unsworth (2003) notes that Hulk and Müller's (2000) proposal is not entirely clear on the meaning of "overlap" (see also Müller and Hulk, 2001). The authors state that 'there has to be a certain overlap of the two systems at the surface level' (2000: 228). It turns out that what this means is that there should be overlap between surface forms in the input of the two languages (Unsworth, 2003). Provided that the two languages overlap in the relevant domain, the main assumption is that bilingual children, at a presumably subconscious level, can somehow equate these overlapping forms. The author suggested that it might be necessary to distinguish between partial and complete overlap since strictly speaking, instances of the bilingual child's two languages that behave similarly could be considered cases of complete overlap, in the sense that the two languages behave identically. It seems that when Müller and Hulk talk about overlap they rather mean partial overlap, since one of the conditions on crosslinguistic influence implies that the two languages should not behave identically with regard to a specific domain, i.e. one language provides evidence for two different analyses and the other language provides evidence for just one of these analyses. Another question raised is relevant to what the consequences of overlap should be. The outcome of crosslinguistic influence in their study was delay but it would be interesting to see whether it could also lead to facilitation.

'We take it.'

(14) Ivar répare.

Ivar repairs

'Ivar fixes it.'

The authors argued that this result is due to crosslinguistic influence from the Germanic to the Romance languages. In particular, French or Italian (language A) allows a possibly ambiguous analysis of objects as null, whereas German or Dutch (language B) provide positive evidence for the analysis of objects as null. Thus, the German or Dutch topic drop input led the bilingual children to employ, for a longer period, a pragmatic strategy which licences null elements via discourse. In fact, the use of this strategy is abandoned as soon the C-domain becomes well established. In the Germanic languages this takes place later than in the Romance languages because topic drop in the adult language provides ample support for discourse licensing of empty elements.

In other words, bilinguals were argued to transfer this phenomenon from the language offering unambiguous input into the language that exhibits ambiguous structures before the instantiation of the C-domain, where syntax interfaces with discourse and pragmatics. Implicit is the assumption that this type of crosslinguistic influence can be qualified as quantitative and not qualitative, since bilingual children are predicted to produce more often or for a longer period than monolingual children certain target-deviant structures, i.e. crosslinguistic influence creates delay in the acquisition process.⁹

Furthermore, this form of crosslinguistic influence was interpreted as taking place unidirectionally and independently of language dominance. In other words, the main assumption is that crosslinguistic influence is due to structural reasons and not to external factors such as language dominance. In fact, the authors argued that language dominance could not account for their data since the weaker language, i.e. the respective Germanic language, was not the target of crosslinguistic influence.

⁹ The authors' central claim is that crosslinguistic influence occurs in exactly those domains which are also problematic-but to a lesser extend- for the monolingual children.

Müller and Hulk's (2001) hypothesis (see also Hulk and Müller, 2000) regarding the conditions under which crosslinguistic influence may occur in bilingual acquisition is an encouraging initial formalisation of the concept of crosslinguistic influence in general but it is not without problems. Müller and Hulk (2001) highlighted the crucial role of pragmatics in determining syntactic choice but the authors did not analyse in depth the pragmatics of object drop. Although they proposed that crosslinguistic influence is most likely to occur at the interface between syntax and pragmatics, they tested only one part of the proposal, since they analysed the frequency of the object omission errors without investigating systematically the pragmatic context in which those errors occurred. Allen (2001) reanalysed the examples of target-deviant object drop presented by the authors and she showed that it was not the pragmatics that was wrong, but only the syntax, as shown in (15) (from Müller and Hulk, 2001):

(15) A: tu as enlevé la musique? (=l'horloge)

you have taken off the music (=clock)

'Did you take off the clock?'

Ivar: oui remets ici

yes put back here

'Yes, (I) put (it) back here.'

In the previous example, the object 'the clock' was mentioned in the adult's utterance, which preceded the child's utterance, and thus the object can be considered a topic for the child, since it is a salient entity for both interlocutors. This is a classic pragmatic context in which reduced arguments are permitted, i.e. an NP is usually realised as a null element (e.g. Chinese) or an overt pronoun (e.g. French), depending on the language-specific requirements. A null object would be pragmatically infelicitous in a context in which there is no identifiable antecedent, e.g. a null argument used to introduce a new referent that cannot be recovered either anaphorically or deictically (Serratrice, 2004). Crucially, the outcome of crosslinguistic influence in their study was non-target syntactic object drops since the null objects in French and Italian were pragmatically appropriate referring to salient

entities in the previous discourse. As Allen (2001) suggested, in order to build a convincing account of crosslinguistic influence at the syntax-pragmatics interface, it is essential to investigate both the discourse-pragmatic factors that determine argument realisation and the structural outcomes.

Addressing this particular shortcoming of Müller and Hulk's (2001) study, recent studies in simultaneous bilingual acquisition have investigated other syntactic options that are governed by discourse-pragmatic constraints, and thus involve the interface between syntax and pragmatics, such as the distribution of null and overt subjects in English-Spanish and English-Italian bilinguals. These studies' objective was not only to address the issue of whether crosslinguistic influence takes place in young bilinguals, but also whether it affects the pragmatics end of the syntax-pragmatics interface, i.e. whether discourse-pragmatic principles can be part of crosslinguistic influence (Paradis and Navarro, 2003; Serratrice, Sorace and Paoli, 2004). In accordance with this rationale, these studies examined the frequency of null and overt subjects, as well as the discourse-pragmatic contexts in which the null and overt subjects appeared.

Paradis and Navarro (2003) investigated whether crosslinguistic influence occurs in the domain of subject realisation in Spanish in an English-Spanish bilingual child (1;9-2;6). As the authors pointed out, the use of null and overt subjects in Spanish could be vulnerable to crosslinguistic influence since: a) their use involves the syntax-pragmatics interface, i.e. the complementary distribution of null and overt subject is constrained by discourse-pragmatic factors; and b) there is a surface overlap between the two languages regarding these structures, i.e. Spanish allows for both null and overt subjects and English provides extensive positive evidence for the overt subject option. Despite the different underlying syntactic representations and the relevance of discourse-pragmatic factors for subject realisation in Spanish, overt subjects appear in both Spanish and English and in the same canonical surface position since both are SVO languages.

Thus, they could predict that the English-Spanish bilingual child may be prone to crosslinguistic influence in language A, i.e. Spanish, when the child has to deal with a choice between two morphosyntactic options which are constrained by discourse-pragmatics, i.e. null and overt subjects, and one of these two options is supported by

language B, i.e. English. The option that is shared by the two languages, i.e. overt subjects, is thus, likely to become overgeneralised in language A, appearing in infelicitous discourse contexts.

The authors examined the frequency of overt and null subjects as well as the discourse context of the overt subjects' use in Spanish monolingual children, the bilingual child and in the children's parental interlocutors. Although the bilingual child omitted subjects in the majority of cases and most of her overt subjects in general were associated with the appropriate discourse-pragmatic function, she produced significantly more overt subjects in Spanish than age-matched Spanish monolinguals and used inappropriate overt subjects in contexts in which their use was not pragmatically felicitous.

The bilingual child's frequency of overt subjects and pragmatically inappropriate context of use is accounted for, by the authors, in terms of crosslinguistic influence from English onto Spanish, therefore providing support to their hypothesis' predictions. Since the English input include an overall higher number of overt subjects and subject realisation is obligatory rather than being governed by discourse-pragmatics factors, both of these could have influenced the child's processing of the Spanish input and eventually influence her acquisition of subject realisation in Spanish.

This bilingual child's Spanish input, however, included a higher proportion of overt subjects, and overt subject pronouns in particular than in the input the Spanish monolinguals received.¹⁰ Furthermore, a greater number of overt subjects were used in pragmatically inappropriate contexts by the bilingual child's parents than by the monolinguals' parents. Therefore, the authors could not rule out the possibility that the distinct model of Spanish the bilingual child was exposed to might have also exerted some influence in the crosslinguistic effects found in the child's production.

¹⁰ Paradis and Navarro (2003) pointed out that the bilingual child was exposed to different varieties of Spanish, i.e. the father used Cuban Spanish, in which overt subject pronouns are more frequently used than in other Spanish dialects, and the English-speaking mother spoke a Panamanian variety of Spanish with some Cuban influence. It is also possible that the English-speaking mother presented the bilingual child with non-native Spanish input that included transfer errors from English, that is, the bilingual child was receiving input that already had some inherent crosslinguistic influence.

Serratrice et al. (2004) studied the distribution of subject pronouns in the Italian and English of an English-Italian bilingual child (1;10-4;6).¹¹ Interestingly the authors suggested an extension of the crosslinguistic influence hypothesis as proposed by Müller and Hulk (2001). Serratrice et al. (2004) envisage two stages in which different types of crosslinguistic influence are predicted to occur according to whether the C-domain is in place or not.

During an early stage before the instantiation of the C-domain children are likely to commit syntactically ungrammatical omission errors, but pragmatically appropriate, as was shown by Müller and Hulk (2001) with regard to the ungrammatical omission of object arguments in the Italian and French due to crosslinguistic influence from Dutch and German, respectively. Turning to the distribution of subject pronouns in English and Italian, it could be similarly predicted that at this early stage, English-Italian bilingual children would omit subjects in English¹² at a higher rate than their monolingual peers, as a result of crosslinguistic influence from Italian, in which null subjects are prevalent, i.e. the result would also be a syntactic error, that is, syntactically ungrammatical omission of subjects in a non-null-subject language.¹³

Once the C-domain is instantiated, the expectation is that the bilingual children would converge on the appropriate syntactic options allowed by their respective languages similarly to their monolingual peers, i.e. the number of null subjects in English would decrease. Thus, after the C-domain is in place, the outcome of crosslinguistic influence would not be syntactically target-deviant constructions, as

¹¹ Serratrice et al. (2004) also investigated pronominal object realisation in the two languages but this domain was not subject to crosslinguistic influence from English, although transfer was possible in principle: in English postverbal strong pronouns are associated with [-focus] unless they are contrasted prosodically, whereas Italian instantiates pronominal clitics and very rarely postverbal focused strong pronouns; thus the pragmatic feature [focus] could become underspecified and strong pronouns could be used in Italian even when they were not associated with pragmatic focus, i.e. instead of a preverbal object clitic. The bilingual child used pronominal objects appropriately in both languages in line with the monolinguals. The authors argued that there is a clear-cut opposition between preverbal clitics in Italian and strong postverbal pronouns in English. In addition, there is not a sufficiently large number of postverbal object pronouns in the Italian input to provide the bilingual child with positive evidence that this might be a possible solution, as is the case with overt subject pronouns.

¹² The authors' rationale is that although English is a non-null-subject language in which overt subjects are typically obligatory, children do receive some ambiguous evidence of subjectless clauses in the form of imperatives, coordinated clauses, non-finite clauses and topic-drop.

¹³ Serratrice et al. (2004), however, noted that there is currently lack of empirical support for such a prediction. Studies that investigated subject realisation in young English-Spanish and English-Italian bilinguals have not reported this kind of crosslinguistic influence, i.e. it was demonstrated that subject omission in the bilinguals' two languages was in line with monolingual peers (Juan-Garau and Pérez Vidál, 2000; Serratrice, 2002).

in the early stages, but pragmatically inappropriate ones. At this later stage, however, the bilinguals would be expected to make errors at the pragmatic level. In the particular case of subject realisation in English-Italian acquisition, under the crosslinguistic influence of English, the bilingual children would be expected to use pragmatically infelicitous overt subject pronouns in Italian, where the felicitous option would be a null subject.

The study's data supported this prediction since the English-Italian bilingual child was found to overgeneralise, more frequently than Italian monolingual children, the use of third-person overt subject pronouns in contexts in which null subjects were required. Paradis and Navarro (2003) also reported the pragmatically inappropriate use of overt subjects at this later developmental stage, and hence their findings provided further support to Serratrice et al's proposal.¹⁴

In the following example, the bilingual child is shown to use inappropriately the third-person overt subject pronoun '*lei*' as coreferential with the topic antecedent mentioned in the immediately preceding discourse:

(16) The researcher is talking with the child about a cartoon character:

Researcher: no ma **Rosarospa** è cattiva o buona?

no but Rosarospa is bad or good?

Child: um bè proprio simpatica.

um well really nice

Researcher: simpatica?

nice?

Child: si proprio simpatico perche **lei** è solo travestita da strega.

yes really nice because she is only dressed up as a witch

In this context, the inappropriate pronominal form did not serve a topic-shift or a focus function (i.e. overt subject pronouns are used to signal topic shift or focus) but it was coreferential with a prominent topic antecedent and as such it should have

¹⁴ Pinto (2005) has also found that two young Dutch-Italian bilingual children used more overt subject pronouns than their Italian monolingual peers in contexts where a null subject would be pragmatically appropriate. In a similar vein, Hacoen and Schaeffer (2005) have also shown that a young Hebrew-English bilingual child produced more pragmatically inappropriate overt subjects in Hebrew than her monolingual counterparts.

been realised as a null subject. The authors concluded that simultaneous exposure to English in which pronominal subjects are not associated with focus or topic shift, might have led to the underspecification of these discourse-pragmatic features in Italian.¹⁵ Consequently, the 'bleaching' of the pragmatic conditions on subject realisation was argued to be the reason for the bilingual child to use a number of pragmatically inappropriate pronouns that were not associated with focus or topic shift.¹⁶

The previous studies suggested that the overgeneralisation of overt subjects in pragmatically infelicitous contexts was due to crosslinguistic influence from English to Spanish and Italian respectively. Therefore, although the bilingual children were overall sensitive to the discourse-pragmatic factors that constrain the distribution of null and overt subjects in the two null-subject languages, nevertheless they tended to use a number of discourse pragmatically inappropriate overt subjects in contexts in which a null subject would have been appropriate.

Serratrice (2005), differently from previous research in crosslinguistic influence that has typically considered early stages of acquisition, explored the possibility of residual crosslinguistic influence in older children, on the assumption that crosslinguistic influence in the selection of pragmatically appropriate forms, as argued by Serratrice et al. (2004), can indeed persist over time, given prolonged and regular exposure to two languages.

The author used an off-line comprehension task to investigate the anaphoric interpretation of null and overt subject pronouns in a group of thirteen eight-year-old English-Italian bilinguals, Italian monolingual children and adults. The experiment's

¹⁵ Tsimpli et al. (2003, 2004) have independently put forward such a proposal for language attrition in near-native speakers of English with Italian and Greek as their L1. The outcome of sustained exposure to English similarly led to the underspecification of the discourse-pragmatic features that regulate the distribution of overt subject pronouns in the L1.

¹⁶ By contrast, two other studies looking at the simultaneous acquisition of English and a null-subject language in young bilinguals, i.e. English-Italian (Serratrice, 2002) and English-Spanish (Juan-Garau and Pérez-Vidal, 2000), did not find any significant difference with monolingual children regarding the distribution of null and overt subjects, and thus the authors concluded that there was no evidence for crosslinguistic influence. These studies, however, did not examine the discourse contexts in which the null and overt subjects appeared, as Paradis and Navarro (2003) and Serratrice, Sorace and Paoli (2004) did; the authors carried out exclusively a quantitative comparison of the percentages of null and overt subjects in the bilinguals' two languages with the relevant figures reported for the monolingual children. Thus, as Serratrice (2005) also noted, it is not possible to conclude that crosslinguistic influence did not occur, unless the pragmatic appropriateness of null and overt subjects in a null-subject language has been carefully investigated.

results indicated that the bilingual children inappropriately accepted a number of overt subject pronouns as coreferential with a subject antecedent more frequently than the monolingual Italian children and adults in contexts similar to the one presented in (17):

- (17) Laura_i ha salutato Paola_j quando lei_{*i/j} è uscita.
Laura have-3SG greeted Paola when she-NOM is-3SG gone out
'Laura greeted Paola when she went out.'

As shown in the previous example, the overt pronominal subject '*lei*' can be coreferent with the object of the main clause but not with the subject antecedent '*Laura*'. In English, however, the subject pronoun '*she*' can be coreferential either with the subject or the object of the main clause, as illustrated in (18):

- (18) Laura_i greeted Paola_j when she_{j/i} went out.

The author argued that crosslinguistic influence from English to Italian could account for this data. More precisely, similarly to the argument presented in the previously discussed study, Serratrice suggested that the bilingual data could be attributed to the underspecification of the topic-shift feature in Italian, as a result of crosslinguistic influence from English where overt subject pronouns can appear both in [+topic shift] and [-topic shift] contexts. These findings therefore supported the hypothesis that crosslinguistic influence can occur well after the C-domain is established but at this later developmental stage the outcome of crosslinguistic influence was also the acceptance of pragmatically infelicitous syntactic options.

To recapitulate, structures that involve the syntax-pragmatics interface and instantiate a surface overlap between the two languages in bilingual acquisition may be vulnerable to crosslinguistic influence even in grammars of older bilinguals well after the C-domain is in place at a developmental phase when the bilingual children are aware of their languages' syntactic requirements, e.g. the bilinguals know that Spanish/Italian are null-subject languages and that English is a non-null-subject language. During these later developmental stages, however, the outcome of

crosslinguistic influence was pragmatically infelicitous errors and not syntactic non-target omission errors, the pattern of crosslinguistic influence that takes place before the C-domain is in place according to Müller and Hulk (2001).

Contrary to the previously reported findings, recent studies in simultaneous bilingual acquisition have demonstrated that the distribution of overt subject pronouns is not always found vulnerable to crosslinguistic influence in bilingual acquisition (Serratrice, 2006), and that overlapping structures in other domains, i.e. narrow syntax, can also be susceptible to crosslinguistic influence (Pannemann, in press).

Serratrice (2006) investigated the use of different referential expressions, including null and overt subject pronouns, in the oral narratives of twelve eight-year-old English-Italian simultaneous bilinguals and two groups of age-matched English and Italian monolinguals (the 'Frog Story' was used in both languages). Contra the study's predictions, the findings indicated that the bilinguals did not erroneously overextend the use of overt subject pronouns to pragmatically infelicitous contexts as a result of crosslinguistic influence from English. Thus, the author concluded that in coreferential contexts both the bilingual and monolingual children used mainly null subjects in Italian, while in English they used predominantly overt subject pronouns, in other words, all children used language-specific devices to mark the information status of referents in the appropriate discourse pragmatic contexts.

Serratrice (2006) claimed that language dominance, defined as the amount of exposure the bilinguals have to each language, could well be the reason she did not find any significant effect of crosslinguistic influence from English to Italian in the eight-year-old English-Italian bilinguals regarding the distribution of overt subject pronouns. The author argued that by the time children reach school age the language used to interact with their peers will become increasingly more important, and in most cases this is the language of the country in which they live. Ten of the twelve bilingual children in her study were living in Italy, and although they were attending a school where English was the medium of instruction, their exposure to Italian was typically higher than their exposure to English. As a consequence, the amount of exposure to English overall, and to overt subject pronouns in particular, was not sufficiently high to affect Italian, the children's dominant language.

Pannemann (in press) has recently shown that the positioning of adjectives, an overlapping structure between Germanic languages and French, can be vulnerable to crosslinguistic influence in young French-Germanic bilingual children. In particular, she tested the crosslinguistic influence hypothesis, as proposed by Müller and Hulk (2001), by examining the acquisition of the attributive adjective in French in spontaneous production data by four young French-Germanic (Swedish and Dutch) bilingual children. In these Germanic languages, adjectives are only allowed in the prenominal position, whereas in French, both prenominal and postnominal adjectives are possible. Thus, there is an overlap between French and Germanic since both languages have prenominal adjectives and only French allows for a second possibility, i.e. adjectives also appear in the postnominal position. The bilingual children, in contrast to monolingual children, incorrectly produced postnominal adjectives in prenominal position in French, as illustrated in (19):

- (19) a. *une rose papillon* (3;7)
 a pink butterfly
 b. *une verte écharpe* (2;11.13)
 a green scarf

These examples involve colour adjectives, which can under no circumstances occur in the prenominal position in adult French. The author attributed these findings to crosslinguistic influence from the Germanic languages, which instantiate the unambiguous input, to French, the language with the ambiguous input. These findings however, were not in line with the predictions Müller and Hulk's (2001) model would make, since only one of the proposal's conditions is met, i.e. there is a surface overlap between the two languages regarding the attributive adjective's position, but the other condition is not satisfied, that is, this construction is purely syntactic and it does not involve the interface between syntax and discourse pragmatics.¹⁷

¹⁷ Recall that Müller (1998) and Döpke (1998, 2000) have also demonstrated that purely syntactic structures, which instantiate a partial overlap between the two languages (i.e. verb placement), can be prone to crosslinguistic influence in young bilinguals.

2.4.3. Crosslinguistic influence and the role of language dominance

As discussed earlier, a number of studies in bilingual acquisition have shown that crosslinguistic influence is determined by the grammatical properties of the structure under consideration, i.e. language internal factors. Furthermore, some of these studies in early bilinguals have explicitly ruled out the role of language dominance, which is determined by factors external to the languages involved, in crosslinguistic influence (e.g. Müller, 1998; Hulk and Müller, 2000; Müller and Hulk, 2001). Nevertheless, other studies have claimed that language dominance can be an important factor in crosslinguistic influence in bilingual acquisition.

Leopold (1949) investigated his English-German bilingual daughter's lexical mixing. In particular the bilingual child at the age of 2;5 tended to use German nouns, and to a lesser extent verbs, in otherwise English sentences in interactions with her German-speaking father, e.g. Papa you *arbeit* too much (i.e., 'Papa you *work* too much'). This directionality and general pattern of language mixing was considered by the author as a result of the child's dominance in English, the language of the community the bilingual child lived.

In a similar vein, Lanza (1997) analysed the mixed utterances produced by two Norwegian-English young bilinguals. The general pattern observed in both children's mixed utterances was that the English lexical items occurred in an otherwise Norwegian grammatical framework, whereas English grammatical morphemes did not occur with Norwegian lexical morphemes (see also Lanza, 1992).¹⁸ This pattern and directionality of mixing was interpreted by the author as a sign of the children's dominance in Norwegian, the language of the society in which both bilinguals lived. For example the child used the Norwegian negator '*nei*' (20) or the adverb/deictic '*der*' with English lexical items (21):

(20) *nei* dirty
'no dirty'

¹⁸ Several studies have shown that intrasentential code-mixing is more frequent in a bilingual child's weaker language (see Petersen, 1988; Bernardini and Sclyster, 2002).

(21) *der* goat

'there (adverb/deictic) goat'

Schlyter (1993) investigated finiteness, pronominal subjects and word order in the spontaneous data of six Swedish-French bilinguals 2-4 years old, three of which were Swedish-dominant and the other three were French-dominant. The author noted that, for instance, the pronominal subject and the finite verb of a sentence were occasionally replaced by a lexical item from the dominant language, when the child was speaking in the less dominant language. Two examples from a Swedish-dominant bilingual child presented by Schlyter (1993) are exhibited in (22) and (23) below (the words from the dominant language are italicized):

(22) *Och det är också* soleil.

'And that is also (the) sun.'

(23) *Jag* dormer dans la fauteuil.

'I (to) sleep in the chair.'

Yip and Matthews (2000) conducted a longitudinal analysis of three contrasting structures in English and Cantonese: *wh*-interrogatives, null objects and relative clauses in a young Cantonese-English bilingual child from 1;5 to 3;6 years of age living in Hong Kong. The bilingual child was characterised as Cantonese-dominant based on MLU measurements, his language preference and the evaluation of the input conditions (i.e. on the whole the quantity of Cantonese input was higher than the one in English in the child's first three years).

The authors reported the occurrence of unidirectional systematic crosslinguistic influence from Cantonese to English with respect to all the three areas of English grammar investigated: in contrast with the English monolingual data, the bilingual child produced in English target-deviant *wh*-interrogatives, in which the *wh*-word appeared in situ, as is appropriate in Cantonese. An example is shown in (24):

(24) This on the what? (2;4)

Structures with null objects were more frequent and productive in the child's data than in the monolingual data. Cantonese allows null objects referring to entities present or recently mentioned in the previous discourse. An example of such a null object in the child's English is shown in (25):

(25) Researcher: Where shall we stick it?

Child: Put here. (2;5)

Furthermore, prenominal relative clauses based on a Cantonese pattern were found frequently in the English data (postnominal relatives are appropriate in English), as illustrated in (26):

(26) Where's the motor-bike? You buy the motor-bike? That you buy the motorbike. Where's you buy that one, where's you buy that one the motorbike? (2;7)

The utterance 'You buy the motor-bike' is considered to be a relative clause 'the motorbike that you bought' being used to specify a particular toy. The structure follows the Cantonese pronominal pattern, as shown in (27):

(27) Where's [[you buy_ s] that one_{NP}], where's [[you buy_ s] that one the motorbike_{NP}]

Yip and Matthews claimed that language dominance seemed to be the principal factor determining the directionality of crosslinguistic influence, i.e. from Cantonese to English, since the child was dominant in Cantonese, the community language. In addition, they argued that the ambiguity in the English input with regard to null objects might have also played a role. Chinese allows for discourse-recoverable null objects and English does not allow such null objects. The English input, however, is often consistent with the postulation of null objects e.g. *Let's eat*. When there is food on the table, this would be compatible with a transitive interpretation in which the food is considered to be a null object. Thus, the authors suggested that this kind of

ambiguity in the input might pose a learnability problem, which is compounded in the case of the bilingual child by influence from Cantonese.

Furthermore, Bernardini (2003) showed that language dominance can also play a role in crosslinguistic influence in bilingual acquisition when there is a surface overlap between the two languages. The author investigated the acquisition of word order in the Italian DP, i.e. the position of attributive and possessive adjectives by two simultaneous Swedish-Italian bilingual children (1;8-3;7) one of which was Swedish-dominant living in Sweden and the other one was Italian-dominant living in Italy, four Italian monolingual children (1;7-3;3), and two Swedish adults L2 learners of Italian. The author reported that the Swedish-dominant bilingual child had a preference for the prenominal adjectives due to crosslinguistic influence from Swedish to Italian. Crosslinguistic influence was attributed to the ambiguous input the child was exposed to, i.e. there is a surface overlap of the two languages: Swedish allows only for prenominal adjectives, whereas in Italian adjectives can appear in prenominal and postnominal position, combined with the fact that Swedish was his dominant language.

In particular, both bilingual children, differently from their Italian monolingual peers (their initial use was postnominal possessive adjectives, i.e. *babbo mio*, 'my father'), initially used the possessive adjective in its prenominal position. The Swedish-dominant bilingual child, however, differed from his bilingual peer and the monolingual children in that he had no postnominal possessive adjectives in all his files. With regard to the attributive adjectives, the Swedish-dominant bilingual child produced prenominal adjectives earlier than his bilingual peer and postnominal adjectives appeared much later than all the other children. In the early stages, this bilingual child also made some errors with regard to the positioning of attributive adjectives that can be in both positions in Italian, but which when used contrastively, should occur postnominally, as illustrated in (28):

(28) Child: jamen, questa piccolina bocca. (2;3)

 '[Swedish: yes but], this small mouth.'

Mother: [uhm], ha la bocca piú piccola quella.

 ['yes'], that one has a smaller mouth.'

The author pointed out that in this example it is clear from the mother's answer that what is meant is a contrastive use of '*piccolina*'. The adult L2 learners had a similar performance, whereas the Italian-dominant bilingual child and the monolingual children positioned both types of adjectives target-like from the beginning.

2.4.4. Language dominance and the input patterns of bilingual children

As discussed in the previous section, a number of studies in bilingual acquisition have used the concept of the child's dominance in their analyses. It has been noted in the bilingual acquisition literature that one language often dominates even in cases of simultaneous acquisition of two languages from birth (e.g. Döpke, 1992; Grosjean, 1982). At the same time there has been discussion of the factors that might affect the occurrence of language dominance. In this context several researchers have highlighted the importance of the input conditions as a causal factor of language dominance in bilingual children.

Grosjean (1982:189) has stated that 'the main reason for dominance in one language is that the child has had greater exposure to it and needs it more to communicate with people in the immediate environment'. Grosjean noted that it is not common that both languages are developed to the same extent and in most bilingual acquisition contexts the child will obtain more input from one language than the other because it is either the language of the community or the language of the main caregiver.

Moreover, other researchers have noted that the level and active use of one of a bilingual child's languages is influenced by the amount of input the bilinguals receive in that language, that is, the level and active use of one of the bilingual's languages increases as a consequence of the increased input in that particular language (De Houwer, 1995; Döpke, 1992).

Lanza (1997) reported that the amount of input in each language played a role in her Norwegian-English bilingual subject's language production. Namely, a trip to the English-speaking country increased the amount of English output in speaking to the English-speaking mother, whereas an increased amount of input in Norwegian, the community language, accentuated the child's language dominance. Lanza (1997)

suggested, among other things, the amount of exposure the young bilingual child had to each language as an indicator of language dominance.¹⁹ Similarly, Klausen, Subritzky and Hayashi (1993) have considered the language of greatest exposure as evidence of a dominant language.

Schlyter (1993) also suggested that the dominant language often represents the majority language, while the weaker language is usually the minority language. Similarly, Döpke (1992) claimed that in bilingual acquisition the language which is used more often in a wide variety of contexts (usually the majority language) in the bilingual's life tends to become more dominant over the language that is used less often in less significant contexts (usually the minority language). As is apparent from the previous discussion, the bilingual children's amount of exposure to each of their two languages can be used as an indicator of language dominance.

In the general bilingualism literature the term 'dominance' has most often been defined in terms of another concept, i.e. 'proficiency' that can be independently assessed (De Houwer, 1998; Romaine, 1995). The notion of 'proficiency', however, and its assessment in bilingual acquisition has been questioned on conceptual and methodological grounds (see Romaine, 1995; De Houwer, 1998; Edwards, 2004). For instance, De Houwer (1998) noted that the notion of 'proficiency' in bilingual acquisition is quite at odds with the general thinking in monolingual child language research today, i.e. young monolingual children are never compared in terms of more or less 'proficiency' in the literature that discusses the huge range of variation among monolingual children in relation to the age at which any particular child can be expected to have reached a specific stage.

From a methodological perspective, Edwards (2004: 8) argued that 'in general, given both the basic skills, and their subdivisions, there are at least twenty dimensions of language which could or should be assessed in order to determine bilingual proficiency'. He also mentioned that the results of the tests used to assess proficiency in each language are clearly far from perfect since factors such as

¹⁹ Lanza (1997) used also the language of greater communication for the bilingual in a variety of contexts as well as the the parents' evaluation of the child's stronger language, as indicators of language dominance (i.e. informal interviews with the child's mother confirmed the notion that the bilingual child was dominant in Norwegian).

attitude, age, sex, intelligence, memory and context of testing can all be potentially confounding.²⁰

In this study, therefore, 'proficiency' was not used or directly measured as an indicator of language dominance. For the purposes of this thesis, dominance is taken in the sense of the language the bilingual child is predominantly exposed to in the majority of social contexts, i.e. the language in which the bilingual child obtains more input.

2.5. The present study

Differently from previous studies of crosslinguistic influence that have typically considered early developmental stages of bilingual acquisition, the current study explores the possibility of crosslinguistic influence in eight-year-old English-Greek bilinguals at a stage when the C-domain has been instantiated and children should have full knowledge of their languages' syntactic constraints. Nevertheless, given sustained and regular exposure to two languages, crosslinguistic influence in the choice of pragmatically appropriate forms may persist over time, and thus be evident even in eight-year-old bilinguals (as was shown in Serratrice, 2005).

Furthermore, generalisability is a crucial factor in most of the studies presented above since the vast majority of the studies investigating crosslinguistic influence have been in-depth longitudinal studies with few children (e.g. Yip and Matthews, 2000; Bernardini, 2003; Serratrice et al., 2004). It is important to complement this research with studies with a larger pool of subjects (e.g. see Serratrice, 2005, 2006) if we wish to examine crosslinguistic influence in a more principled and systematic way. This issue was considered in the present research project and hence differently from most of the previous studies, this study's subject pool consists of thirty-two English-Greek bilinguals.

The vast majority of the studies that have considered the issue of crosslinguistic influence in several bilingual contexts have looked at spontaneous production data. In contrast, in the present study experimental tasks were employed. More precisely, elicited production and acceptability judgement tasks were used to test each structure

²⁰ For an overview of the tests used to measure degree of bilingualism (e.g. dominance tests, fluency tests, synonym tests) in bilingual individuals see Romaine (1995) and Edwards (2004).

in order to obtain a more comprehensive picture of the children's linguistic competence regarding the grammatical domains under consideration.

Moreover, one way to empirically test the recent claim regarding the vulnerability of syntax-pragmatics interface structures to crosslinguistic influence in bilingual acquisition is to explore also structures that are not relevant to the syntax-pragmatics interface, such as purely syntactic structures (Allen, 2001; Unsworth, 2003). Most of the studies that addressed the issue of crosslinguistic influence explored syntax-pragmatics interface structures only but this study investigates purely syntactic structures as well in order to see the extent to which the syntax-pragmatics interface structures are more vulnerable to crosslinguistic influence than purely syntactic structures in older bilingual children.

In addition, differently from the previous studies that explored crosslinguistic influence, the present study tested two structures relevant to each domain, the syntax-pragmatics interface and narrow syntax, respectively, in order to investigate whether these structures in each grammatical domain are equally prone to crosslinguistic influence. Specifically, the study explores whether the distribution of subjects in particular discourse-pragmatic contexts, i.e. null and overt subject pronouns, preverbal and postverbal subjects, can be more susceptible to crosslinguistic influence from English to Greek than purely syntactic structures, i.e. the placement of subjects in *what*-embedded interrogatives and the placement of object pronouns in declaratives.

The use of subjects (i.e. null and overt subject pronouns, preverbal and postverbal subjects in the discourse-pragmatic contexts investigated) in Greek might be prone to crosslinguistic influence from English since these structures: i) involve the syntax-pragmatics interface, i.e. the choice between these syntactic options is regulated by discourse-pragmatic factors, and ii) they instantiate a partial surface overlap between Greek and English, i.e. both languages allow overt subjects but Greek licenses null subjects as well; the two languages instantiate preverbal subjects but Greek also allows postverbal subjects.²¹

²¹ The distribution of null and overt subject pronouns, preverbal and postverbal subjects in certain discourse-pragmatic contexts has been investigated in the context of language attrition in near-native speakers of English with Greek and Italian as their L1 (Tsimpli, Sorace, Heycock, Filiaci and Bouba, 2003; Tsimpli, Sorace, Heycock and Filiaci, 2004). Subject-verb placement has also been studied in English L2 acquisition of Italian and Spanish (Belletti and Leonini, 2004; Belletti, Bennati and

With respect to the notions of the input ambiguity and the overlap between the bilinguals' two languages, in this thesis it is assumed that the input ambiguity in one of the bilinguals' languages and the overlap between the two languages is found at a superficial or surface level. For instance, the syntax-pragmatics interface phenomena that would qualify as candidates for ambiguous input would be the ones that can potentially provide evidence for two different analyses: the input regarding the distribution of pronominal subjects in Greek can be considered ambiguous since it is both consistent with an analysis where subjects are obligatorily expressed and with one where they are not.

The surface overlap refers to the case in which the two languages share two superficially similar forms or correspondent forms with different underlying structure, i.e. the input in both languages contains positive evidence for the same surface string (see also Müller and Hulk, 2001; Unsworth, 2003; Paradis and Navarro, 2003; Pannemann, 2006). In other words, there is a surface similarity between utterances containing the same form in both languages, e.g. on the surface at least English and Greek utterances appear to contain overt subjects. Based on this surface (superficial) similarity between the two languages and since the input evidence from English supports the analysis where subjects must be expressed, the bilingual learner may actually equate the function of this overlapping form in the two languages, i.e. the learner may think that the function of overt subjects is the same in both languages and thus overt subjects might be overused inappropriately in contexts in which null subjects are the felicitous option.

Another issue that has not been properly addressed in the existing literature on crosslinguistic influence and is investigated in this study is whether language dominance, i.e. the amount of input the bilinguals receive in each language, plays a role in crosslinguistic influence. As was previously discussed, there is no consensus among the researchers in simultaneous bilingual acquisition regarding the conditions under which crosslinguistic influence takes place and what the direction of such an influence would be.

Sorace, 2005; Hertel, 2003). In all these developmental studies, overt subject pronouns and preverbal subjects were overextended to inappropriate discourse-pragmatic contexts, as a result of sustained exposure to English in the language attrition context, and as a consequence of transfer from L1 English in the L2 acquisition studies.

Some researchers claim that crosslinguistic influence is due to language internal factors, i.e. the structural properties of the two languages, and thus the assumption is that language dominance, an external factor to the languages under consideration, cannot determine crosslinguistic influence (e.g. Müller and Hulk, 2001). As a matter of fact, Müller and Hulk (2001) and Serratrice et al. (2004) found that crosslinguistic influence in their data was from the less dominant language to the dominant one. In contrast, other studies in simultaneous bilingual acquisition have shown crosslinguistic effects to be from the dominant language to the less dominant one (e.g. Schlyter, 1993), and thus it was argued that language dominance can be a crucial factor in crosslinguistic influence.

Meisel (1983: 44) has pointed out that ‘In most cases, convergence of strategies, apparently, is the most adequate explanation of crosslinguistic transfer’, and indeed, as discussed above, some studies have proposed the combined role that language dominance and the structural properties of the two languages (e.g. surface overlap) may play in crosslinguistic influence in simultaneous bilingual acquisition (e.g. Bernardini, 2003). Thus, there seem to be reasons to believe that crosslinguistic influence may be a more complicated and multifaceted phenomenon than researchers have thought so far and it is worth investigating whether and how different variables may contribute to the occurrence of crosslinguistic influence during bilingual development. This study therefore, differently from other studies that have investigated crosslinguistic influence, addresses the issue of whether language dominance can also be a contributing factor in crosslinguistic influence. In order to explore this matter in a principled way crosslinguistic influence was considered in Greek-dominant and English-dominant bilingual children.

To summarise, the aims of the study are: a) to explore whether crosslinguistic influence occurs from English to Greek in the grammar of eight-year-old English-Greek bilingual children; b) if so, to see whether the syntax-pragmatics interface structures are more susceptible to crosslinguistic influence than the purely syntactic structures; and c) to investigate whether language dominance plays a role in crosslinguistic influence.

The syntax-pragmatics interface structures that were investigated are: i) the distribution of pronominal subjects in [-topic shift] contexts; ii) the placement of

subjects in wide-focus contexts, and the purely syntactic structures that were examined are: i) the placement of subjects in *what*-embedded interrogatives; ii) the placement of object pronouns in declaratives.

2.6. Chapter summary

Bilingual children who acquire two languages simultaneously have been found to go through an early developmental stage in which they code-mix. Their code-mixing was once considered as evidence for an early stage in which the bilinguals could not differentiate between their two languages. A careful examination however, of when children code-mix has shown convincingly that the bilingual children are in fact able to differentiate between their two languages from early on. Nevertheless, several studies have shown that the separate development of the two languages does not preclude the possibility of the two languages to interact, and hence have an influence on each other. Nowadays the challenge for the researchers in bilingual acquisition is to identify when exactly and why crosslinguistic influence can take place. Some researchers have attributed the occurrence of crosslinguistic influence to the structural properties of the two languages; others have identified language dominance as an important factor in crosslinguistic influence, whereas recent studies have suggested that the combination of these two factors may play a role in crosslinguistic influence in simultaneous bilingual acquisition. Furthermore, we outlined the aims and objectives of this thesis.

The differences between Greek and English with respect to the structures investigated, as well as a number of studies relevant to the monolingual acquisition of these structures in both languages are illustrated in the following chapter.



CHAPTER 3

Morphosyntactic Contrasts between Greek and English

3.1. Introduction

In this chapter we will present the main morphosyntactic contrasts between English and Greek in general, but with a special focus on the constructions investigated in this study. More specifically, we will discuss the difference between the two languages in terms of the positive and negative setting of the null subject parameter and the implications of each with regard to the availability of null and postverbal subjects in Greek and English respectively. Furthermore, the discourse-pragmatic conditions that constrain the distribution of null and overt subject pronouns, pre- and postverbal subjects will be discussed. We will then outline the main differences between English and Greek with respect to the positioning of lexical subjects in *what*-embedded interrogatives and the positioning of object pronouns in declaratives. Moreover, there will also be a discussion of a number of studies in English and Greek first language acquisition of the constructions examined in the present thesis.

3.2. Basic linguistic assumptions about Greek and English

3.2.1. The Greek clause structure

Greek is a language with a certain degree of flexibility in word order, i.e. SVO, VSO and VOS are all possible word orders in Greek (e.g. Tsimpli, 1995; Tsiplakou, 1998; Alexiadou and Anagnostopoulou, 2000), as exhibited in (29a-c):

- (29) a. O Janis diavase to vivlio. (SVO)
the Janis-NOM read-3SG the book-ACC
'Janis read the book.'
- b. Diavase o Janis to vivlio. (VSO)
read-3SG the Janis-NOM the book-ACC
'Janis read the book.'

- c. Diavase to vivlio o Janis. (VOS)
 read-3SG the book-ACC the Janis-NOM
 ‘Janis read the book.’

It has been argued that VSO is the canonical or ‘unmarked’ word order in Greek (Catsimali, 1990; Philippaki-Warburton, 1985; Tsimpli, 1990, 1995; Alexopoulou, 1999). Several theoretical arguments have been put forward in order to support this claim. In particular, Philippaki-Warburton (1985) observed that specific subordinate clauses do not allow SVO, as shown by the contrast between (30a) and (30b) (from Philippaki-Warburton, 1985):

- (30) a. Svisame ta fota [ja na filisi o Janis ti Maria.]
 switched off-1PL the lights-ACC [so to kiss-3SG the Janis-NOM the Maria-ACC]
 ‘We switched off the lights so that Janis would kiss Maria.’
 b. *[ja o Janis na filisi ti Maria.]
 [so the Janis-NOM to kiss-3SG the Maria-ACC]
 ‘So that Janis would kiss Maria.’

Furthermore, Philippaki-Warburton (1985) argued that VSO sentences are the most natural and pragmatically neutral answers to an all-focus question like ‘*What happened?*’, as exemplified in (31) (from Philippaki-Warburton, 1985):

- (31) Question: Ti ejine?
 ‘What happened?’
 Answer: Filise o Janis ti Maria.
 kissed-3SG the Janis-NOM the Maria-ACC
 ‘Janis kissed Maria.’

The answer shown in (31) is argued to be pragmatically neutral because all the information included in these VSO sentences are new and no theme or topic are present (i.e. there is no old-new information distinction), and thus the VSO is

considered to be the pragmatically least marked and therefore, the basic word order in Greek.

Moreover, Greek is a typical null-subject language with a rich inflectional paradigm (see section 3.3 below for a more extensive discussion on the properties of null and non-null-subject languages) (e.g. Tsipakou, 1998; Alexopoulou, 1999; Tsimpli, 2003; Panagiotidis and Tsipakou, 2003, among others). Thus, subjects can be null but when they are overt they may appear preverbally or postverbally, as is clear from (29a-c) above. Verbs in Greek are morphologically marked for tense [+/-past], aspect [+/-perfective] and subject agreement (as a suffix), which is morphologically distinct for each person and number, as shown in the following examples (Tsipakou, 1998):

- (32) a. Diavaz-o to vivlio.
read-1SG the book-ACC
'I am reading the book.'
- b. Diavas-ame to vivlio.
read-PERF.PAST.1PL the book-ACC
'We read the book.'
- c. Diavaz-ame to vivlio.
read-IMP.PAST.1PL the book-ACC
'We were reading the book.'

Greek articles, adjectives, nouns and pronouns are marked for number, gender and case (pronouns are also marked for person), as illustrated in (33):

- (33) Afti agorase enan oreo pinaka.
she-NOM bought-3SG a-ACC nice-ACC painting-ACC
'She bought a nice painting.'

Personal pronouns have a 'strong' form and a 'weak' form, i.e. clitics, found in genitive in which case they function as indirect objects with verbs and as possessors

with nouns, and in accusative in which case they function as direct objects; object clitics must appear in preverbal position, as shown in (34) below:

- (34) Tis to ipa xthes.
her-CL it-CL told-1SG yesterday
'I told her that yesterday.'

3.2.2. The English clause structure

In English, the constituent word order at surface level is not as free as in Greek as it has a relatively fixed SV(O) word order. In addition, word order, in contrast to Greek, is affected little by pragmatic factors and stress is mainly employed in order to encode changes in focus while preserving the SVO structure (De Villiers and De Villiers, 1985).

English is not a null-subject language (i.e. null subjects are not allowed in finite clauses; see the following section for more details on this issue) and it has a relatively impoverished morphology compared to Greek. Regarding noun markings, there are inflections for plurality and possession and gender is only marked on third-person personal pronouns. Verbs in the present tense require only the third-person singular inflection, '-s', but there are limited exceptions, e.g. 'does', 'has'. In general, person and number distinctions are rarely marked on verbs (except for the verb 'be'). In contrast, the auxiliary system in English is rich and complex, e.g. verbs can be preceded by several modals to indicate possibility/ability (e.g. *can*, *must*, etc.) (De Villiers and De Villiers, 1985).

These are only some of the morphosyntactic contrasts between Greek and English, but they are sufficient for the purposes of the current study. In the following sections we will discuss the specific contrasts between English and Greek with regard to the structures investigated in the current study, namely null and overt subject pronouns; preverbal and postverbal subjects; *wh*-embedded interrogatives with a subject, and object pronouns.

3.3. Null and overt subjects

Null subjects are allowed in various typologically different languages but for the purposes of this thesis it is assumed that there are two types of null subjects: one can be found in languages like Greek, Italian and Spanish, and the other is allowed in languages like Chinese, Japanese and Korean (Guasti, 2002).

Greek has been extensively argued to be a null-subject language such as Italian or Spanish because it permits finite sentences with unexpressed subjects (Tsimpli, 2003; Tsimpli et al., 2004). Conversely, English is characterised as a non-null-subject language since it requires the subject in finite sentences to be overtly realised, as illustrated in (35):

- (35) a. Vrike to vivlio.
 found-3SG the book-ACC
 ‘She found the book.’
 b. *(She) found the book.

Although English is not a null-subject language, null subjects are allowed in restricted contexts, e.g. in coordinate clauses (36), in sentence initial position in progressive participle structures (37), in imperative contexts with an implied second person subject (38).²² However, as exemplified in (39), null subjects are not allowed in subordinate clauses in English, unlike in Greek, a true null-subject language:

- (36) Maria and John woke up, had a shower and (they) went to school.

- (37) Question: What are they doing?

²² See also Haegeman (2000) for the existence of null subjects restricted to the initial position of the root clauses in diary style (from Haegeman, 2000) as illustrated in the example:

- (i) Cried yesterday morning, as if it were an hour for keening: why is crying so pleasurable.

Spoken English also displays adult null subjects (Rizzi, 1994; Haegeman, 1997). Interestingly, Haegeman and Ihsane (2001) have noted that some varieties of diary style and of abbreviated registers in recent British English do allow for embedded null subjects as shown in the following example (from Haegeman and Ihsane, 2001):

- (ii) Start to wonder whether [ec] am really good friend.

Answer: Playing the piano.

(38) Don't lose your bag!

(39) Maria and John went out because *(they) wanted to talk.

Under the parameter-setting account, the null subject parameter²³ distinguishes languages that allow null subjects in tensed clauses like Greek from those that do not typically allow such subjects in tensed clauses like English (see, among others, Chomsky, 1981; Rizzi, 1982; Burzio, 1986; Jaeggli and Safir, 1989). The core property of the Null Subject Parameter is the licensing of a phonologically silent referential pronoun *-pro-* in a dedicated preverbal subject position of the sentence. It is argued that whether a language allows null subjects or not depends on a language-specific syntactic setting, i.e. in Greek/Italian/Spanish the null subject parameter is set positively [+pro-drop], whereas in English the null subject parameter is set negatively [-pro-drop] (Rizzi, 1982; Chomsky, 1981, among others).

Null subjects of the Greek or Italian type are assumed to be associated with the rich inflectional paradigm found in these languages, i.e. these languages exhibit a rich inflectional system in which number and person agreement features are overtly realised (Rizzi, 1982; Chomsky, 1982, among others). Therefore, since these inflections uniquely define the person and number of the subject, the content of null subjects can be easily recovered. For instance, Greek has six different agreement inflections in the simple present tense that define first, second and third person, in singular and plural number, as illustrated in (40):

(40) graf-o	I write	graf-ume	we write
graf-is	you write	graf-ete	you write (plural)
graf-i	he/she writes	graf-un	they write

²³ The null subject parameter is being refined in theoretical syntax work, i.e. Roberts and Holmberg (2002) have highlighted that the various empirical correlations traditionally proposed to be associated with the null subject parameter, e.g. the presence of referential null subjects correlates with 'rich' agreement and 'free inversion', are not perfect. Holmberg (2005) has also recently proposed a redefinition of licensing and identification of null subjects. Nevertheless, for the purposes of this thesis the traditional account of the parameter is assumed.

Thus, null subjects are considered to be linked to a morphologically rich agreement system and it is subsequently argued that null subjects are phonologically silent pronouns licensed by Infl (Inflection) and identified by the specific agreement morphology on the verb, i.e. the person and number agreement morphemes that are expressed on verbs (Rizzi, 1982).

In contrast, non-null-subject languages like English have an impoverished inflectional paradigm and the poor differentiation with regard to person and number inflections makes it impossible to identify null subjects. As a result, the poor verbal agreement morphology of English has been proposed to be responsible for the requirement to have overtly realised subjects (Haegeman, 2000).

Moreover, null subjects (and null objects) are also allowed under appropriate discourse conditions in languages which do not have a rich agreement system, such as Chinese, Japanese and Korean (Huang, 1984). Therefore, unlike Greek or Italian, these null subjects cannot be associated with a rich agreement system since verbs in these languages carry no agreement affix. A Chinese sentence with a null subject (from Huang, 1984) is shown in (41):

- (41) ___ Kanjian ta le.
(he) see he ASP (aspectual morpheme)
'He saw him.'

Huang (1984) demonstrated that not all null-subject languages rely on overt agreement to recover the meaning of the missing subjects. In fact, null subjects (and null objects) in Chinese are known as dropped topics and their identification is ensured in the discourse by a formerly established discourse topic, i.e. null subjects (and null objects) must refer to entities previously mentioned in the discourse, and their occurrence is argued to be governed by the topic-drop parameter or the discourse-oriented parameter (Guasti, 2002).

Furthermore, one common assumption in the syntactic literature for the last twenty years has been that the availability of null subjects tends to co-occur with the availability of postverbal subjects in declarative sentences (Chomsky, 1981; Rizzi,

1982).²⁴ The availability of phonetically null pronominal subjects in the preverbal subject position of the clause is considered to be the necessary condition for the availability of constructions with a postverbal subject in null-subject languages like Greek or Italian, whereas this option is not available to non-null-subject languages (Rizzi, 1982, 1990).²⁵ With respect to the availability of postverbal subjects, in Greek the overt subject of a declarative clause can freely occupy the postverbal position, whereas in English it cannot, as shown in (42) and (43) respectively:

(42) Irthe i Maria.
 came-3SG the Maria-NOM
 ‘Maria came.’

(43) *Came Maria.

Note that inverted subject constructions appear also in English but they are restricted to certain contexts (Levin and Rappaport, 1995). One of these structures is the locative inversion construction in which a locative or directional prepositional phrase found in the preverbal position followed by an intransitive verb (unaccusative) or passive verbs and then the subject NP. An example with an unaccusative verb is shown in (44) (from Levin and Rappaport, 1995):

(44) In the distance appeared the towers and spires of a town which greatly
 resembled Oxford. [L. Bromfield, *The Farm*, 124]

²⁴The lack of *that*-trace effects is also assumed to be associated with the null subject parameter (Rizzi, 1982, 1990). In English a subject cannot be extracted out of an embedded clause across an overt complementiser, whereas the same structure is grammatical in Greek. In English, the complementiser needs to be null, as shown in the example:

(i) a. Who_i do you think (*that) t_i will come?
 b. Pjos_i nomizis oti t_i tha erthi?
 who_i think-2SG that t_i will come-3SG
 ‘Who do you think will come?’

²⁵Research on near-native L2 speakers of Italian, however, has recently shown dissociation between the availability of postverbal subjects and the availability of null subjects: postverbal subjects were produced significantly less than null subjects (Belletti and Leonini, 2004; Belletti, Bennatti and Sorace, 2005). Thus, these findings indicated the different status of the two properties traditionally linked to the null subject parameter and that the availability of null subject *pro* is a necessary, but not a sufficient condition to license postverbal subjects.

Another example of inversion is the so called *there*-insertion construction in which *there* is argued to be the subject of the verb (45) (from Levin and Rappaport, 1995):

- (45) There remained three documents on his blotter when he pressed his desk bell. [A. W. Upfield, *The Bachelors of Broken Hill*, 11]

In contrast, Greek and other null-subject languages, allow for subject inversion structures to a much wider scale. SV(O)/VS(O) alternations occur not only in root and embedded clauses, but also with all eventive predicates transitives and intransitives alike, as illustrated in (46), without the need for an overt expletive to appear preverbally (Alexiadou and Anagnostopoulou, 1998):

- (46) a. Efije i Eleni. (*unaccusative*)
left-3SG the Eleni-NOM
'Eleni left.'
- b. Epekse i Eleni. (*unergative*)
played-3SG the Eleni-NOM
'Eleni played.'
- c. Pire i Eleni to vivlio. (*transitive*)
took-3SG the Eleni-NOM the book-ACC
'Eleni took the book.'

Although null and overt subject pronouns, preverbal and postverbal subjects are syntactically grammatical in Greek, the two options are not interchangeable and therefore not in free variation. The distribution of null and overt subject pronouns, preverbal and postverbal subjects (in particular contexts) actually depends on several discourse factors that yield subtle interpretative and semantic differences.

3.4. The distribution of subject pronouns in Greek and English

Recent work has demonstrated that null and overt subject pronouns in null-subject languages are not in free variation but there are in fact discourse-pragmatic principles that determine their distribution (Dimitriadis, 1996; Grimshaw and Samek-Lodovici,

1998). Subjects may be null when they refer to a prominent subject antecedent already introduced in the linguistic or extralinguistic context; overt subject pronouns are however, required in contexts in which the subject referent cannot be easily recovered from the previous discourse or the extralinguistic context or to contrast a referent with others (Serratrice, 2005; Sorace, 2005).

More specifically, Dimitriadis (1996) discussed the distribution of pronominal subjects in Greek and other null-subject languages (i.e. Italian and Turkish). He suggested that the use of a null subject involves the least effortful choice for the speaker, according to the principles of conversation. As a result, when an overt subject pronoun is used instead of a null subject pronoun, a less costly available option, it tends to be interpreted as conveying a marked message (i.e. one which the unmarked alternative option could not have conveyed).

The author demonstrated that null and overt subject pronouns in Greek and other null-subject languages select different antecedents in a particular discourse context. Specifically, null pronominal subjects tend to take as their antecedent the most prominent potential antecedent from the previous sentence, i.e. the topic of the discourse, while overt subject pronouns signal a change of topic, i.e. their use signals that the most prominent antecedent should be skipped and they have to refer back to a somewhat less prominent entity.²⁶ Prominence in Dimitriadis's work is defined within the framework of Centering Theory (Grosz et al., 1995), which models potential antecedents at any point in the discourse as a list of *forward looking centres* (i.e. Cf-list). Specifically the centres of each utterance are the possible antecedents for the following utterance and they appear in the Cf-list hierarchically: from the most prominent centre, that is the most likely to be talked about in the following sentence, to the least prominent one, as shown below (from Dimitriadis, 1996):

SUBJECT > OBJECT2 > OBJECT > OTHER > DISCOURSE UNIT

The highest-ranked element that is present in the previous sentence and is also mentioned in the following one constitutes the 'topic' of the discourse (i.e. the

²⁶A similar account is provided by Enç (1986) regarding the interpretation of pronominal subjects in Turkish. She argued that sentences with null subjects are interpreted as comments on the previous topic, whereas overt pronouns signal a topic change and they are used to express contrast.

immediate centre of attention). On the basis of Greek data, Dimitriadis makes the following proposal about *pro*:

Pro anaphora proposal:

Pro is construed with the highest antecedent in the Cf list that has compatible φ -features with it.

According to this proposal, when a null subject is used in the discourse there cannot be a topic shift. By contrast, the author argued that an overt pronoun cannot refer to the highest element in the list; it is used instead for antecedents that are lower in the Cf-list, and thus it is compatible with a topic shift.²⁷

Similarly, Grimshaw and Samek-Lodovici (1998), within the framework of Optimality Theory, argued that ‘topic’ is the feature that determines the realisation of a subject pronoun as null or overt. Topichood is considered to be ‘equivalent to pragmatic aboutness: a constituent XP has topic status if it expresses what the sentence is about’ (Grimshaw and Samek-Lodovici, 1998: 196). According to Optimality Theory, grammars contain universal violable constraints that conflict with each other and a language-particular grammar is a means of resolving the conflict. Language variation is assumed to reflect a conflict between universal constraints with different languages resolving the conflict in different ways by selecting different rankings of the constraints that conflict with each other (Grimshaw and Samek-Lodovici, 1998). In particular, the authors propose a set of constraints relevant to the licensing and the distribution of null and overt subjects; they argue that DROPTOPIC is the constraint responsible for the obligatory dropping of arguments whose antecedent is a topic:

(a)DROPTOPIC: Leave arguments coreferent with the topic structurally unrealised.

The universal constraints in conflict are: DROPTOPIC; SUBJECT; PARSE;

(b)SUBJECT: The highest A-specifier in an extended projection must be filled.

(c) PARSE: Parse input constituents. (The last two constraints favour the overt realisation of subjects.)

²⁷ See also Miltsakaki (2001) for an analysis of the distribution and discourse functions of null and overt subject pronouns in Greek in the Centering theoretical framework.

Null-subject languages rank the constraint DROPTOPIC higher than the other two, and hence when subjects are coreferential with a topic antecedent have to be obligatorily dropped; conversely, when a subject does not have an antecedent or if the antecedent is not a topic, it will be obligatorily overtly realised. In contrast, non-null-subject languages like English, rank DROPTOPIC lower than the constraints SUBJECT or PARSE, therefore the subject will always be structurally overtly realised regardless of the discourse status of its antecedent.

Consequently, a null subject is required when it is coreferential with a prominent topic antecedent. For instance, a felicitous answer to the question in (47) requires the use of a null subject (47a) and not an overt subject pronoun (47b), which cannot corefer with the subject antecedent:

(47) Question: Jati pije sto vivliopolio I Elenij?

‘Why did Eleni go to the bookshop?’

a. Epidi *pro*_j ithele na agorasi ena vivlio.

because wanted-3SG to buy-3SG a book-ACC

‘Because *(she) wanted to buy a book.’

@ b. Epidi afti_j ithele na agorasi ena vivlio.

because she-NOM wanted-3SG to buy-3SG a book-ACC

‘Because she wanted to buy a book.’

In English, on the other hand, the overt subject pronoun ‘*she*’ is required in this particular context and it can be coreferential with the topic antecedent. In Greek, overt pronominal subjects are used in specific discourse-pragmatic contexts and their use is a marked option that signals topic shift, among other things²⁸ (Tsimpli et al.,

²⁸ Overt subject pronouns are also used when focusing (i) or topicalisation (ii) of the subject is required (from Tsimpli et. al., 2004):

(i) Context: I don’t know if John and Mary will come to the party.

*(Afti), tha erthi.

she-NOM will come-3SG

‘SHE will come.’ [*She* is focused]

(ii) Context: Both John and Mary have bought this new book.

*(Aftos) tis to protine.

he-NOM her-GEN it-ACC recommended-3SG

‘He recommended it to her.’ [*He* is a contrastive topic]

2004; Tsimpli and Sorace, 2006) (see also Serratrice et al., 2004 and Serratrice, 2005 for Italian). In particular, null and overt subject pronouns in Greek differ with respect to reference assignment. As shown in example (48), the null subject pronoun is interpreted as being coreferential with the subject of the main clause; in this case the null subject's use is associated with a nonshifted interpretation for the embedded subject (Tsimpli et al. 2004). Conversely, when the overt pronominal subject '*afti*' (she) is used, the overt pronoun cannot be coreferential with the matrix subject; hence the matrix object is the antecedent of the overt subject pronoun in this context:

- (48) I Maria_i heretise tin Eleni_k otan *pro*_i/*afti*_k irthe.
 the Maria-NOM greeted-3SG the Eleni-ACC when *pro*/she-NOM came-3SG
 'Maria_i greeted Eleni_k when she_{i/k} came.'

In other words, the use of the overt subject pronoun involves shifting the discourse topic from the matrix subject to the matrix object. By contrast, overt subject pronouns in English do not need to be discourse-marked in the sense of the Greek example before. More specifically, overt subject pronouns in English are not obligatorily associated with topic shift and thus, they can occur both with [+/-topic shift] referents (Tsimpli et al., 2004; Serratrice, 2005). Therefore, in the context exhibited in (48) above, the overt subject pronoun '*she*' is obligatory in English and it can corefer freely either with the subject or the object antecedent.

To summarise, as was previously shown, the complementary distribution of a null or overt subject pronoun in Greek and other null-subject languages (e.g. Italian) is constrained by specific discourse-pragmatic factors. The following sections review a number of previous studies with respect to the Greek and English L1 acquisition of null and overt subjects.

3.4.1. The acquisition of null and overt subjects in L1 Greek

There are a few studies that have looked at the emergence and distribution of null and overt subject pronouns in child Greek. Tsimpli (2003) examined the spontaneous data from two Greek monolingual children (first child: 1;9-2;1; second child: 1;11-2;2) and she found that null subjects were used productively and frequently from the

earliest stages. One of the children used overt subjects more frequently than null subjects during the first month, whereas in the following stages null subjects were used roughly in 50% of the child's utterances. The other child, on the other hand, used null subjects very frequently (i.e. 77% of the child's utterances) during the first month, while in the subsequent months null subjects were also used approximately 50% of the child's utterances in total.

Another study reported a higher rate for the null subjects' use in early child Greek. Valian (1994) analysed observational data from Greek children (age range 2;0-2;5), who were found to use null subjects 80% of the time, which is in accordance with findings from other null-subject languages as well. For instance, two Spanish monolingual children around the age of 2 were found to use null subjects in roughly 80% of the verbal utterances, the figure was 77% for a Japanese three-year-old child and 70% for Italian monolinguals (age range 1;6-2;5) (O'Grady, 1997).

Furthermore, several researchers have noted that young children are aware of the different discourse-pragmatic constraints that regulate argument realisation and distribution in null-subject languages. Allen (2000) found that specific discourse-pragmatic conditions (e.g. absence, contrast, newness) determined the subject and object argument omission in three young children (age range 2;0-3;6) acquiring Inuktitut, another null-subject language (see also Clancy, 1993, 1997, 2003; Allen and Schroder, 2003; Guerriero, Cooper, Oshima-Takane and Kuriyama, 2001).²⁹

Similar results were reported by Serratrice and Sorace (2003) and Serratrice, Sorace and Paoli (2004) who examined the distribution of null and overt subjects in the spontaneous speech of six Italian monolingual children (age range 1;7-3;3) and one English-Italian bilingual child (age range 1;10-4;6). In particular, the findings indicated that specific pragmatic features regulated the use of null and overt subjects, that is, children were significantly more likely to omit referents who were among other things highly active, present, old, not contrasted rather than referents who were for example new to the discourse, contrasted, not present. Subjects therefore were not omitted randomly and such findings suggest that children are sensitive to the

²⁹ Skarabela (2005) identified joint attention as another potential variable that can predict children's argument realisation. She demonstrated that the triadic joint attention context in which young Inuktitut children were engaged with the interlocutor and the referent could actually explain the unexpected realisation of new arguments as null in the children's speech (see also Skarabela and Allen, 2002).

pragmatics of the arguments' realisation and distribution from early on (see also Serratrice, submitted).³⁰

Turning to Greek, Tsimpli (2003) reported that in the spontaneous data from the two young Greek children she investigated overt subjects appeared preverbally and postverbally and they reflected subtle discourse pragmatic distinctions. Preverbal subjects were mostly prosodically stressed and as such they appeared in discourse contexts in which they were associated with a focus interpretation, whereas postverbal subjects were used to convey mainly old information.

In the same vein, Stephany (1997) found that four Greek monolingual children (age range 1;10-2;10) used overt subjects in order to mark certain pragmatic functions found in the target language. In particular, the preverbal subject position was also used to mark focused subjects. Preposed subjects were also used to resume arguments of preceding utterances, and thus these preverbal subjects were characterised as thematic. Postverbal subjects were mainly used in sentences that contained all new information.

Although none of these studies investigated the discourse contexts in which null subjects were used, the examples (49) and (50) (both examples are taken from Stephany, 1997) suggest that null subjects occurred appropriately in contexts in which they were coreferential with a prominent topic antecedent (the subject antecedent is written in bold):

(49) Mairi [commenting on the hunter in Red Riding Hood] (2;10)

MOT: ke ti ekane aftos, **o kinigos**?

'And what did the hunter do?'

MAI: *pro*_j evgale apo to liko ti kija, ti jaja ke ti kokinoskufitsa ke *pro*_j ton
gotose

For: evgale apo tu liku tin kilja ti jaja ke tin kokinoskufitsa ke ton
skotose

'He took Granny and Red Riding Hood out of the wolf's tummy and

³⁰ Baker and Greenfield (1988) have also shown that even at the one-word stage, children are sensitive to the information status of the discourse referents and they are already able to distinguish new from given information. In a similar vein, De Cat (2004) found that French children are capable of handling information structure phenomena, i.e. realisation of topics, from the earliest attested stages of language production.

killed him.'

(50) Mairi [looking at an illustrated fairy tale book] (2;10)

ULL: Ke meta, **o likos**_k ti ekane otan ksipnise?

'And afterward, what did the wolf do when he woke up?'

MAI: *pro*_k pethane

'He died.'

In both examples, the child appropriately uses a null pronominal subject to refer to the subject antecedents i.e. '*o kinigos*' (the hunter), '*o likos*' (the wolf) mentioned in the question.

The findings from the previous studies suggest that young Greek monolingual children do not use null and overt subjects randomly; instead these studies suggest that children are sensitive from early on to the discourse-pragmatic conditions in which null and overt subjects are used in the adult language.

3.4.2. The acquisition of overt subjects in L1 English

In the initial stages of acquisition, it is well established that even children acquiring non-null-subject languages such as French, Swedish, and German tend to optionally omit subjects which are obligatory in the adult grammar. English-speaking children produce sentences that have no overt subjects until the age of 2;5 to 3, as illustrated by the following examples of subjectless sentences (from O'Grady, 1997):

(51) a. Touch milk. (1;9)

b. Helping Mommy.

Several different theories have been put forward to account for subject omission in the early developmental stages but for the purposes of this thesis it suffices to outline briefly only a few of these accounts. These various accounts are grouped into two main categories: processing accounts and grammar-based accounts.

Processing theories argue that children in the early developmental stages operate under processing limitations that impose restrictions on the lengths of utterances they

are able to produce (Bloom, 1990; Valian, 1991). Bloom (1990) claimed that very young children omit subjects due to processing limitations that sometimes prevent the production of complete sentences of more than two or three words, and hence these processing deficits prevent the production of subjects where they are required. The longer the planned utterance the more processing recourses it requires. In particular, the author analysed spontaneous data from three children (the Brown corpus) and he found a significant correlation between the VP length and subject drop, i.e. the children's verb phrases were longer when a subject was omitted than when it was not. He pointed out that children's subjectless sentences were longer than the sentences with subjects because by omitting the subject the young learners were able to allocate more resources for planning longer sentences (but see Hyams and Wexler, 1993).

In a similar vein, Valian (1991) reported that some of the children she studied exhibited Bloom's proposed correlation between VP length and subject drop. In this view, subject omission is a result of the children's performance limitations rather than the outcome of their grammatical competence, i.e. young English children know that English does not allow subject drop but they do not successfully apply their knowledge in every utterance (Valian 1991).

The grammar-based theories, in sharp contrast to the processing theories, have interpreted children's subject omission at the early stages as a competence deficit. Specifically, according to one of the early accounts proposed by Hyams (1986), subject omission is due to the wrong setting of the null subject parameter in the early acquisition stages. Hyams suggested that all children, including English-speaking children, initially assume English to be a null-subject language such as Greek or Italian. Furthermore, the author proposed that children acquiring English revise their initial hypothesis that English is a null-subject language after having noticed specific structures in the input (e.g. expletives), which are incompatible with a null subject grammar.

Other researchers tried to investigate the association between subject drop and the emergence of tense. O'Grady, Peters, and Masterson (1989) suggested that children's grammar initially does not have tense and hence the children are not able to distinguish between tensed verbs (subjects are required before tensed verbs) and

untensed verbs (subjects are not required before untensed verbs, e.g. infinitives or participles). In the authors' view, the subject-drop phenomenon arises because the absence of tense contrasts makes it impossible for the child to distinguish between subject-taking and non-subject-taking verbs. In fact, O'Grady et al. reported that the three children, whose data they analysed, started using subjects consistently as soon as they began using the past tense productively.

Nevertheless, even though English-speaking children omit obligatory subjects, it has been well documented that null subjects in child English do not have the same distribution and the same status as null subjects in true pro-drop languages. Children acquiring non-null-subject languages like English do not omit subjects in the same syntactic contexts in which the children that acquire null-subject languages like Greek, do. English-speaking children typically omit subjects in clause-initial position.³¹ First, there is no evidence that English-speaking children drop subjects in tensed embedded clauses introduced by a complementiser and second, subject omission is scarcely attested in *wh*-questions or in matrix clauses with fronted XP other than the subject (Valian, 1991; Weissenborn, 1992; Guasti, 2002). Similar observations have also been made for children acquiring Dutch, German, Swedish and other non-null-subject languages. Note that the null-subject option is perfectly grammatical in the previous constructions in Greek and other pro-drop languages and as such children acquiring null-subject languages omit subjects in all these syntactic environments (Rizzi, 1994; Guasti, 1996, 2000; Guasti, 2002).

Furthermore, children have been shown to be very sensitive from early on to the frequency the subjects are provided in the input (Kim, 1997). Valian (1991) demonstrated that the proportion of null subjects differs dramatically between children who are acquiring English, a non pro-drop language, and children that acquire Italian a real pro-drop language. Five Italian monolingual children, from age 1;6 to 2;5, were shown to use null subjects in almost 70% of their utterances. Their English-speaking counterparts, namely 21 American children, (age range 1;10-2;8)

³¹ Rizzi (1994, 2000) and Guasti (2002) have proposed the truncation account in order to explain early root null subjects. The phenomenon of root null subjects is argued to arise from the possibility of truncating clausal structures in early stages of acquisition; that is, in child grammars clauses may be truncated at levels lower than CP (i.e. the root of all clauses in the adult grammar). Thus, some or all layers of functional projections can be omitted and several types of root clauses can be produced; for example, VP or IP can become the root of a main clause in child language.

however, produced overt subjects in almost 70% of their utterances from the earliest stages of acquisition and this figure was later increased to 95% , thus eventually matching the rate of subject use in the parental input, i.e. which was calculated by Valian (1991) to be approximately 96%-98%.

3.5. The distribution of subjects in Greek and English

As discussed earlier, the possibility of subjects to appear in postverbal position in Greek and other null-subject languages is considered to be a syntactic consequence of the null subject option of the null subject parameter. There are constraints of a semantic or thematic and discourse-pragmatic nature that govern the distribution of preverbal and postverbal subjects in null-subject languages.

In particular, the choice of preverbal subjects over postverbal subjects in Greek and Italian one-place predicates is determined by constraints such as the definiteness of the subject (Belletti, 1988), the thematic properties of the verb (Pinto, 1997), and also by specific discourse principles that are associated with subtle interpretative and semantic differences. As illustrated in (52), the one-place predicate '*erhome*' (come) prefers definite subjects in preverbal position and indefinites in postverbal position:

- (52) a. Irthan kapji fitites.
 came-3SG some students-NOM
 'Some students came.'
- b. I fitites irthan.
 the students-NOM came-3SG
 'The students came.'

Regarding the role of some intransitive verbs' thematic structure in the distribution of preverbal and postverbal subjects, true one-place predicates, like the verb '*laugh*', seem to favour preverbal subjects and verbs like '*work*' that include an additional locative argument in their thematic structure prefer postverbal subjects, as shown by

the acceptability contrast between (53a) and (53b), (54a) and (54b) respectively (from Tsimpli et al., 2004):³²

- (53) a. Sto telos tis tenias o Janis jelase.
at the end of-the movie-GEN the Janis-NOM laughed-3SG
'Janis laughed at the end of the movie.'
- ? b. Sto telos tis tenias jelase o Janis.
at the end of-the movie-GEN laughed-3SG the Janis-NOM
'Janis laughed at the end of the movie.'

- (54) a. Edo dulevi o Janis.
here work-3SG the Janis-NOM
'Janis works here.'
- ? b. Edo o Janis dulevi.
here the Janis-NOM work-3SG
'Janis works here.'

Turning to the discourse-pragmatic factors that regulate the distribution of preverbal and postverbal subjects in Greek, as has already been mentioned, Greek is a language with a certain degree of flexibility in word order and different word order patterns convey different information (Philippaki-Warburton, 1982, 1985; Agouraki, 1990; Tsimpli, 1990, 1995, among others). The discourse function of focalisation interacts with word order, and hence focused material can appear either in preverbal position or in postverbal position depending on the context.³³ Preverbal foci are not considered equivalent to postverbal ones; there are subtle interpretative differences between the two options (Tzanidaki, 1996; Alexopoulou, 1999; Alexiadou and Anagnostopoulou, 2000).

In particular, preverbal focus is typically associated with narrow contrastive focus readings as shown in (55), an example of subject contrastive focus (Tsimpli, 1995;

³² As Tsimpli et al., (2004) pointed out, the status of (53b) and (54b) is marginal rather than ungrammatical.

³³ Focus in Greek is realised both by phonological and syntactic means, namely accent placement and word order (Alexopoulou, 1999).

Alexopoulou, 1999; Tsiplakou, 1998; Alexiadou and Anagnostopoulou, 2000).³⁴ The focused subject is accented and it appears in preverbal position³⁵ in the leftmost part of the sentence (Capital letters indicate the lexical item that bears the main prosodic prominence of the sentence and the square brackets denote the focused part of the sentence):³⁶

(55) Question: Pios telefonise, o Janis i o Kostas?

‘Who phoned, Janis or Kostas?’

Answer: [_F o JANIS] telefonise.

[_F the Janis-NOM] phoned-3SG

‘Janis phoned.’

In contrast, postverbal focus can be associated with all-focus sentences and wide-focus sentences, in which the subject appears postverbally (Tzanidaki, 1996; Alexopoulou, 1999).³⁷ Specifically, pragmatically appropriate answers to an all-focus

³⁴ The literature on focus comprises a number of terms used to describe different types and functions of focus, e.g. ‘narrow’ focus, ‘wide’ focus, ‘contrastive’ focus, etc. There has often been disagreement among researchers with regard to what these different terms mean. Nonetheless, for the purposes of this thesis, it suffices to say that the distinction between ‘narrow’ and ‘wide’ focus refers to the size of the focused constituent, i.e. focus on individual words versus focus on whole constituents or whole sentences (as in an all-focus sentence) (Ladd, 1980, 1996); and a focused element is assumed to be associated with a contrastive reading when it is contrasted with one or more elements in the discourse (e.g. Erteschik-Shir, 1997; Alexopoulou, 1999).

³⁵ In many contexts preverbal subjects can also constitute old information and thus behave as topics, as shown in (i) (Philippaki-Warburton, 1982, 1985; Stephany, 1997; Alexiadou and Anagnostopoulou, 2000, among others):

- (i) I Eleni mu agorase ena vivlio.
 the Eleni-NOM me-CL bought-3SG a book-ACC
 To vivlio ine endiaferon.
 the book-NOM is-3SG interesting
 ‘Eleni bought a book for me. The book is interesting.’

In this example, the DP ‘the book’ functions as a topic since it conveys old information, i.e. it has already been introduced in the previous sentence.

³⁶ Though preverbal foci are typically associated with contrastive readings, they can also serve other pragmatic functions, i.e. they may imply surprise and various kinds of emphasis (Alexopoulou, 1999). For example, the focused XP tends to appear in preverbal position in ‘metalinguistic corrections’ (Ladd, 1996), as shown in the example (from Alexopoulou, 1999):

- (i) [_F to JANI] apelse i Elena (ohi ton Petro)
 [_F the Janis-ACC] fired-3SG the Elena-NOM (not the Petros-ACC)
 ‘Elena fired Janis (not Petros).’

³⁷ Postverbal subjects are also felicitous in non-contrastive narrow focus contexts, as exemplified in the example (Alexopoulou, 1999):

question, e.g. ‘*what happened?*’ (no part of the question is presupposed, i.e. neither the event nor the participants) involve a postverbal subject in Greek, as exhibited in (56):

(56) Question: *Ti sinevi?*

‘What happened?’

Answer: [_F *Tilefonise* *o JANIS*] *ke ipe* *oti tha figi.*

[_F *phoned-3SG the Janis-NOM*] and *said-3SG that will leave-3SG*

‘Janis phoned and said that he will leave.’

The sentence in (56) with the inverted subject order contains all new information and the postverbal subject is included in the focus. An example of wide focus, e.g. verb-subject focus is presented in (57):

(57) Question: *Ti ejine to molivi tis Marias?*

‘What happened to Maria’s pencil?’

a. [_F *to pire* *o PETROS*]

[_F *it-CL took-3SG the Petros-NOM*]

‘Petros took it.’

b. @ [_F *o PETROS* *to pire*]

[_F *the Petros-NOM it-CL took-3SG*]

‘Petros took it.’

As shown in the previous example, the subject is accented and it is pragmatically appropriate for it to appear in the postverbal position. Note also that as illustrated in (57b) preverbal focus cannot convey a wide-focus reading (Alexopoulou, 1999).

(i) Question: *Pios apelise ti Maria?*

‘Who fired Maria?’

Answer: *Ti Maria tin apelise* [_F *o JANIS*]

the Maria-ACC her-CL fired-3SG [_F *the Janis-NOM*]

‘Janis fired Maria.’

English, conversely, resorts primarily to phonological means to mark the information status of elements within a sentence (see Schmerling, 1976; Ladd, 1980, 1996; De Villiers and De Villiers, 1985; Alexopoulou, 1999; Dyakonova, 2004, among others). Thus, focalisation is expressed mainly by prosodic means while preserving the SV(O) structure, i.e. by stressing the focused element in-situ, as illustrated in the following examples (58) and (59) (from Erteschik-Shir, 1997):

(58) Question: Who ate the candy?

Answer: [_FThe CHILDREN] ate the candy.

(59) Question: What did the children do?

Answer: The children [_F ate the CANDY].

The two sentences in (58) and (59) above have the same word order, i.e. they are structurally identical but they are not interchangeable in a given context, as exemplified by the question-answer pairs. In (58) the focus is the subject and in (59) it is the entire VP. The former is an example of narrow focus, whereas the latter is an example of wide focus. Occasionally, syntactic means can also be used to signal focus in English, such as cleft and pseudocleft (or WH-cleft) constructions, as shown in (60) and (61), respectively (De Villiers and De Villiers, 1985; Dyakonova, 2004):

(60) It was JOHN that Mary saw (not Peter).

(61) What she really likes is RICE.

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 does not employ word order as widely as Greek to mark different focus contexts. In the case of subject placement, in particular, the preverbal subject position in English is not restricted in the same way as in Greek: subjects are obligatorily preverbal in a narrow contrastive focus sentence (62), in a wide-focus sentence (63) and in an all-focus sentence (64),

regardless of the discourse context that the sentence, in which they appear, occurs (see also Schmerling, 1976 and Ladd, 1996, for further examples):

(62) Question: Who broke the glass, John or Nick?

Answer: [_F JOHN] broke the glass.

(63) Question: What did John do?

Answer: John [_F broke a GLASS].

(64) Question: What happened?

Answer: [_F John broke a GLASS].

In the subsequent sections we discuss previous findings regarding the acquisition of subject placement in Greek and English young monolingual children.

3.5.1. The acquisition of subject placement in L1 Greek

Around the age of 1;6 children start combining words into phrases and thus produce their first multiword utterances. Several studies have shown that there are very few word order errors attested in the children's early utterances in several languages, e.g. English, French, Italian, and Japanese (Guasti, 2002; Radford, 1990). Therefore, children conform from early on to the word order constraints of the target language.

With respect to the use of subjects in Greek, Tsimpli (2003) investigated the spontaneous data from two Greek monolingual children (first child: 1;9-2;1; second child: 1;11-2;2) and she found that preverbal and postverbal subjects were used productively from the earliest recordings. Both children were found to use postverbal subjects considerably more often than preverbal subjects, that is postverbal position was the usual option for overt subjects.

Moreover, Stephany (1997) examined longitudinal naturalistic data from four Greek children (mean age 1;10-2;10) and she also found that postverbal subjects were much more frequently used than preverbal subjects. Thus, young Greek children seem to conform early on to the basic word order of the target language, i.e. VS(O).

The children in both studies were also found to be sensitive to the different discourse-pragmatic factors that determine the distribution of preverbal and postverbal subjects in Greek. Tsimpli (2003) reported that the majority of preverbal subjects were accented, and hence she concluded that the subjects had a focused subject interpretation. More specifically, the sentences with preverbal subjects were usually responses to subject *who*-questions, i.e. narrow focus questions, as shown in (65) or they had a contrastive focus reading, as exemplified in (66):

(65) I Elli toi. (Elli, 1;11)

the Elli-NOM is eating-3SG

'Elli is eating.'

(66) Ego tha to psakso, ohi esi (Alexia, 2;2)

I-NOM will it-CL look for-1SG not you- NOM

'I will look for it, not you.'

Preverbal subjects in Stephany's data (1997) were either thematic, resuming arguments of a preceding utterance, as exhibited in (67) or they were emphasised subjects bearing contrastive stress, as shown in (68):

(67) n exi pisiko kapelo. ka nani. na to vali kani nani. o pisiko kani nani (1;10)

For: den exi o pithikos kapelo.

not have-3SG the monkey-NOM hat-ACC

Na kani nani.

to go-3SG beddy-bye

Na to valo na kani nani.

to it-CL put-1SG to go-3SG beddy-bye

O pithikos kani nani.

the monkey-NOM go-3SG beddy-bye

'The monkey does not have a hat. He shall go beddy-bye. Let me make him go beddy-bye. The monkey goes beddy-bye.'

(68) MOT: ela edo kato na kathisis (1;10)

MAI: [after having sat down]

[_F i MAMA] katiti for: i mama na kathisi

the mommy-NOM to sit-3SG

'Mommy shall sit down.'

In addition, postverbal subjects were predominantly used in contexts of all new information, as exhibited in (69):

(69) k(l)ista ta xe(r)ja! (1;10)

close-2SG them-CL the hands-ACC

Tha (r) thi o babulas .

will come-3SG the bogeyman- NOM

Tha se fai.

will you-CL eat-3SG

'Close your hands! (Otherwise) bogeyman will come and get you.'

In both studies postverbal subjects were used in several contexts in which they conveyed old information. For example, in Tsimpli's (2003) data in many utterances, the postverbal subjects produced by these children referred to the children's own selves through the use of the child's own name or of the first person singular pronoun. As a result, postverbal subjects were never prosodically stressed in either child's data, they were characterised by a low-fall intonation and as such they were argued to be interpreted as old information.

Moreover, there were also a few postverbal thematic subjects in Stephany's (1997) data usually in contexts in which a preposed thematic subject was repeated, as shown in (70):

(70) Gra: Pios to kane to mimi? (2;4)

'Who gave you a boo-boo?'

Mar: I Begi mee//pie mja velona i Begi.

For: i Pegi// pire mja velona i Pegi.

the Pegi-NOM// took-3SG a needle-ACC the Pegi-NOM
'Peggy took a needle.'

According to the previous findings, young Greek children seem to possess subtle pragmatic knowledge about the various discourse functions preverbal and postverbal subjects can have in the target language.

3.5.2. The acquisition of subject placement in L1 English

In English the basic word order in standard transitive clauses is SVO and the constraints that regulate the relative order of a verb and its arguments is straightforward. The young English learners observe the appropriate word order in most of their utterances from the earliest stages of acquisition. In fact, English speaking children seem to acquire the distribution and the combinatorial properties of the verb category roughly at the same time (O'Grady, 1997).

For example, Brown (1973) reported that out of the many thousands of utterances produced by more than twelve young English learners, only a hundred of them had word order errors. Similar results were also reported by Pinker (1984) who estimated that 95% of the utterances produced by twelve English-speaking children contained the appropriate word order.

With regard to subjects, English learners seem to use them appropriately in the preverbal position from the earliest stages. In particular, Pinker (1984) examined data collected from an English child when his MLU was from 1.5 to 2.75 and he found that the child positioned preverbally agentive and nonagentive subjects in the vast majority of contexts.

Moreover, young English children are not only sensitive to the syntactic structure of the target language but they have also been found to resort to certain strategies used in the target language in order to mark the informational status of sentence constituents. Specifically, as discussed earlier, English does not typically employ word order to encode discourse-pragmatic distinctions such as focus/topic but it mainly employs phonological means.

A number of researchers have demonstrated that information structure influences the use of accent placement by young English-speaking children, that is, English

learners have been found to manipulate accent placement for focus purposes from early on.

De Villiers and De Villiers (1985) discussed the findings from spontaneous speech and elicited production studies by MacWhinney and Bates (1978) who investigated the use of word order and other syntactic devices to mark old and new information in young English children. The English learners tended to position agents or actors at the beginning of agent-action sentences regardless of pragmatic role, and they used contrastive stress appropriately to mark new information, while pronominalisation and ellipsis were used to encode old information.

In a similar vein, a number of experimental studies of production have also shown that young English children are sensitive to what constitutes new information in their utterance and they use stress accordingly. For instance, preschool English learners aged 3;0 to 5;11 have been found to be able to manipulate accent placement to achieve narrow focus in their own speech (Wells, Peppé and Goulandris, 2004).

Young English children can use clefts and topicalisation, which are pragmatically marked constructions in English, in order to encode information structure (Dyakonova, 2004). More specifically, an English child was found to use some OSV structures that involved a topicalised object, as shown in (71) and a cleft, as exhibited in (72) (both examples are taken from Dyakonova, 2004):

(71) Eve: Papa here's the pretty picture. (2;2)

Papa, pretty picture I made for you.

Father: Is that for me? Nice.

(72) That's what we made. (2;3)

3.6. Object pronouns in Greek and English

Personal pronouns that can substitute for proper or common nouns in the subject or object position are instantiated in both Greek and English. The Greek pronominal system consists of two types of pronouns: strong pronouns, which can be found in subject or object position and can be used deictically or anaphorically, and weak pronouns, i.e. clitics which are the short/non-emphatic forms of the strong personal

pronouns of the first, second and third person singular and plural. In the case in which strong pronouns are used anaphorically they are predominantly used in emphatic/contrastive contexts as usually happens in languages that instantiate both strong pronouns and clitics (Tsimpli and Stavrakaki, 1999).

Both strong and clitic pronouns are morphologically marked for person, number and case and it is only the third-person forms that are also inflected for gender. Clitics are monosyllabic unstressed forms and they are used in close connection with verbs, nouns, adverbs and other words. Clitic pronouns may be used as direct or indirect objects of a verb and they refer to a given entity in the previous discourse. When they are direct objects, they are in the accusative case but when they are indirect objects they are in the genitive case. For the purposes of this study we will focus on object clitics. Object clitics are reduced forms of the third person strong pronoun, as shown in (73):

(73) Third-person strong and clitic pronouns in accusative

	Singular			Plural		
	M	F	N	M	F	N
Strong pronouns	afton	aftin	afto	aftus	aftes	afta
(he, she, it, they)						
Object clitics	ton	tin	to	tus	tis/tes	ta
(him, her, it, them)						

Object clitics can also be used resumptively (74), they need not refer to a DP (75) and they can be associated with a left-dislocated indefinite DP (76), as exemplified in the following examples (from Tsimpli and Stavrakaki, 1999):

(74) Pia ipes oti (tin) ides?
 who-NOM said-2SG that her-CL saw-2SG
 ‘Who did you say that you saw?’

(75) To ksero oti thelis na erthis.
 it-CL know-1SG that want-2SG to come-2SG

'I know that you want to leave.'

- (76) Ena milo, tha to fao.
one/an apple-ACC will it-CL eat-1SG
'I will eat an apple.'

With regard to the object clitics' position relative to the verb, clitics can appear preverbally or postverbally depending on the form of the verb. Specifically, object clitics surface preverbally with verbs in the indicative and in the subjunctive and they are used as direct objects of the verb, as exemplified in (77) and (78):

- (77) I Eleni to efaje. (*verb in the indicative*)
the Eleni-NOM it-CL ate-3SG
'Eleni ate it.'

- (78) I Eleni ithele na to fai. (*verb in the subjunctive*)
the Eleni-NOM wanted-3SG to it-CL eat-3SG
'Eleni wanted to eat it.'

However, as illustrated in (79) and (80), object clitics appear postverbally with verbs in the imperative and non-finite gerunds (Alexiadou and Anagnostopoulou, 2000):

- (79) diavase to (*verb in the imperative*)
read-2SG it-CL
'Read it!'

- (80) diavazondas to (*gerund*)
reading it-CL
'reading it'

English has several subclasses of pronouns and one of them is the personal pronouns for the first, the second and the third person, in singular and plural number. The

third-person personal pronouns are distinguished with respect to gender, in masculine, feminine and neuter and with regard to case, in nominative and accusative (e.g. *he*: nominative, *him*: accusative). The pronouns in nominative are usually found in the subject position of a sentence while object pronouns are used as the objects of verbs.

Object clitics are not instantiated in English and pronominal objects are realised as strong unstressed pronouns in postverbal position. The third-person object pronouns are distinguished with respect to gender and number (i.e. *him*, *her*, *it*, *them*) and they function mainly as the direct or indirect object of a verb and appear postverbally.

Although object pronouns occur frequently unstressed, they can also occur stressed under a number of conditions, such as deictic use and contrast (Schmerling, 1976; Lakoff, 1972). The examples taken from Schmerling (1976) illustrate the use of unstressed (81) and stressed object pronouns (82), respectively:

(81) I'd give the money to John, but I don't trust him.

(82) a. Helen detests THEM. [pointing]

b. Bill kicked JOHN, and then HE kicked HIM. [contrast]

The following sections discuss previous findings with regard to the acquisition of pronominal object pronouns in Greek and English monolingual learners.

3.6.1. The acquisition of object clitics in L1 Greek

In many languages it has been shown that object clitics are quite rare in early stages of acquisition although the omission rate is different among languages. Italian and French children have been found to omit object clitics much more frequently than Greek and Spanish children (Tsakali and Wexler, 2003). Haegeman (1996) reported the low occurrence and late emergence of object clitics in early Dutch and early French. In addition, even when there is no object omission, young children use non-clitic objects much more frequently than older children or adults. Moreover, Tsakali and Wexler (2003) noted that studies in various Germanic and Romance languages, e.g. French, Italian, Spanish, German and Dutch, have shown that young children

never misplace object clitics, and thus young learners are sensitive to the object pronouns' distributional constraints from very early on.

Furthermore, the developmental properties of object clitics observed in other language acquisition settings, as discussed above, are also found in the L1 acquisition of object clitics in Greek. Stephany's (1997) spontaneous data from four Greek monolingual children that were studied from age 1;10 to 2;10 (mean age) show that these children tended to omit object clitics during the early stages of acquisition. However, the omission rate of object clitics was significantly reduced as soon as they were around 2;4 years old, and by 2;10 the Greek children used object pronominal clitics very productively, as shown in the examples (83) and (84):

(83) To (v)lepi to(r)a. (1;10)
it-CL see-3SG now
'She can see it now.'

(84) Jati to anikses? (2;4)
why it-CL open-2SG
'Why did you open it?'

The same developmental pattern is attested in Tsimpli's (2003) spontaneous data from two Greek monolingual children (first child: 1;9-2;1 and second child: 1;11-2;2), that is, clitics were used productively from approximately the age of 2 years old. It was also observed that when clitics appeared the number of VO utterances with lexical objects tended to decrease in favour of pronominal clitic pronouns.

Marinis (2000) investigated a corpus with spontaneous data from one Greek monolingual child (age range 1;7 to 2;8). He found that object clitics were not present at all during the early stages of a acquisition but the child started using the direct object clitics productively and appropriately from the age of 2;1 and onwards.

The results from an elicitation study that aimed to elicit object clitics from 25 Greek monolingual children (age range 2;4 to 3;6) showed that object clitics were used appropriately by all the children and that there was a very low percentage of clitic omission (Tsakali and Wexler, 2003).

All the previous studies in Greek found no instances of clitic misplacement, i.e. object clitics appeared preverbally with verbs in the subjunctive and in the indicative and postverbally with verbs in the imperative and thus, Greek monolingual children have been found to obey the positional restrictions of the adult grammar from the earliest stages of clitic production and use. This finding is on a par with previous studies on the acquisition of clitics in L1 acquisition of Germanic and Romance languages which have also shown that there are no instances of clitic misplacement in children's earliest productions (Marinis 2000). Similar results have been reported for the acquisition of object clitics in Catalan, Spanish and Italian, in which clitics are also placed to the left of finite verbs, as exemplified in (85) from Italian:

(85) Lo voglio.
it-CL want-1SG
'I want it'

Specifically, young children acquiring these languages consistently place clitics in the correct position; they do not misplace them (Guasti, 1993/1994; Torrens, 1995).

3.6.2. The acquisition of object pronouns in L1 English

Young English-speaking children have been found to omit objects sporadically in the early acquisition stages even though English does not syntactically license object drop (O' Grady, 1997; Radford, 1990), as shown in the following examples taken from Radford (1990):

(86) Do__again. (1;10)

(87) Mommy open__ (1;10)

The empirical data indicate an asymmetry between subject drop and object drop, i.e. object drop is significantly less frequent than subject drop (Bloom, 1990; Gerken, 1991; Valian, 1991). Bloom (1990) studied three English monolingual children (Brown corpus) and he reported a sharp contrast between subject and object drop; the

relevant figures for each child regarding subject and object omission respectively were: 57% vs. 8%; 61% vs. 7% and, 43% vs. 15%. Similarly, Gerken (1991) tested 18 English-speaking children (age range 1;11-2;6) through an imitation task and she reported that children omitted subjects more often than objects, i.e. 19% vs. 0.3% respectively. Valian (1991) studied 21 young English learners (age range 1;10-2;8) and she also reported that even the youngest children (i.e. 1;10-2;2) used overt direct objects more than 90% of the time with obligatorily transitive verbs. The correspondent figure for the use of overt subjects was 69%.

One of the possible explanations for the subject-object asymmetry could be that objects and subjects are associated with a different information value. According to Bloom (1990) subjects are usually associated with old information while objects tend to express new information, and thus he argued that subjects may be more 'dispensable' than objects (but see Gerken, 1991 for a proposal regarding the possible relevance of prosodic factors to the asymmetry observed between subject drop and object drop).

Turning to the use of pronouns, English children have been found to use personal pronouns frequently and appropriately from the early developmental stages, although in some cases sporadic use of pronouns often precedes more systematic and frequent use. Additionally, given the pragmatic, semantic and morphological complexity of the pronoun system, confusions between different personal pronouns rarely occur and young learners seem to be aware of the pragmatic conditions each pronominal form is used and its syntactic distribution from early on (Chiat, 1986).

In particular, English learners have been shown to use pronoun NPs for the majority of their subjects from roughly the age of 2 years old (Valian, 1991). In addition, English-speaking children have been found to use pronouns anaphorically from the early stages of acquisition, that is, they used pronouns to refer to entities previously mentioned in discourse (Huxley, 1970), as illustrated in (88) and (89) (from Hickman, 2003):

(88) Cut it.

(89) He's a clever pilot, he can fly upside down.

Object pronouns have also been reported to be used productively and correctly in the appropriate pragmatic and syntactic contexts functioning as direct objects from the early stages of acquisition in English (Radford, 1990; O'Grady, 1997; Valian, 1991). Relevant examples are presented in (90) and (91) (from Radford, 1990):

(90) Paula put them. (1;6)

(91) Pinch him. (1;9)

However, sporadic errors have been noted and discussed in the literature. Although many English-speaking children seem to attain the case system from the early stages, i.e. they use nominative for subjects and accusative for objects, a number of young English learners have been found to go through an early stage in which nominative and accusative pronouns alternate with each other in subject position (Radford, 1990). The following examples (92) and (93) illustrate this point (both examples are taken from Radford, 1990):

(92) *Me* got bean. (1;5)

(93) *Her* do that. (1;8)

In contrast, the reverse error, i.e. nominative case to be used on direct object pronouns, as in *Paul saw *she*, is very rarely reported or even attested (Valian, 1991). In addition, accusative pronouns are also used for genitives, as illustrated in the examples presented in Radford (1990):

(94) Me eye. (1;8)

(95) Me dad. (2;0)

A possible explanation for the overextension of accusative pronouns is the fact that accusative is more widely used than either nominative or genitive, and thus it is more

salient or because accusative pronouns occur sentence-finally and as a result they are more phonetically salient (Tanz, 1974). Nevertheless, by the age of 3 most children have been shown to use the full range of personal pronouns in the appropriate pragmatic and syntactic contexts (Chiat, 1986).

3.7. The structure of *wh*-interrogatives

In English and Greek root and embedded *wh*-questions are derived by preposing a *wh*-word in front of the clause. In particular, the formation of matrix interrogative clauses in both languages involves the fronting of a *wh*-operator and obligatory raising of the auxiliary/verb to C, i.e. Subject-Aux/Verb Inversion, as shown in (96) below:

- (96) Ti ehi fai i Eleni?
what has-3SG eaten-3SG the Eleni-NOM
'What has Eleni eaten?'

As illustrated, the subject-auxiliary/verb inversion results in both languages in a root question in which the fronted *wh*-word and the verb are adjacent. Unlike in English, however, in Greek the configuration Wh Aux S V is not acceptable, as shown in (97):

- (97) *Ti ehi i Eleni fai?
what has-3SG the Eleni-NOM eaten-3SG
'What has Eleni eaten?'

As exemplified in (97), the adjacency between the *wh*-expression and the verb in Greek is obtained by placing the subject in a sentence final position (i.e. the subject cannot follow the auxiliary, unlike English).

Furthermore, Greek is different from English in that the verb or the auxiliary has to be obligatorily in C in embedded *wh*-questions as well. Specifically, in Greek there is a requirement for the auxiliary/verb to be adjacent to the *wh*-expression irrespective of whether the clause is a root or embedded interrogative (Panagiotidis and

Tsiplakou, 2003; Agouraki, 1990; Catsimali, 1990; Tsimpli, 1990, 1995).³⁸ In addition to this, no material (e.g. adverbs, subjects, objects) can intervene between the *wh*-word and the auxiliary/verb both in direct and embedded interrogatives, that is interrogative clauses in Greek do not allow the SV(O) order (Tsimpli, 1990). Restricting our attention to *wh*-embedded interrogatives, the acceptability contrast between (98a) and (98b) illustrates that the subject cannot appear in the preverbal position in Greek:

- (98) a. Den thimate [ti forese i Maria.]
 not remember-3SG [what wore-3SG the Maria-NOM]
 ‘He doesn’t remember what Maria wore.’
- b. *Den thimate [ti i Maria forese.]
 not remember-3SG [what the Maria- NOM wore-3SG]
 ‘He doesn’t remember what Maria wore.’

In contrast, there is no verb-raising requirement in embedded *wh*-interrogatives in English, and thus the subject appears in the preverbal position, as illustrated in (99):

- (99) a. He doesn’t remember [what Helen wore.]
 b. *He doesn’t remember [what wore Helen.]

The lack of verb-raising in English *wh*-embedded interrogatives is attributed to the absence of the Q (question) morpheme in the embedded *wh*-questions, arguably because the illocutionary force of an embedded clause is not that of a question (Panagiotidis and Tsiplakou, 2003; Rizzi, 1996, 1997). In particular, it is argued that the Q morpheme occupies the C position and it attracts the verb to C obligatorily, i.e. the Q morpheme is considered to be responsible for the obligatory auxiliary/verb raising in direct *wh*-questions in English and Greek respectively (Tsimpli, 1990). In addition, the feature [+wh] in C is responsible for the fronting of *wh*-words in direct and embedded *wh*-questions and the assumption is that auxiliary/verb raising and the

³⁸ The raising of the auxiliary/verb to C in *wh*-questions is also a well-established fact in Romance (Rizzi, 1996).

preposing of *wh*-words can occur independently of each other (Panagiotidis and Tsiplakou, 2003).

As a result, Tsimpli (1990) proposes that the difference between Greek and English (i.e. subject-Aux/Verb inversion is only evident in matrix *wh*-interrogatives in English) could be accounted for if it is assumed that the Q morpheme can be instantiated in both the root and embedded interrogatives in Greek, while in English it can be instantiated only in the matrix interrogatives. Thus, in matrix *wh*-interrogatives in English both the Q morpheme and [wh] feature are present, whereas in embedded *wh*-questions only the [wh] feature (the [wh] feature is assumed to mark the interrogative nature of the embedded clauses in English) is instantiated, therefore explaining the lack of auxiliary/verb movement to C (Tsimpli, 1990).

In the following section a number of studies regarding the L1 acquisition of *wh*-interrogatives in Greek and English respectively are discussed.

3.7.1. The acquisition of *wh*-interrogatives in L1 Greek

Children acquiring different languages such as Italian, Dutch and Swedish have been found to apply *wh*-movement and verb-raising to C appropriately in standard *wh*-questions from early on, i.e. in most early languages *wh*-questions are target consistent from the beginning (Guasti, 2002). Similar results have also been reported for early Greek but this is not the case for the young English learners who optionally produce some non-adultlike *wh*-questions as will be discussed below.

Young Greek learners have been found to use questions appropriately from the earliest stages. Stephany (1997) has reported that Greek-speaking children by 1;10 already use *yes-no* questions and *wh*-interrogatives. The order of acquisition of different *wh*-words is similar to the one that has been attested in English. Namely, the interrogative words *ti* 'what' and *pu* 'where' were very frequently used by all children at 1;10, while other *wh*-expressions, such as *pote* 'when', *pjos* 'who', *pos* 'how' appeared later. All children's direct *wh*-questions observed the adjacency requirement between the *wh*-word and the verb from the earliest acquisition stages.

Similar results were reported by Tsimpli (2003). In particular, the two Greek children used *wh*-interrogatives productively from the early acquisition stages and the most frequently used *wh*-expressions were *ti* 'what' and *pu* 'where'. The Greek

children consistently produced *wh*-initial direct questions in which the verb was adjacent to the *wh*-expression, as shown in the following examples (101) and (102) (from Tsimpli, 2003) and (103) (from Stephany, 1997):

(101) Ti foa i Elli? (2;0)

what wear-3SG the Elli-NOM

'What is Elli wearing?'

(102) Pu pai Atsia? (2;0)

where go-3SG Alexia-NOM

'Where is Alexia going?'

(103) Ti kani i thia? (1;10)

what do-3SG the aunt-NOM

'What is aunt doing?'

The previous examples present *wh*-interrogatives with overt subjects. As illustrated in the examples, the children produced *wh*-questions in which the subject did not intervene between the verb and the *wh*-word and it appropriately appeared in the postverbal position.

In addition, Guasti (2002) reported similar results from L1 Italian, another language that exhibits obligatory verb-raising to C in *wh*-interrogatives. Five Italian learners (age range 1;7-2;10) were found to use *wh*-questions with overt subjects appropriately, that is, the Italian children never produced ungrammatical structures in which the subject was placed between the *wh*-word and the verb. Investigation of early V2 languages, e.g. German and Swedish, has also yielded similar results, that is, children apply subject-auxiliary/verb inversion in questions from early on (Guasti, 2002).

To the best of our knowledge, there are no studies available in the acquisition literature regarding the acquisition of *wh*-embedded interrogatives in early Greek. However, Tsimpli (p.c.) investigated the naturalistic data from two Greek-speaking children after the age of 2;6 and she observed that *wh*-embedded interrogatives were

used appropriately without exhibiting any word order errors. Thus, the Greek children seem to be aware of the obligatory verb-raising requirement to C in both the *wh*-root and embedded interrogative from early on.

3.7.2. The acquisition of *wh*-interrogatives in L1 English

Children's first *wh*-words in early *wh*-questions in English and other languages, e.g. Korean are usually 'where' and 'what' although they seem to understand only 'where' in the beginning. The early emergence of *what*- and *where*-questions could be due to their frequent occurrence in child directed speech (O'Grady, 1997).

In the initial stage, young English learners produce *wh*-questions with auxiliaries and *wh*-questions without auxiliaries. As soon as English children start to use auxiliary verbs productively in questions they generally perform subject/auxiliary inversion. Inversion in *wh*-questions is argued to emerge first in *where*- and *what*-questions and later in *when*-, *who*-, *why*- and *how*-questions (Kuczaj and Brannick, 1979).

Although several studies have shown that English children move the auxiliary to C in the *wh*-questions from the beginning, they are not always consistent, unlike what studies have shown about German, Italian and Swedish learners. Thus, the young English learners optionally produce ungrammatical *wh*-questions in which subject/auxiliary inversion has not taken place (Guasti, 2002). An example of an uninverted *wh*-question is shown in (104) (from Klima and Bellugi, 1966):

(104) What he *can* ride in? (MLU 2.75-3.5)

Although research has shown optional failure to perform the subject/auxiliary inversion in early English, it cannot be concluded that the children are not aware of the verb-raising requirement to C (Guasti, 2002). Specifically, Guasti (2002) argued that the fact that English distinguishes between two classes of verbs, i.e. auxiliaries that can raise to I and to C and lexical verbs, which cannot, may be responsible for the English learners' early non-adultlike *wh*-questions. Namely, although the young English children distinguish these classes of verbs early on and never raise lexical

verbs to I, learning the properties of auxiliaries may be problematic, and hence causing further difficulties in forming questions correctly.

Turning to embedded interrogatives, embedded clauses in general are not frequently used in young English children's utterances until after the age of 2;5 (Valian, 1991). In particular, young English learners produce relatively few embedded interrogatives but when they do, they use them appropriately most of the time.

Diessel (2004) investigated naturalistic data from 5 English speaking children aged 1;8-5;1. Up to the age of 2;0 embedded clauses were very infrequent in general but until the age of 5;0 the proportion of embedded clauses increased steadily reaching an average level of 14.3 per cent at the age of 4;0. *Wh*-embedded interrogatives were found to emerge at the mean age of 2;7. The *wh*-embedded interrogatives were shown to be used appropriately in the majority of the contexts, as shown in (105), (106) and (107) below:

(105) I wonder [what a whale fish is.] (3;8)

(106) Look [what I made.] (3;9)

(107) I wonder [what that noise is.] (3;8)

In addition, most *what*-embedded interrogatives were found to occur with formulaic matrix clauses, notably '*I don't know*', '*I know*', and '*I wonder*'. However, according to Diessel (pc) in a few cases the children were found to make auxiliary inversion errors in *wh*-embedded interrogatives. In the same vein, other researchers have also noted that young English-speaking children make sporadic auxiliary inversion errors in embedded clauses similarly to what they do in root questions. Specifically, children from age 2 to 4 incorrectly applied inversion to a very small proportion (10%) of embedded questions, as shown in (108) and (109) (from Déprez and Pierce, 1993):

(108) I don't know [what is his name.]

(109) I don't know [who is that.]

Furthermore, it is worth noting that from the earliest acquisition stages inversion is manifested only with verbs that can do so in adult speech and thus, non-auxiliary verbs are never inverted (Pinker, 1984; O'Grady, 1997).

After having outlined the main morphosyntactic differences between English and Greek with respect to the structures under investigation, we will present the hypothesis and predictions of the current study in the subsequent section.

3.8. Hypothesis and predictions

The use of subjects, i.e. null and overt subject pronouns, preverbal and postverbal subjects, in Greek, in the discourse contexts investigated, is predicted to be an area vulnerable to crosslinguistic effects from English, in English-Greek bilingual acquisition since these constructions satisfy the two conditions that have been proposed for crosslinguistic influence to occur: i) their distribution is regulated by discourse-pragmatic principles, and thus their use involves the syntax-pragmatic interface; and ii) there is an overlap between the two languages at the surface level regarding these structures, i.e. Greek allows for both null and overt subjects and English provides extensive positive evidence for the overt subject option. In the same vein, Greek allows for both preverbal and postverbal subjects, but English reinforces the preverbal subject option.

As was mentioned above, pronominal choice and subject placement in different discourse contexts in Greek is argued to involve the syntax-pragmatics interface on the basis that these options are syntactically licensed but their distribution is regulated by discourse-pragmatic factors in relevant contexts (e.g. focus/topic contexts). Although the syntax-pragmatics interface is still not well understood, in a more general sense, a structure is considered to involve the syntax-pragmatics interface when it requires the integration of both syntactic and discourse-pragmatic knowledge (e.g. Avrutin, 1999; Serratrice et al., 2004; Serratrice, 2005; Sorace, 2005, 2006). The syntax-pragmatics interface is the domain where effects are manifested in terms of preferences of contextual appropriateness and not in terms of categorical judgements (as in syntax proper structures). Therefore, errors in this

domain do not give rise to strong ungrammaticality, and native speakers' intuitions are best treated as preferences, rather than categorical judgements (see Sorace, 2005).

Although the discourse function of focalisation interacts with subject placement in Greek (as was shown in section 3.5), there are also cases where the interpretative difference between preverbal and postverbal subjects is not found: for example, when postverbal subjects are used in purely syntactic contexts, as in *what*-embedded interrogatives, subject placement is conditioned by syntactic factors alone (i.e. syntax proper); this is not the case, however, with regard to pronominal choice since the distribution of null and overt subject pronouns is always conditioned by discourse-pragmatic conditions regardless of the clause in which they appear.

Thus, a question that might arise in this respect is whether the choice of pronominal subjects and subject placement equally exemplify the syntax-pragmatics interface. While a proper treatment of this question is complex and falls outside the scope of this study, for the purposes of the present thesis, it suffices to say that although both phenomena can be associated with interpretative effects, it is possible to suggest that they exemplify the syntax-pragmatics interface in different degrees. In other words, subject placement seems to be subject to syntax proper factors and the syntax-pragmatics interface, whereas the use of null and overt subject pronouns (pragmatic option) is most probably related to the syntax-pragmatics interface alone.³⁹ Nevertheless, for the purposes of the present thesis, subject placement, at least with respect to focus/topic contexts, is considered to be a syntax-pragmatics interface phenomenon in as much as different discourse-pragmatic conversational exchanges may yield preverbal or postverbal subjects in such contexts (see also Belletti and Leonini, 2004 and Serratrice, 2006, for similar claims in Italian).

Turning now to the study's hypothesis and its predictions, as discussed in the previous sections, null subject pronouns are obligatory in [-topic-shift] contexts in Greek, whereas overt subject pronouns always signal [+topic shift]. In contrast, overt

³⁹ Further differentiations can also be made in terms of whether the choices governed by interface conditions are at the lexical level, as in the case of subject pronouns, or at the word order level, as in the case of subject placement. More research is certainly needed to address the nature of interfaces, the potential differences among types of interface as well as to explore the full impact of these differentiations on language development. Nonetheless, recent research has begun to differentiate among interfaces in terms of the nature of the extra-syntactic constraints that are assumed to interact with the syntax and the type of developmental problems that they pose (see Tsimpli and Sorace, 2006 for a brief discussion of these issues).

subject pronouns are prevalent in English and they are not necessarily discourse-marked as shifted topics, as in Greek, i.e. they are used regardless of [\pm topic shift]. The prediction is that the absence of a [\pm topic shift] constraint in the distribution of overt subject pronouns in English may affect the distribution of overt subject pronouns in Greek in [-topic shift] contexts, in which null subjects are appropriate to be used. Specifically, if there is crosslinguistic influence from English to Greek, the bilingual children should use pragmatically inappropriate overt subject pronouns as coreferential with a subject antecedent, i.e. in [-topic-shift] contexts, significantly more often than the Greek monolinguals, as has been found in other studies (e.g. Serratrice, 2005).

Similarly, in English focus is mainly expressed by phonological means, while in Greek focus interacts with word order, e.g. postverbal subjects are pragmatically appropriate in wide-focus contexts. Thus, the prediction is that the more rigid SV(O) word order of English, where subjects appear in preverbal position regardless of the nature of the focus context, might affect the distribution of subjects in wide-focus contexts in Greek, so that the use of preverbal subjects will be inappropriately overextended to wide-focus contexts. In other words, 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 would be the felicitous option.

In essence, the hypothesis predicts that when the choice of a morphosyntactic option (e.g. overt subjects, preverbal subjects) is constrained by discourse-pragmatic factors in language A, but it is not a constrained option in the same sense in language B, crosslinguistic influence is likely to occur from language B to language A. In that case, the outcome will be a weakening of the application of the discourse-pragmatic constraints in language A, and thus the option that overlaps across the two languages is predicted to appear in discourse-pragmatically infelicitous contexts (as has been shown in Serratrice et al. 2004; Serratrice, 2005, among others).

However, the use of *what*-embedded interrogatives with a subject and object pronouns in declaratives is relevant to syntax proper, and not to the interface between syntax and pragmatics. As a result, these structures are not considered to be vulnerable to crosslinguistic influence. Therefore, the bilinguals are expected to

place the object pronouns appropriately in each language, i.e. preverbally in Greek and postverbally in English. The bilinguals are also predicted to use subjects appropriately in *what*-embedded interrogatives, namely they should use preverbal subjects in *what*-embedded interrogatives in English (i.e. the verb does not raise to C) and postverbal subjects in Greek (i.e. the verb raises to C).

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 purely syntactic structures in both the English-dominant and the Greek-dominant bilingual groups.

3.9. Chapter summary

Non-null-subject languages like English do not allow null pronominal subjects in finite clauses (null subjects are permitted in certain contexts) and null-subject languages such as Greek permit null pronominal subjects in finite clauses.

Furthermore, when null subjects are available in a language, null and overt subject pronouns are not in free variation, they have different semantic properties and their distribution is constrained by discourse-pragmatic conditions. Overt Subject pronouns are obligatorily marked as [+topic shift] since their use signals a topic shift, and therefore they cannot corefer with a topic antecedent. In contrast, there is no such constraint in English, and hence overt subject pronouns can be coreferential with a topic antecedent.

Even the youngest children acquiring either a null subject or a non-null-subject language seem to realise from early on whether their respective languages allow null subjects or not and they omit subjects at different rates. In addition, children have been shown to be sensitive to the frequencies of overt subjects in the target languages, that is, in each language, children's subject use looks very much like their adult input by the third year.

Moreover, several studies have demonstrated that young children acquiring null-subject languages are aware of the discourse-pragmatic factors that regulate the null and overt subjects' distribution. In particular, Greek children have been shown not to use null and overt subjects randomly. Rather, they use null and overt subjects in

order to encode specific discourse functions found in the target language (e.g. focalisation, the distinction between new and old information).

Postverbal subjects are another property traditionally related to the availability of null subjects. English allows postverbal subjects too but in restricted syntactic contexts. Turning to Greek, the choice between preverbal and postverbal subjects depends on various factors but for the purposes of this summary it suffices to refer to the discourse factors mentioned above, i.e. the discourse function of focalisation. Young Greek and English children seem to be very sensitive to both the linear arrangement of constituents in their respective languages and the means that each language employs for encoding subtle pragmatic distinctions such as focus.

With respect to object pronouns, the main difference between the two languages is that pronominal objects are realised in Greek as object clitics that appear preverbally in non-imperative contexts, whereas in English the correspondent unstressed object pronouns appear postverbally. Young Greek children have been shown to use object clitics productively and appropriately from early on although they seem to go through initially a stage in which they omit pronominal object clitics. Similarly the young English children have been found to omit objects occasionally during the early stages but by the age of 3 they use object pronouns in the appropriate syntactic and pragmatic contexts. Nevertheless, young English learners have been found to make sporadic errors with respect to the distribution of object pronouns, namely, they overgeneralise the use of object pronouns to inappropriate contexts.

In both English and Greek direct *wh*-questions, the *wh*-word occurs in front of the clause and the verb has to be adjacent to it. Conversely, with respect to the structure of *what*-embedded interrogatives, in English there is no verb-raising requirement and the subjects appear preverbally, i.e. adjacent to the *wh*-word, whereas in Greek the verb raises to C obligatorily and as a result the subjects occur at the postverbal position, i.e. subjects are sentence final. Young Greek and English learners have been shown to use from early on *wh*-interrogatives consistently most of the time. However, the young English learners optionally produce ungrammatical root *wh*-questions, in which subject/auxiliary inversion has not taken place and they also occasionally extend inversion to *wh*-embedded interrogatives with auxiliaries. In this

chapter, we also outlined the hypothesis and predictions of the present study. The following chapter discusses the methods and materials used in the current study.

CHAPTER 4

Methodology

4.1. Introduction

The empirical data presented in this thesis come from two groups of English-Greek bilingual children, two groups of Greek and English monolingual peers, and two groups of adult monolingual controls in both languages. In this chapter we will describe the criteria and process of the participants' recruitment. The bilingual participants of this study were required to be exposed to both languages on a regular basis from birth. Detailed information is provided on the patterns of exposure they had to the two languages and the quantity of input they obtained in Greek and English up to the time of testing. We will also discuss the design of the present study, the experimental tasks used and the procedure followed during the data collection. Moreover, we will also describe the coding and data analysis process adopted for this study's data.

4.2. Design of the study

The main aim of the present study was to explore whether crosslinguistic influence occurs from English to Greek in the grammar of eight-year-old English-Greek bilinguals well after the instantiation of the C-domain, at a stage when children should be aware of the syntactic constraints operating in their languages. We were interested to establish whether syntax-pragmatics interface structures would be more vulnerable to crosslinguistic effects than purely syntactic structures. We also wanted to explore the role of language dominance in crosslinguistic influence, and thus English-dominant and Greek-dominant Greek-English bilinguals were tested.

The vast majority of the studies that have considered the issue of crosslinguistic influence in different bilingual contexts have looked at spontaneous production data. In the present study however, experimental tasks were employed. More precisely, elicited production and acceptability judgement tasks were used for each structure in order to obtain a more complete picture of the children's linguistic competence

regarding the grammatical domains under consideration in both their languages.

Although spontaneous data can be very informative in terms of investigating the actual production and use of certain linguistic structures, experimental data shows what children are able to do, and contribute to obtaining a more comprehensive picture of linguistic competence at a given point in time.

Another disadvantage of using naturalistic data is that the researcher cannot control the contexts in which a certain structure will appear. This issue is even more problematic in the case of structures that are not very frequent in the input data in general and the researcher may therefore end up with a corpus in which very few or no instances of the structures of interest are present.

The elicited production and acceptability judgement tasks along with the materials were piloted with Greek and English monolingual adults and children (four Greek and four English adults; four Greek and three English monolingual children, approximately eight years of age) before the actual testing in order to establish their validity and suitability, as well as to decide what the optimal number of items was. Subsequently, based on the pilot's outcomes, necessary adjustments were made. The data obtained from all tasks were compared with the data from both monolingual Greek and English adults and children age-matched to the bilinguals.

The elicited production and acceptability judgement tasks were run on a PC portable computer with a 12" screen so that: a) all tasks would be presented in the same way; b) there would be minimal intervention on behalf of the experimenter; and c) the testing of all the participants in both the UK and Athens (Greece) would be facilitated.

In the elicited production task, the participants were shown in PowerPoint a series of pictures that were followed by a question based on the characters and the events presented in each picture. The questions' aim was to elicit the structures of interest. After hearing each question all participants provided an oral response that was recorded. Each task for every single structure consisted of six experimental and three filler items.

The forced-choice acceptability judgement task was based on a puppets' show presented in the form of MPEG videos. In all cases, apart from the *what*-embedded interrogatives, in each video two hand puppets were asked a question (by a native

speaker of Greek/English who was present) to which they both replied. In the case of *what*-embedded interrogatives, however, the puppets were not asked a question. In every test item each of the puppets used one sentence that included a *what*-embedded interrogative with a subject. After hearing each test item the participants pointed at the puppet that produced the most appropriate answer to the question or said the most appropriate sentence in the case of *what*-embedded interrogatives with a subject in either language. Each task included six experimental and three filler items.

4.3. Participants

Two groups of thirty-two English-Greek bilingual children were tested. In particular, sixteen of them were Greek-dominant bilinguals born and brought up in Greece (age range: 7;5-9;4; mean age:8;2) and the remaining sixteen were English-dominant bilinguals born and brought up in the UK (age range: 7;5-9;5; mean age: 8;1). Fifteen Greek monolingual children living in Athens (age range: 7;5-9;7; mean age: 8;1 years) and fifteen English monolingual children living in the UK (age range: 7;5-9;6; mean age: 8 years) were also tested. In addition, two monolingual adult groups were also tested, i.e. a group of thirteen English monolingual speakers, between the age of 22-25 (mean age: 24 years) and a group of fifteen Greek monolingual speakers, between the age of 22-26 (mean age: 24 years) (see Appendix IV for more details on the biographical data of the individual participants). Furthermore, the bilingual children's parents were asked to complete a short questionnaire as a part of the screening process. In this way we obtained a more comprehensive picture of the parents' linguistic profile, the bilinguals' input history, the children's sources of input in English and Greek, the quantity of input the bilinguals were receiving at the time of testing and the pattern of language use in the family (see Appendix III).

4.4. Determination of language dominance

As discussed in chapter 1, the amount of input the bilinguals receive in each language in various social contexts and situations in their daily life has been found to play a major role in determining language dominance. For the purposes of this study, in order to determine the bilingual children's dominant language, it was necessary to

quantify the amount of exposure the bilinguals had to each language on a roughly daily basis. For this reason the parents were asked (in the questionnaire) to estimate their child's usual overall exposure to each language on a regular basis in various settings, e.g. at school, at home, social gatherings, other activities etc. In other words, the parents were asked to provide a proportion that represented the overall amount of input obtained by their child in each language on a roughly daily basis.

In all cases the parents estimated that their children were exposed more to the community language (Greek or English) in most of the bilinguals' regular activities in various circumstances. As a result, the bilinguals' dominant language was considered to be the language of greatest exposure in the bilinguals' daily interactions, i.e. the Greek-dominant bilinguals in Greece generally received more input in Greek and the English-dominant bilinguals in Britain obtained more input in English. This was not surprising since it has also been noted in the literature that the bilingual children's dominant language is often the community language (e.g. Döpke, 1992; Schlyter, 1993). After all, all the English-Greek bilinguals were students at schools where the language of instruction was Greek or English, respectively, and hence their friends were mostly Greek and English monolinguals, therefore their daily interactions and activities in general would be mainly in the community language.

An interesting question with regard to language dominance in bilingual children is the difference between this notion and that of incomplete L1 acquisition. Many simultaneous bilinguals exhibit loss or incomplete acquisition of their heritage language under conditions of intense exposure and use of the majority language (Montrul, 2002, 2004; Toribio, 2001). These simultaneous bilinguals, however, have most often been found to be second- and third-generation bilinguals (usually born to first-generation immigrants in the host country), and who were exposed to the majority and family language simultaneously since birth or very early in childhood.

As Montrul (2004) discusses, some of these speakers might have used to be fluent speakers of their family language while being young children and they subsequently lost skill once they started school in the societal language. There is also the possibility that others may have failed to attain full competence in their family language in a very young age perhaps because they started to use the majority

language more frequently early in life. Others might have only developed passive abilities in their family language, without ever speaking much of it, and later made some efforts to develop some productive skills as adults. In yet other cases, some individuals might have even be exposed from the onset of acquisition to flawed and deficient input from their parents, especially if these are second language learners of the family language or bilinguals who also probably underwent some kind of language loss. Therefore depending on their personal family situation and their linguistic background, the ultimate attainment of these speakers in their family language is variable when they become adults; Montrul (2002; 2004) refers to these bilinguals as ‘incomplete learners’.

It is important to note that if the simultaneous bilinguals of this study show divergence in Greek or English competence from the Greek or English monolingual speakers, this divergence could not be attributed to the children’s reduced exposure to the minority language, and hence to incomplete acquisition. In other words, on the basis of the typical characteristics of bilingual speakers who can be considered ‘incomplete learners’ (e.g. the descendants of first-generation Spanish immigrants in the US studied by Montrul, 2004), the English- or Greek-dominant (in terms of the amount of input they receive in the majority language) bilingual children of this study could not be considered cases of incomplete acquisition of either minority language.

One can assume that incomplete acquirers are exposed to input that it is not only quantitatively seriously reduced or possibly interrupted for some period, but also qualitatively different from the input received by monolinguals, and that it does not include (sufficient) evidence for certain structures (e.g. Montrul, 2002). However, this is not the case with the bilinguals of the present study: the parents of these bilingual children are native speakers of Greek or English who use and hear their native language very often, i.e. they interact regularly with monolingual speakers from their countries and they visit their home countries at least twice a year, therefore it is unlikely that they provide their bilingual children with qualitatively different input from what the monolinguals receive. Furthermore, although the bilinguals receive in total less input in Greek or in English respectively, they have always been continuously exposed to a substantial amount of Greek or English input

in a variety of societal contexts and through different means (i.e. books, music, TV programmes, movies, etc.), they travel two-three times a year to Greece or the UK, they take language lessons in Greek/English every week and they also use both languages regularly in different social environments/situations with various monolingual speakers of either language.

4.5. English-Greek bilingual children

In order to treat the English-Greek bilinguals as a single group, the following selection criteria were set: a) The children should be between 7;5-9;6 years old; b) They should not have had any hearing disability or language disorder; c) They should have been regularly exposed to Greek and English exclusively from birth and up to the time of testing; d) Although the bilinguals should be comparatively fluent in both languages, the suitable participants in the UK should be dominant in English and the suitable bilingual subjects in Greece should be dominant in Greek, in the sense that they should have more exposure to English and Greek, respectively; e) The Greek-dominant and English-dominant bilinguals should have been born and brought up in Greece and the UK respectively; f) One parent should be a native speaker of English and the other parent a native speaker of Greek. In the case of the English-dominant bilingual children it was decided to consider also bilinguals whose parents were both Greeks (this issue is discussed below); and g) The parents should not be simultaneous bilinguals themselves and they should be first generation Greeks or English in the UK and Greece, respectively. Moreover, for methodological reasons English-Greek bilinguals whose parent(s) (either one or both) were Cypriot Greek(s) could not be included in the study because Cypriot Greek is different from standard Greek in some respects, e.g. in contrast to standard Greek, object pronominal clitics must follow the finite verb in various syntactic contexts (Terzi, 1999; Petinou and Terzi, 2002).

As discussed earlier, it was decided that English-dominant bilinguals, whose parents were both Greeks, could also participate in the study. This decision was primarily triggered by the fact that it was very difficult to locate a sufficient number of bilingual children with one English-speaking parent and one Greek-speaking

parent. Furthermore, we knew of English-Greek bilingual children in the UK whose parents were both Greeks and despite this fact they had more exposure to English overall, i.e. English was their dominant language, since their daily social interactions were mainly in the community language, i.e. English. Several such bilinguals were therefore located, and the next step was to thoroughly examine their linguistic background and their pattern of exposure to both languages from birth up until the time of testing. As long as the study's selection criteria were matched there was no reason not to include these bilinguals in the study as well.

It is worth mentioning that all the bilingual children's parents had a very positive attitude regarding their children's bilingual upbringing and they also reported that they were very committed in conveying this attitude to their children. When we approached the bilingual children's parents about their children's possible participation in the study, they all expressed a keen interest in the study and offered their help and support enthusiastically.

4.5.1. English-dominant bilinguals in the UK

With respect to the English-dominant bilinguals, thirty-five English-Greek bilingual children were located in total but the screening process resulted in the recruitment of sixteen bilingual participants who matched the study's selection criteria.

The participants were recruited through various Hellenic Schools in the UK, in which the bilinguals attended Modern Greek classes. More specifically, six English-Greek bilinguals were students at the Hellenic school of Edinburgh, one bilingual was attending the Hellenic school of Glasgow, three bilinguals were from the Hellenic school of Cambridge, three more bilinguals were from the Hellenic school of Oxford, and the remaining three bilinguals attended the Hellenic school of South London.

Five English-Greek bilinguals were excluded because they had been exposed to languages other than Greek and English; six bilinguals were excluded because they had not been exposed to Greek from birth; four were not selected because one or both of the parents were simultaneous bilinguals themselves; and four were not recruited because they had been born and lived for some time in a non-English-speaking country.

Regarding the English-dominant bilinguals' families, for six of the bilinguals the father was the Greek speaker and the mother was the English speaker. For four of the bilinguals the mother was the Greek speaker and the father was the English speaker. Four of the bilinguals whose mother was the Greek speaker are siblings (two and two) and they had the same pattern of exposure to both languages from birth. Additionally, for five English-dominant bilinguals both parents were native speakers of Greek, and one bilingual had a single mother, a native speaker of Greek, at the time of testing.

With respect to the bilinguals with the Greek parents and the bilingual with the Greek single mother, it was interesting to find that their exposure to English was more extensive than their exposure to Greek, that is, English was their dominant language. This is not surprising, however, if one considers that these bilinguals were living and interacting in an English-dominant social environment in general.⁴⁰

The English-dominant bilinguals were regularly exposed to both languages from birth and up to the time of testing. All bilinguals had English-speaking childminders from an early age and they also started attending nursery schools around the age of 2-3. They attended British state/public primary schools and their region's Hellenic school for 2-3 hours a week, either in the afternoon during weekdays or at the weekends. The English-dominant bilinguals visited their relatives and friends in Greece at least once a year, spending on average 6-8 weeks in total there, and their Greek relatives/grandparents/friends also spent some time with them every year in the UK.

The Greek-speaking fathers of the bilinguals used mainly Greek with them and English occasionally, while their mothers addressed them in English. The children in turn used both languages with their fathers and English with their mothers except for one bilingual who used some Greek with her English monolingual mother.

The Greek-speaking mothers of the bilinguals addressed them mostly in Greek but in English as well especially when discussing school related matters. Their English-speaking fathers used only English with the children. All English-speaking parents

⁴⁰According to the parents' information, even during their preschool years, these bilinguals spent approximately 60% of their waking time in an English-speaking environment: either with English-speaking caregivers at home or at nursery schools in which English was the language of instruction.

had a basic knowledge of Greek (i.e. they could understand everyday simple conversations without being able to participate much in them).

The bilinguals with the Greek parents were mostly addressed in Greek but English was also frequently used, e.g. when reading English books, dealing with homework, sports and when English monolinguals visitors were present. The children used mainly Greek with their parents for casual daily conversation but they used English when discussing, for instance, homework, various outdoor activities and music or sports classes. The bilingual child with the single Greek mother was addressed by his parent mainly in Greek, but in English as well, and the child in turn mirrored the parental input.

In all cases, when Greek or English monolingual speakers were present the family would tend to use mainly the speakers' language. All the children had books and audio-visual material in both languages and they socialised mainly with English-speaking peers. According to the parental estimates, the bilinguals spent on average 70% of their time in a monolingual English-speaking environment and 30% in a monolingual Greek-speaking environment during the period of data collection.

4.5.2. Greek-dominant bilinguals in Greece

Thirty English-Greek bilingual children were located in Athens but only sixteen of them matched the study's selection criteria. These bilingual participants were recruited through a British mothers' play/meeting group in Athens.

Four of the bilinguals were not selected because they had been exposed to other languages in addition to Greek and English; three bilinguals were excluded because they had not been exposed to English from birth; four were not included because one of the parents had been exposed to two languages from birth; and three were not recruited because they had been born and lived in another country for some time.

All the Greek-dominant bilinguals had a father who was a native speaker of Greek and a mother who was a native speaker of English. The bilinguals had regular exposure to both Greek and English from birth and they visited their relatives in the UK at least once a year, spending approximately 6-8 weeks in total. Their English-speaking relatives/grandparents/friends also visited the family in Greece every year. Furthermore, the children had books and audio-visual material (e.g. movies,

cartoons) in both languages and they socialised predominantly with Greek monolingual children. All bilinguals had Greek-speaking childminders from an early age and at the age of 3-4 started attending Greek nursery schools (Ten of the bilinguals were also attending occasionally English-speaking playgroups until the age of 3-4 approximately). The Greek-dominant bilinguals attended Greek state primary schools in which they were taking classes in English for 2-3 hours a week.

The Greek-speaking fathers addressed the children in Greek, while the English-speaking mothers used English most of the time and Greek occasionally. Both parents had a fairly good knowledge of each other's language and when English or Greek monolingual visitors were present they tended to use the visitors' language. The children used Greek with their fathers and English with their mothers, although they tended to address their mothers in Greek when discussing school-related issues and a number of activities, e.g. sports, music classes. According to parental estimates, during the period of data collection the bilinguals spent on average 68% of their time in a monolingual Greek-speaking environment and 32% in a monolingual English-speaking environment.

4.6. The Greek and English monolingual children and adults

The monolingual children were all age-matched to the bilinguals and fulfilled the study's selection criteria, which were the following: a) The child should be between 7-9;6 years old; b) The Greek and English monolinguals should have been born and have always lived in Greece and the UK respectively; c) They should not have had any hearing disability or language disorder; d) Both of the children's parents should be native speakers of Greek and English respectively; and e) the child should not have been exposed to any other language than English or Greek respectively.

The Greek and English monolingual children were recruited among acquaintances of the researcher in Athens and the UK and they were all students at Greek and British state/public primary schools, respectively.

The selection criteria for the Greek and English monolingual adult control groups were the following: a) The Greek and English monolinguals should have been born and have always lived in Greece and the UK respectively; b) They should not have had any hearing disability or language disorder; c) Both monolingual participants'

parents should be native speakers of Greek and English, respectively; d) If the participants were students, they should not be majors in Linguistics or any related subject; e) The English and Greek monolingual adults should have never been regularly exposed to Greek or English respectively, in the sense that they had never lived or worked in a Greek or English-speaking country or used Greek or English consistently during their studies. The English and Greek adult participants were all undergraduate and postgraduate students at the University of Edinburgh and University of Athens respectively.

4.7. General comments on the experimental procedure

In the case of bilingual children, the experimental session in Greek was administered first with eight participants in each bilingual group and the English part was run first with the remaining eight bilingual children. The experimental session in each language lasted 30-35 minutes and thus, when the bilingual children were tested, the next session began an hour later so that the participants had some time to relax between the different language sessions.

All children, bilinguals and monolinguals were tested at home individually. The testing took place in a quiet room, in which children would feel comfortable and relaxed, and thus able to focus on the tasks. The Greek adults were also tested at home, whereas ten of the English adults were tested at their place of residence and five in the Linguistics' department lab. In all cases, appropriate arrangements were made in order for the place of testing to be very quiet, without possible distractions so that the subjects would be concentrated on the tasks. All participants were tested by the researcher herself and at the day of testing, the children's parents and the adult participants were asked to sign a consent form relevant to the study.

4.8. Elicited production task

4.8.1. Materials

A number of pictures were used for the elicitation of the relevant structures in this task. The pictures were found in several picture and story books for young children. The selected pictures were scanned in order for them to be uniformly black and white without any other colours that could distract the participants. Then the pictures were inserted into PowerPoint.

The questions that followed the experimental pictures during the production task were read in Greek by the researcher (native speaker of Greek) and in English by a female native speaker of English. Both readers read the relevant material clearly and at a normal speaking pace. The questions were recorded in the Linguistics' Studio Lab with the assistance of two technicians, specialists in audio recordings. The recordings were saved as audio files which were subsequently added to the appropriate pictures in PowerPoint.

The items included in this task were designed to elicit the production of the structures under consideration in both Greek and English. We had initially prepared eight experimental items and four filler items but the pilot results indicated that the experiment was too long and tiring. The problem was greater for the bilingual children who were tested in both languages, and thus the number of test and filler items was reduced. In particular, each of the elicited production tasks included six test items and three filler items. The questions in the filler items had a similar format to the ones in the actual experimental items but they were designed to elicit responses that were irrelevant to the constructions tested by the experimental items.

For each test item the participants were shown on the computer screen one picture that depicted one or more animate characters, who, in most of the pictures, were involved in a particular event. The participants subsequently heard a question based on the pictures' character(s) and the activity shown in the picture. The materials used for the individual structures are described in the following sections (see Appendix I for a detailed presentation of the materials in both languages).

4.8.1.1. Null and overt subject pronouns

The test items were designed to elicit the production of null subject pronouns, the felicitous option in Greek, and the production of overt subject pronouns, the appropriate option in English, in a specific pragmatic context, i.e. [-topic shift] context, in subordinate clauses. For each test item the picture showed a human character being engaged in a certain activity. The character's name was initially introduced, followed by the question that was relevant to the person's action depicted in the picture. A felicitous answer involved the use of a null subject pronoun coreferential with the prominent topic antecedent in Greek, i.e. the name of the picture's character, mentioned in the question. The appropriate answer in English required the use of an overt subject pronoun referring also to the subject antecedent, as shown in (110):

(110) Introduction: I gineka lejete Eleni.

'The woman is called Eleni.'

Question: Jati pije i Eleni_j sto periptero?

'Why did Eleni_j go to the kiosk?'

Expected answer: Epidi *pro_j* ithele na agorasi efimerida.

because wanted-3SG to buy-3SG newspaper-ACC

'Because she_j wanted to buy a newspaper.'

As shown in the previous example, the experimental items were formed by two independent clauses, a declarative and a direct question. The aim of the first clause was to introduce the character's name. The direct question was introduced with '*why / jati*' and it consisted of a definite subject NP (the character's name), an intransitive verb in the past tense ('*went / pije*', [2 times], '*ran / etrekse*') in three of the items and a transitive verb also in the past tense ('*let off / afise*', '*put / evale*', '*pick up / pire*') followed by an object NP in the other three items (in English obviously the verbs had the past tense's interrogative form). In addition, a prepositional phrase, referring to the place where the action took place, followed the intransitive verbs in two of the test items. The participants were instructed to begin their answers with a

subordinate clause using *'because / epidi'* in order to examine the use of null and overt subject pronouns in this context in both languages.

4.8.1.2. Preverbal and postverbal subjects

The test items were designed to set a wide-focus context and thus, to elicit postverbal subjects, the felicitous option in Greek and preverbal subjects, the appropriate option in English. The pictures presented an interaction between two animate characters. The names of the two characters were introduced and then a wide-focus question, which was relevant to the interaction depicted in the picture, followed. A felicitous answer in the wide-focus question involved the use of postverbal subjects in Greek and preverbal subjects in English, as illustrated in (111):

(111) Introduction: To koritsi lejete Maria kai to agori Janis.

'The girl is called Maria and the boy Janis.'

Question: Ti ejine i mpala tis Marias?

'What happened to Maria's ball?'

Expected answer: Tin pire o Janis.

her-CL took-3SG the Janis-NOM

'Janis took it.'

As shown in the example above, the experimental items consisted of two clauses, a declarative and a direct question. The first clause introduced the characters' names. The second clause was the direct question that was introduced by *'what / ti'* and it always included the same intransitive verb *'happened / ejine'*, and the verb was followed by a possessive construction in both languages. In Greek the possessive construction consisted of a subject NP, i.e. the possessum, and a possessive noun phrase, i.e. the possessor.⁴¹ In English, the possessive noun, i.e. the possessor, was followed by another noun, i.e. the possessum.

⁴¹ The possessive construction in Greek involves morphological marking on both determiners and nouns, and requires that both possessum and possessor are preceded by a definite article.

4.8.1.3. *What-embedded interrogatives with a subject*

The experimental items in this task were designed to elicit *what-embedded* interrogatives with a subject in both English and Greek. The participants were shown the same picture of an old lady throughout the experiment. In each test item the old lady would tell the participants what one specific person (i.e. one of her grandchildren) had told her but she did not remember the details. Then the question was about what the old lady did not remember every time (i.e. *What doesn't she remember? / Ti den thimate?*).

The participants were instructed to begin their answers with the phrase '*Grandmother doesn't remember... / I jaja den thimate...*', which would elicit a *what-embedded* interrogative with a subject, the appropriate answer in both languages. In Greek however, the verb should be adjacent to '*ti*' (*what*) and the subject would be postverbal, whereas in English the verb should not appear next to '*what*' and the subject would be preverbal, as shown in (112):

(112) Old lady: O Nikos mu ipe ti efaje ala den thimame tora.

'Nick told me what he ate but I don't remember now.'

Question: Ti den thimate?

'What doesn't she remember?'

Expected answer: I jaja den thimate [ti efaje o Nikos.]

the grandmother-NOM not remember-3SG [what ate-3SG the Nikos-NOM]

'Grandmother doesn't remember what Nikos ate.'

The experimental items consisted of two clauses, a declarative and a direct *what*-question. The declarative was the old lady's statement and it consisted of a main clause and two subordinate clauses, namely a *what-embedded* interrogative and another one introduced with '*but / ala*'. The main clause was formed by a definite subject NP, i.e. a person's name (two names were used: '*Nick / Nikos*, and '*Maria*') and the same verb phrase '*told me / mu ipe*' throughout the experiment.

The *what-embedded* interrogative included a transitive verb and the '*ala/but*' clause consisted of the same negated verb phrase '*I don't remember / den thimame*' and the adverb '*now/tora*'. The main clause and the '*but / ala*' clause were always

the same throughout the experiment, and it was only the transitive verb in the *what*-embedded interrogative that was different in each item (three transitive verbs were used: ‘ate / *efaje*’, ‘drunk / *ipje*’, ‘wore / *forese*’). The direct question ‘*What doesn’t she remember? / Ti den thimate?*’ was also the same in all experimental items.

4.8.1.4. Object pronouns

In this task the test items were designed to elicit postverbal object pronouns in English and preverbal object clitics in Greek in declarative sentences. Two of the pictures that had been initially prepared were replaced because the pilot study revealed that they were not very successful in eliciting object pronouns. The pictures for the test items showed an animate character that was doing something either to another animate character or an object. The appropriate answer in English required the use of a postverbal object pronoun, whereas the use of a preverbal object clitic was required in Greek, as shown in (113):

(113) Question: *Ti ekane i Maria sto skilo?*

‘What did Maria do to the dog?’

Expected answer: *Ton haidepse.*

him-CL stroked-3SG

‘She stroked him.’

The question, which was relevant to the event presented in the picture, was always introduced by ‘*what / ti*’ and it always consisted of the same transitive verb ‘*did / ekane*’ and two definite NPs, i.e. one of them was the subject referring to the character that was performing the action and the other NP was referring to the character or the object that was the recipient of the action.

4.8.2. Procedure

The elicited production tasks were always carried out first in order to avoid any influence from the test items in the acceptability judgement tasks on the subjects’ oral responses in the production tasks (i.e. the test items in the acceptability

judgement tasks had the same format with the questions and the expected answers in the elicited production tasks). The order of presentation of the related tasks was randomised at each run. Moreover, every time the experiment was administered, the items' order of appearance in each task was also randomised.

At the beginning of the elicited production task, the participants were given general information about the task's procedure. Namely they were informed that they would see a number of individual pictures depicting various characters and events. The pictures would be followed by a question based on the characters and the events presented in each picture. Furthermore, the participants were told that they would have to answer each question orally in the relevant language. The participants were also informed that their responses would be tape-recorded.

A set of four practice items was used before the elicited production tasks and these were adequate to familiarize the participants with the task's procedure. However, the participants had an extra practice trial resembling the actual test items in the tasks for the null and overt subject pronouns and the *what*-embedded interrogatives. This was because we wanted to ensure that the participants had understood that they had to begin their answers with the required word or phrase. The instructions were given in Greek during the Greek session and in English during the English session at the beginning of each task (see Appendix II for more details regarding the instructions given to the participants). In the following subsections, we discuss the procedure for each individual elicited production task in the structures under consideration.

4.8.2.1. Null and overt subject pronouns

Before this task the participants were informed that they would see several pictures presenting one animate character involved in a particular activity. The participants were also told that all the questions would be about the picture's character, they would start with '*why / jati*' and they were instructed to begin their answers with the word '*because / epidi*'. There was one practice trial before the administration of the main task in order to make sure that the participants had understood they should begin their answers with the required word.

4.8.2.2. Preverbal and postverbal subjects

At the beginning of this task the subjects were informed that they would see a number of pictures presenting two animate characters participating in a certain event and that the questions would be relevant to the characters and the situation depicted in each picture. The informants were subsequently instructed to answer all the questions.

4.8.2.3. What-embedded interrogatives with a subject

Before this task the subjects were informed that they would see the same picture of an old lady throughout the experiment. The participants were also told that in each test item the old lady would tell them what she does not remember about one of her two grandchildren, i.e. *Nick* and *Maria*, and that the question would be related to what the old lady did not remember about either of the two characters (i.e. the old lady did not remember personal information about them or their activities). The participants were instructed to answer the question by stating what the old lady did not remember about either of her two grandchildren. It was emphasized to the participants that they should mention the person's name in every response and they were also told to begin their response always with the phrase '*Grandmother doesn't remember... / I jaja den thimate...*', which would elicit a *what*-embedded interrogative with a subject (i.e. the subject would be the name of the person mentioned in the old lady's statement). There was one practice trial before the administration of the main task in order to ensure that the participants had understood they should begin their answers with the required phrase.

4.8.2.4 Object pronouns

The participants were initially told that the pictures they would see depict an event in which two animate characters or an animate character and an object are involved and then the question would be relevant to the event presented in each picture. The subjects were instructed to give an oral response to all the questions.

4.9. Acceptability judgement task

4.9.1. Materials

In this task, the experimental items were presented on the computer screen in the form of MPEG videos. Except for the task relevant to the *what*-embedded interrogatives where only the two puppets were present, in the other tasks three characters were present: a native speaker of Greek or English and two hand puppets with human faces (female) controlled by two native speakers of either language. With respect to the tasks in which the three characters were present, one of the assistants was asking the questions and the other two assistants were using the hand puppets that answered the questions (the assistants were female MSc students at the departments of Linguistics and Psychology).

The experimental items were video-recorded with a digital video-camera (SONY) in a quiet room. We also used an extra microphone in order to maximise the sound quality of the recordings. Furthermore, in order to achieve the highest quality of contrast and sharpness in the recorded clips we received advice by the video-recording specialists at the Graphics and Multimedia Resource Centre based at the University of Edinburgh. The puppets had colourful clothes, and thus we chose a background with soft pastel colours and a beige base on which the puppets were standing. In this way the required contrast was obtained in the videos. The assistant who asked the questions sat on a chair on the puppets' left side. The assistants who used the hand puppets were not visible and they were instructed to speak clearly, with a quite neutral intonation, and at a normal speaking pace.

After finishing the video-recordings, the video-tapes were taken to the Graphics and Multimedia Resource Centre and with the help of the technicians the recorded clips were transformed into MPEG files using a programme called FINISH 100. The files were subsequently inserted into the portable computer.

As with the elicited production task, eight experimental items and four filler items were initially prepared but the pilot study indicated that the experiment was long and tiring especially for the bilingual children, who were tested in both English and Greek. The test and filler items, therefore, were reduced so that each of the acceptability judgement tasks (forced-choice) consisted of six experimental items

and three filler items. There were four practice trials before the acceptability judgement task in order to familiarize the participants with the task's general requirements.

For each test item, the participants were shown an MPEG video on the computer screen. As has already been mentioned, in each MPEG video two hand puppets and another person (in most tasks) were present. In particular, except for the task in embedded interrogatives, where only the two puppets participated, in the other tasks a native speaker of Greek/English was also present and her role was to ask the two puppets a question that they both answered. With regard to *what*-embedded interrogatives, the puppets were not asked a question but in every test item, each of the puppets used a sentence that included a *what*-embedded interrogative with a subject.

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 (i.e. preverbal vs. postverbal subjects, etc.) except for the task for the null and overt subject pronouns, where a null or overt subject pronoun was used instead in each of the puppets' answers. The general format of the filler items was similar to that of the test items but the question-answer pairs were not relevant to the structure tested by the experimental items. The answers given by the two puppets did not exhibit the exact structure investigated in the particular task.

After hearing each test item the children were asked to point at the puppet whose answer or sentence (in the case of *what*-embedded interrogatives) they thought would be most appropriate to say in English or Greek. In what follows, we describe the materials used for each structure investigated.

4.9.1.1. Null and overt subject pronouns

The aim of this task was to explore the participants' preferences for the use of null and overt subject pronouns in a particular discourse context, i.e. the [-topic shift] context, in subordinate clauses introduced with '*because / epidi*' in both languages. In each test item the person present in the videos asked the puppets a '*why / jati*'

question relevant to one character's activity. Both puppets replied to the question and each one of them used a subordinate clause introduced with *'because / epidi'*.

In particular, one puppet used a sentence with a null pronominal subject and the other puppet used a sentence with an overt pronominal subject. In Greek, the pragmatically appropriate answers were the sentences with null pronominal subjects co-referential with the prominent topic antecedent mentioned in the question, as shown in (114):

(114) Question: *Jati pi_je o Jorgos_j sto vivliopolio to proi?*

'Why did Jorgos go to the bookshop this morning?'

Puppet A (null subj.): *Epidi pro_j ithele na agorasi ena vivlio.*

because wanted-3SG to buy-3SG a book-ACC

'Because he wanted to buy a book.'

Puppet B (overt subj.): *@Epidi aftos_j ithele na agorasi ena vivlio.*

because he-NOM wanted-3SG to buy-3SG a book-ACC

'Because he wanted to buy a book.'

By contrast, the appropriate answers in English were the sentences with overt pronominal subjects referring also to the subject antecedent, as illustrated in (115):

(115) Question: *'Why did George_j go to the bookshop this morning?'*

Puppet A (null subj.): **Because pro wanted to buy a book*

Puppet B (overt subj.): *Because he_j wanted to buy a book.*

As shown in the examples above, the direct question was always introduced with *'why / jati'* and it consisted of a definite subject NP (the character's name), the intransitive verb *'went / pi_je'* in the past tense (in English obviously the verbs had the past tense's interrogative form), a prepositional phrase referring to the place in which the action took place, and a definite NP referring to the time that the action was performed.

The question was followed by two answers, which were subordinate clauses beginning with *'because / epidi'*. The clause consisted of *'because / epidi'* and the

verb ‘*wanted / ithele*’ followed by a complement clause introduced by ‘*to / na*’. The complement clause included a transitive verb (only two transitive verbs were used in the task, i.e. ‘*to see / na di*’ and ‘*to buy / na agorasi*’ and they appeared in three items each) and an object NP.

4.9.1.2. Preverbal and postverbal subjects

The test items for this task were designed to investigate the participants’ preferences for the use of preverbal and postverbal subjects in wide-focus contexts in Greek and English. In each experimental item, the person present in the videos asked a wide-focus question relevant to a particular character’s belongings, i.e. ‘*What happened to X’s pencil? / Ti ejine to molivi tu X?*’ and then both puppets replied.

One puppet used a sentence with a postverbal subject and the other puppet used a sentence with a preverbal subject. In Greek, the pragmatically felicitous answers were the sentences with postverbal subjects but in English the appropriate answers were the sentences with preverbal subjects, as shown in (116) and (117) respectively:

(116) Question: *Ti ejine to molivi tis Marias?*

‘What happened to Maria’s pencil?’

Puppet A (postverbal subj.): *To pire i Hara.*

it-CL took-3SG the Hara-NOM

‘Hara took it.’

Puppet B (preverbal subj.): *@ I Hara to pire.*

the Hara-NOM it-CL took-3SG

‘Hara took it.’

(117) Question: ‘What happened to John’s pencil?’

Puppet A (postverbal subj.): **Took it Maria.*

Puppet B (preverbal subj.): *Maria took it.*

As illustrated in the examples, the direct question was introduced by ‘*what / ti*’ and it always included the same intransitive verb ‘*happened / ejine*’, and the verb was followed by a possessive construction in both Greek and English. In Greek the

possessive construction included a subject NP, i.e. the possessum, and a possessive noun phrase, i.e. the possessor. In English, the possessive noun, i.e. the possessor, was followed by another noun, i.e. the possessum. The question was followed by two answers, which were main clauses and they consisted of a definite subject NP, i.e. the name of one character that was the same throughout the task, a transitive verb and an object pronoun (postverbal in English, preverbal in Greek). Three transitive verbs were used: ‘took / *pire*’, ‘hid / *ekripse*’, ‘threw / *petakse*’ and they appeared in two test items each.

4.9.1.3. *What-embedded interrogatives with a subject*

The experimental items of this task were designed to explore the subjects’ preferences for the use of preverbal subjects and postverbal subjects in *what-embedded interrogatives* in Greek and English.

In every test item, each of the puppets used a sentence that consisted always of the same matrix clause followed by a *what-embedded interrogative* with a subject in both languages. Namely, in one of the sentences the subject occurred postverbally in the *what-embedded interrogative* (the verb was adjacent to ‘*what / ti*’), while in the other sentence the subject appeared preverbally in the *what-embedded interrogative* (the verb was not adjacent to ‘*what / ti*’).

In Greek, the grammatically appropriate items were the ones in which the *what-embedded interrogatives* had postverbal subjects, whereas in English the grammatically acceptable items were the ones in which the interrogatives had preverbal subjects, as exhibited in (118) and (119) respectively:

- (118) Puppet A (postv.subj.): Den thimate [ti efaje i Maria.]
not remember-3SG [what ate-3SG the Maria-NOM]
‘She doesn’t remember what Mary ate.’
- Puppet B (prev.subj.): *Den thimate [ti i Maria efaje.]
not remember-3SG[what the Maria-NOM ate-3SG]
‘She doesn’t remember what Mary ate.’

(119) Puppet A (prev.subj.): She doesn't remember [what Mary wore.]

Puppet B (postv. subj.): *She doesn't remember [what wore Mary.]

As shown in the examples, in every experimental item, each of the sentences contained a main clause followed by a *what*-embedded interrogative with a subject. The matrix clause was the same in all test items and it consisted of the negated verb phrase '*She doesn't remember / Den thimate*'. The *what*-embedded question included a transitive verb (three transitive verbs were used, i.e. '*bought / agorase*', '*drunk / ipje*', '*ate / efaje*', and they appeared in two test items each) and a definite subject NP (i.e. the name of one of the two characters involved in this task).

4.9.1.4. Object pronouns

The test items in this task aimed to investigate the participant's preferences for the preverbal and postverbal placement of object pronouns in declaratives in both languages. In each experimental item, the person present in the videos asked the puppets a narrow-focus question inquiring about her belongings, i.e. '*Who threw my pencil? / Pjos petakse to molivi mu?*'. The puppets answered by revealing the person responsible for the action mentioned in the question. The object pronouns used in each test item referred to the question's object NP antecedent. In both languages, one puppet used a sentence with a preverbal object clitic and the other puppet used a sentence with a postverbal object pronoun. The grammatically appropriate answers for Greek were the sentences with preverbal object clitics, as illustrated in (112), whereas for English the grammatically acceptable answers were the sentences with postverbal object pronouns, as exemplified in (121):

(120) Question: Pios vrike to molivi mu?

'Who found my pencil?'

Puppet A (prev. object clitic): O papus to vrike.
the grandfather- NOM it- CL found-3SG
'Grandfather found it.'

Puppet B (postv. object clitic): * O papus vrike to.
the grandfather- NOM found-3SG it- CL

'Grandfather found it.'

(121) Question: Who found my pencil?

Puppet A (prev. object pronoun): *Grandfather it found.

Puppet B (postv. object pronoun): Grandfather found it.

The direct question was always introduced by '*who / pjos*' and it consisted of a transitive verb (three transitive verbs were used: '*ate / efaje*', '*threw / petakse*', '*found / vrike*', and they appeared in two test items each), and a possessive NP. The two answers that followed the question were formed by a definite subject NP (three definite NPs were used: '*mum / mama*', '*grandfather / papus*', '*grandmother / jaja*', which appeared in two test items each), the transitive verb mentioned in the question and an object pronoun that matched the agreement features of the object antecedent mentioned in the question.

4.9.2. Procedure

In the beginning of the acceptability judgement task all participants were given a general description of the task's procedure and then they were given more details about each judgement task. They were told that they would see a number of videos with three characters present in most of them, i.e. a girl and two puppets but in other cases only the two puppets would be present. The participants were also informed that in every video in which the three characters were present, the girl would ask the puppets a different question, which they would both answer, and hence there will be a pair of answers for each question. In the cases in which only the two puppets were present, the informants were told that in every video the puppets would be saying two sentences, i.e. one sentence each, without having being asked a specific question.

It was emphasised to the participants that each pair of answers or sentences produced by the puppets, would have the same meaning (they would give the same information) but the difference in every pair would be the way each puppet's answer or sentence is formed. As a result of this difference, the participants were told that one of the answers or sentences in each pair would sound better than the other one in English or Greek (depending on the session) and thus, their role would be to judge

each pair of these answers or sentences. Specifically the subjects were instructed to indicate the puppet, whose answer or sentence they thought would be the most appropriate to say in either language.

With respect to the tasks that included question-answer pairs, the participants were explicitly asked to pay attention to both the question and the answers. This point was particularly relevant to the tasks for the syntax-pragmatics interface structures, in which the participants would judge the pragmatic appropriateness of each answer to the question asked. In contrast, in the tasks relevant to the purely syntactic structures, e.g. the placement of object pronouns, the subjects would judge the grammaticality of each item and therefore no discourse conditions would be considered.

Each experimental item in most tasks consisted of a question followed by the two puppets' answers except for the *what*-embedded interrogatives in which each test item consisted of the puppet's two sentences. In all cases, the test materials were presented by the assistants and the two puppets in the MPEG videos on the computer screen. Moreover, one puppet presented one sentence first in three test items and the second puppet did the same in the remaining three test items. One puppet produced the target structure in three items and the second puppet used the target structure in the remaining three items. The order of presentation of the four individual judgement tasks was randomised at each run. In addition, every time the experiment was administered, the items' order of appearance was randomised in each task.

Before each task, the experimenter told the participants a short story in order to provide a suitable context relevant to the individual task's test materials. The subjects had four practice trials before the acceptability judgement task and these were found to be enough to familiarize themselves with the task's procedure.

The description of the tasks' procedure and the accompanying instructions were given in Greek during the Greek experimental session and in English during the English experimental session. The procedure for the individual tasks is illustrated in the subsequent sections.

4.9.2.1. Null and overt subject pronouns

The participants were told a short story before the task. The scenario was that a friend of the puppets (i.e. the assistant asking the questions) was a curious person and

she would ask the puppets some questions about their friends' and relatives' activities during that day. The subjects were also informed that the puppets would answer the questions giving the same information, but one answer would sound better than the other one in Greek/English. Then the participants were asked to attend to every question, and the pair of answers given to it, and further instructed to point at the puppet whose answer they thought was the most appropriate to say in either language.

4.9.2.2. Preverbal and postverbal subjects

The subjects were also told a story before this task. According to the story, two friends of the puppets had come to their place the previous day and they had forgotten some of their belongings, i.e. their ruler, their rubber etc. Their friends came back later to get their things but they could not find them. The puppets' friend (i.e. the assistant asking the questions) therefore would ask the puppets what had happened to these objects. The puppets would reply giving the same information, but one answer would sound better than the other one in Greek/English. At the end, the participants were reminded to pay attention to every question and the answers given to it and they were instructed to indicate the puppet whose answer they thought was the most appropriate to say in either language.

4.9.2.3. *What-embedded interrogatives with a subject*

According to the story the subjects were told before this task, the two puppets had a grandmother who had problems with her memory. The participants were informed that in this task the puppets would not be asked any questions but they would just state what their grandmother did not remember that day. The subjects were also told that the puppets' statements would have the same content but one sentence would sound better than the other one in Greek/English. The participants were asked to attend to every pair of sentences produced by the puppets and they were reminded that they should indicate the puppet whose sentence they thought was the most appropriate to say in Greek or English.

4.9.2.4. Object pronouns

The participants were also narrated a story before this task. This story's scenario was that the puppets' friend (i.e. the assistant asking the questions) discovered that someone had been going through her belongings without her knowledge. She would therefore ask the puppets certain questions about this situation in order to obtain more information from the puppets' answers. The subjects were reminded that the puppets' answers would contain the same information but one answer would sound better than the other one in Greek/English. The participants were finally reminded to pay attention to every question and the answers given to it and then to point at the puppet whose answer they thought was the most appropriate to say in either language.

4.9.3. Transcription and coding

The responses produced by each participant in all tasks were transcribed and coded by two transcribers including the researcher and another Greek-speaking linguist with a proficient knowledge of English. With respect to the elicited production tasks, one point was given for each target response the participants produced and if they had a hundred per cent accuracy in their performance they would get a maximum score of six, since each task included six experimental items. Therefore, six would be the maximum mean score computed for each group in the individual tasks.

In the case of null and overt subject pronouns, in Greek we calculated the null pronominal subjects used and in English the overt pronominal subjects produced in the '*because/epidi*' subordinate clauses. For the use of preverbal and postverbal subjects in wide-focus contexts, in Greek we counted the postverbal subjects produced by each participant and in English we counted the preverbal subjects used by the individual participants.

Furthermore, for the *what*-embedded interrogatives with a subject, in Greek we calculated the clauses in which the verb was adjacent to '*ti*' (*what*) and the subject postverbal and in English we calculated the interrogatives in which the verb was not adjacent to '*what*' and the subject was preverbal. Regarding the use of object pronouns, in Greek we counted the number of preverbal object clitics used by every

participant and in English we calculated the number of postverbal object pronouns used.

In the acceptability judgement tasks, the times the participants indicated the puppet whose response/sentence was the target one were calculated. Namely, one point was given for each target response in all tasks and each participant would get a maximum score of six (there were six experimental items in each task) if she had a hundred per cent accuracy in her performance. As a result, six was the maximum mean score calculated for every group in the individual tasks.

For the null and overt subject pronouns, one puppet used a null subject pronoun in her reply and the other one an overt subject pronoun. In Greek, the times the participant pointed at the puppet that used null pronominal subjects were calculated. In English, however, we counted the times the participant pointed at the puppet that produced overt pronominal subjects.

With respect to preverbal and postverbal subjects, one puppet used a preverbal subject in her answer and the other one used a postverbal subject. In Greek, we calculated the times each participant indicated the puppet that used postverbal subjects and in English, we calculated the times each participant pointed at the puppet that used preverbal subjects.

In the case of *what*-embedded interrogatives with a subject, one puppet used a *what*- embedded interrogative in which the verb was adjacent to '*what/ti*' and the subject appeared postverbally, whereas in the other puppet's *what*-embedded interrogative, the verb was not adjacent to '*what/ti*' and the subject appeared preverbally. In English, we counted the times each participant chose the puppet that used the appropriate interrogative, in which the verb was not adjacent to '*what*' and the subject was preverbal. In Greek, however, we counted the times each participant indicated the puppet that used the *what*-embedded interrogatives in which the verb was adjacent to '*ti*' (*what*) and the subject postverbal.

With regard to object pronouns, they were used either preverbally or postverbally. For Greek, we calculated the times the participants indicated the puppet that used preverbal object clitics, while in English we calculated the times the participant pointed at the puppet that used postverbal object pronouns.

4.9.4. Data analysis

The data were transcribed, coded and entered into SPSS, the statistical package selected for the data analysis. The study's experimental design is mixed, i.e. Group x (Structure x Task), with Group as the between-subjects factors, and Structure and Task as the within-subjects factors.

For each participant in every group, there were eight data points for each language, each datum being the score achieved under a different combination of the two within-subjects factors, Structure (**Greek**: null subjects; postverbal subjects in wide-focus contexts; postverbal subjects in *what*-embedded interrogatives; object clitics, and **English**: overt subjects; preverbal subjects in wide-focus contexts; preverbal subjects in *what*-embedded interrogatives; object pronouns) and Task (Elicited production task; Acceptability judgement task). Eight data variables were created for each of the two languages by taking the first level of the variable Structure and combining it with each of the levels of the variable Task; we then took the second level of the variable Structure and combined it with each level of the variable Task, and so on (e.g. null subjects in elicited production task, null subjects in acceptability judgement task, etc.).

Basic descriptive statistics (i.e. the means and the standard deviation for each group in every task were computed) were used in order to describe the data from the different groups in both languages (i.e. Greek and English adults, English and Greek monolingual children, English-dominant bilinguals, Greek-dominant bilinguals). In English, unlike Greek, the monolingual and bilingual groups exhibited 100% accuracy in their preferences in all structures and tasks, and therefore, as will be further discussed in the following chapter, no further statistical analysis was carried out.

The Greek data were analysed using a mixed Group x (Structure x Task) ANOVA with Group as the between-subjects factor (English-dominant bilinguals; Greek-dominant bilinguals; Greek children; Greek adults), and Structure (null subjects; postverbal subjects; *what*-embedded questions; object clitics), and Task (elicited production (EP) and acceptability judgement (AJ) task), as the within-subjects factors. Post hoc comparisons using the Tukey test followed the significant main

effects and interactions found in the mixed ANOVA in order to determine differences among the groups.

The post-hoc tests revealed significant between-groups mean differences but in order to identify where exactly the between groups significant differences were, a number of one-way ANOVAs were performed on the Greek data. Specifically, separate one-way ANOVAs were conducted with the elicited production and acceptability judgement tasks in each structure as the dependent variables (e.g. elicited production task for postverbal subjects in wide-focus contexts). A significant ANOVA test suggested that there were mean differences between the groups with regard to a particular structure's task, and in order to determine these specific between-groups mean differences, further post hoc comparisons using the Tukey test were conducted.

An additional within-subjects analysis, i.e. a repeated measures ANOVA, was carried out for the English-dominant bilingual group, in order to see whether there were significant differences between the English-dominant bilinguals' preference for preverbal subjects in the discourse (i.e. wide-focus contexts) and syntactic (i.e. *what*-embedded interrogatives) contexts tested. A significant ANOVA test suggested that there were mean differences between the two variables and in order to determine these particular differences, a further paired-sample T-test was performed.

4.9.5. Chapter summary

This chapter described the study's design. It presented a description of the experimental tasks employed in order to test the structures under consideration, the materials, and the procedure followed in administering the tasks. There was also a detailed description of the process of recruiting the participants with a particular emphasis on the bilingual children and their profile, pattern of exposure, amount of exposure and interaction in their two languages. The transcription and coding methods as well as the data analysis were also discussed. In the following chapter, the findings of the study will be presented.

CHAPTER 5

Results

5.1. Introduction

As discussed in chapter 3, the study's hypothesis predicted that the direction of crosslinguistic influence would be from English to Greek. In that case the syntax-pragmatics interface structures in Greek should be more susceptible to crosslinguistic influence from English than the purely syntactic structures in both the English-dominant and the Greek-dominant bilingual groups. The results for English and Greek, respectively, are presented in the subsequent sections.

5.1.1. General results for English

Figures 1 and 2 below present the results from English. Figure 1 reports the mean scores for the use of overt subject pronouns in subordinate clauses and the use of preverbal subjects in wide-focus contexts in both tasks.

Figure 1: The use of overt subject pronouns in [- topic shift] contexts and the use of preverbal subjects in wide-focus contexts

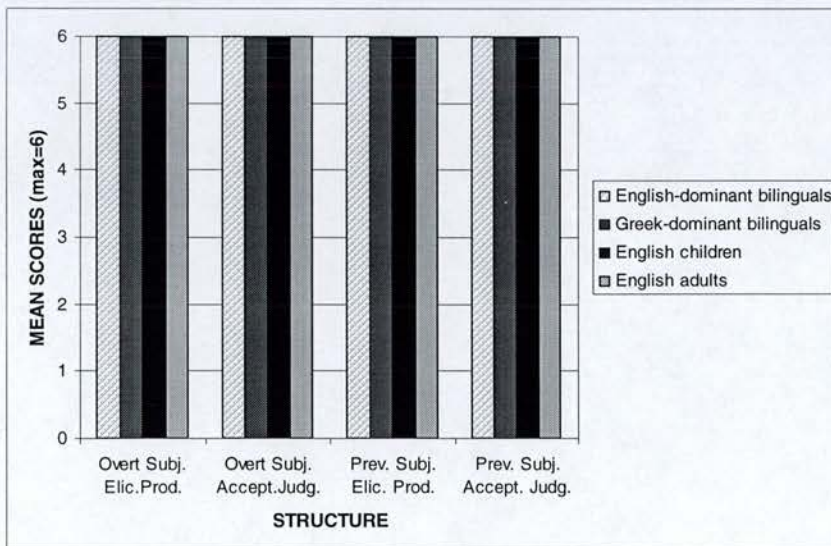
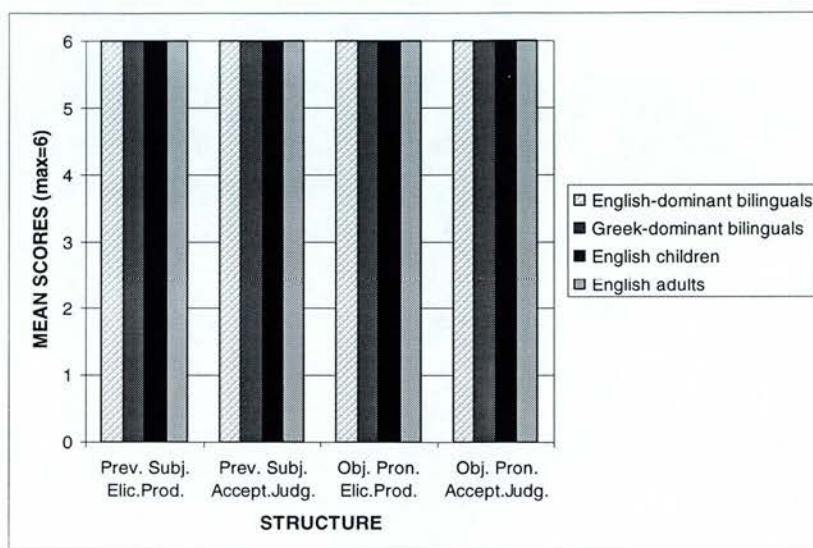


Figure 2 presents the groups' mean scores for the use of preverbal subjects in *what*-embedded interrogatives and the use of postverbal object pronouns in declarative sentences in both tasks.

Figure 2: The use of preverbal subjects in *what*-embedded interrogatives and the use of postverbal object pronouns in declaratives

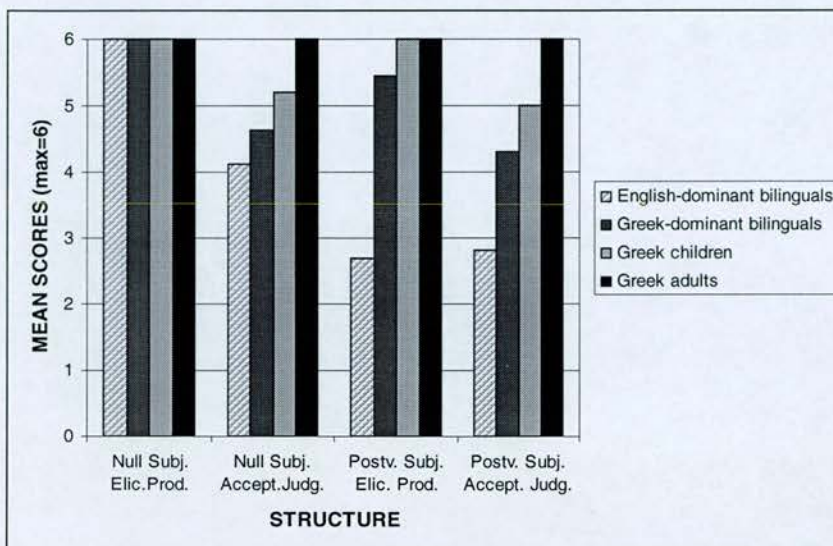


As shown in both figures, the monolingual and bilingual groups exhibited 100% accuracy in their preferences in all structures and tasks, as expected, and hence, no further statistical analysis was carried out.

5.1.2. General results for Greek

In Greek however, the groups did not perform identically, as shown in Figure 3 and Figure 4 below. Figure 3 presents the mean scores for the use of null subjects in [-topic shift] contexts and the use of postverbal subjects in wide-focus contexts in both the elicited production and acceptability judgement tasks.

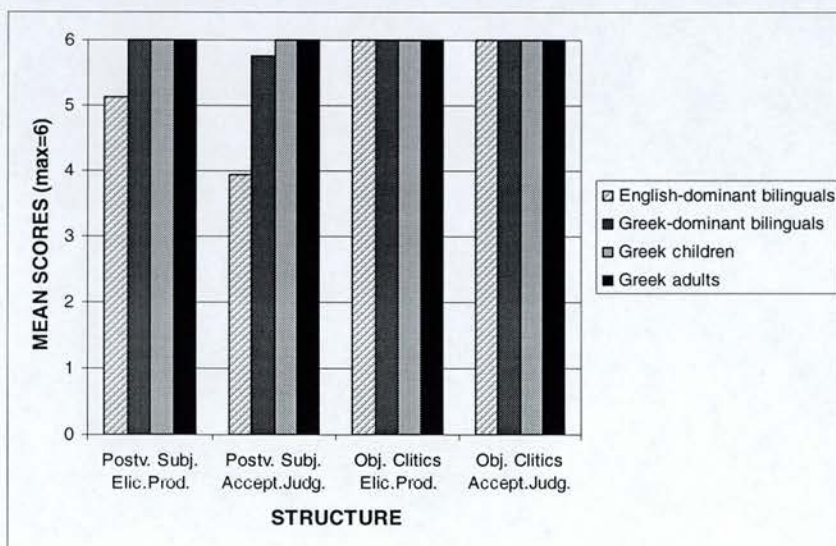
Figure 3: The use of null subjects in [-topic shift] contexts and the use of postverbal subjects in wide-focus contexts



All groups performed at ceiling in the elicited production task for the use of null subject pronouns but they had a different performance in the acceptability judgement task, and in both tasks for the use of postverbal subjects.

Figure 4 presents the mean scores with respect to the use of postverbal subjects in *what*-embedded interrogatives and the placement of object clitics in declaratives in both tasks.

Figure 4: The use of postverbal subjects in *what*-embedded interrogatives and the use of preverbal object clitics in declaratives



As shown in Figure 4, all participants had a ceiling performance in both tasks for the use of object pronominal clitics, whereas only the English-dominant bilinguals had a different performance from the other groups in the two tasks for *what*-embedded interrogatives.

The Greek data were analysed using a mixed Group x (Structure x Task) ANOVA with Group as the between-subjects factor (English-dominant bilinguals; Greek-dominant bilinguals; Greek children; Greek adults), and Structure (null subjects; postverbal subjects in wide-focus contexts; postverbal subjects in *what*-embedded interrogatives; object clitics), and Task (elicited production (EP) and acceptability judgement (AJ) task), as the within-subjects factors.

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 ($F(9,174)=3.12$; $p<.01$). Post hoc comparisons using the Tukey test revealed a significant mean score difference between the English-dominant bilingual group and all the other groups, that is, the Greek-dominant bilinguals ($p<.001$), the Greek monolingual children ($p<.001$) and the Greek monolingual adults ($p<.001$). There was also a significant difference between the Greek adults and the Greek-dominant bilinguals ($p<.05$).

The significant between-groups differences revealed by the post hoc test were followed by a series of one-way ANOVAs in order to identify where exactly the between groups significant differences were. Thus, separate one-way ANOVAs were conducted with the elicited production and acceptability judgement tasks in each structure as the dependent variables (e.g. postverbal subjects in wide-focus contexts in the acceptability judgement task; postverbal subjects in wide-focus contexts in the elicited production task, etc.). The descriptive statistics for each structure's task and the results from the one-way ANOVAs and the post hoc tests are presented in the subsequent sections.

5.2. Syntax-pragmatics interface structures

5.2.1. The use of null subjects in [-topic shift] contexts

Table 1 reports the mean scores and the standard deviation (SD) for each group in the elicited production task for the use of null subject pronouns.

Table 1 Mean scores for the use of null subjects in [-topic shift] contexts: Elicited production task (out of 6)

Structure	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
Null sub.: Mean (SD)	6.00 (0.00)	6.00 (0.00)	6.00 (0.00)	6.00 (0.00)

As has already been mentioned, in the elicited production task all the groups performed at ceiling using null subjects appropriately in [-topic shift] contexts. Since all the participants had a 100% accurate performance we did not perform any further analysis on this data.

In Table 2 the mean scores and the standard deviation (SD) in the acceptability judgement task for the use of null subjects are presented.

Table 2 Mean scores for the use of null subjects in [-topic shift] contexts: Acceptability Judgement Task (out of 6)

Structure	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
Null sub.: Mean (SD)	4.13 (1.82)	4.63 (1.78)	5.20 (1.32)	6.00 (0.00)

In this task, it was only the adult group that performed at ceiling but the children's groups did not, i.e. the bilingual and monolingual children (to a lesser extent) accepted inappropriate overt subject pronouns in [-topic shift] contexts in which null subjects were felicitous.

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 and that was between the English-dominant bilinguals and the Greek adults ($p<.01$). There were no significant mean differences between the English-dominant bilingual group and the other children's groups.

5.2.2. The use of postverbal subjects in wide-focus contexts

Table 3 reports the mean scores and the standard deviation (SD) in the elicited production task for the use of postverbal subjects in wide-focus contexts.

Table 3 Mean scores for the use of postverbal subjects in wide-focus contexts: Elicited production task (out of 6)

	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
Structure				
VS: Mean (SD)	2.69 (2.77)	5.44 (1.15)	6.00 (0.00)	6.00 (0.00)

The Greek children and adults exhibited a ceiling performance in this task, while the English-dominant bilingual group and the Greek-dominant bilinguals (to a much lesser extent) used pragmatically inappropriate preverbal subjects in wide-focus contexts.

In particular, the one-way ANOVA analysis showed a significant difference between the four groups in the elicited production task ($F(3,58)=16.94$; $p<.001$). Post hoc comparisons using the Tukey test indicated that the mean score for the English-dominant bilingual group was significantly different from the Greek bilingual group ($p<.001$), the Greek monolingual children ($p<.001$) and the Greek monolingual adults ($p<.001$). Therefore, the English-dominant bilinguals overgeneralised preverbal subjects in wide-focus contexts significantly more often than the other groups. In Table 4 we present the mean scores and standard deviation (SD) from the acceptability judgement task for the use of subjects in wide-focus contexts.

Table 4 Mean scores for the use of postverbal subjects in wide-focus contexts: Acceptability Judgement Task (out of 6)

Structure	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
VS: Mean (SD)	2.81 (1.28)	4.31 (1.25)	5.00 (1.07)	6.00 (0.00)

The Greek adults performed at ceiling in this task but the children's groups did not, i.e. all children's groups accepted to different degrees pragmatically inappropriate preverbal subjects in wide-focus contexts. The results from the one-way ANOVA showed that the four groups were significantly different with regard to their performance in this task ($F(3,58)=25.31; p<.001$).

Specifically, the post hoc comparisons showed that there was a significant difference between the English-dominant bilingual group and the Greek-dominant bilingual group ($p<.01$), the Greek monolingual children ($p<.001$) and the Greek adult monolingual group ($p<.001$). In addition, the difference between the Greek-dominant bilinguals and the Greek adults in the acceptability judgement task was statistically significant ($p<.001$). However, the Greek-dominant bilingual group was not significantly different from the Greek children.

Although the bilingual groups and their Greek monolingual counterparts accepted sentences with pragmatically infelicitous preverbal subjects, the English-dominant bilinguals used and accepted inappropriate wide-focus sentences in which the subjects were preverbal significantly more often than the other groups.

5.3. Purely syntactic structures

5.3.1. The use of postverbal subjects in *what*-embedded interrogatives

Table 5 exhibits the groups' mean scores and standard deviation (SD) from the elicited production task for the use of subjects in *what*-embedded interrogatives.

Table 5 Mean scores for the use of postverbal subjects in *what*-embedded interrogatives: Elicited production task (out of 6)

	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
Structure				
VS: Mean (SD)	5.12 (1.59)	6.00 (0.00)	6.00 (0.00)	6.00 (0.00)

The Greek-dominant bilinguals and the Greek control groups were very accurate in their performance in the elicited production task using postverbal subjects appropriately in *what*-embedded interrogatives but the English-dominant bilinguals were not as accurate.

The one-way ANOVA results indicated a significant difference between the four groups with regard to the elicited production task ($F(3,58)=3.03$; $p<.01$). Further post hoc comparisons using the Tukey test revealed a significant mean score difference in the elicited production task between the English-dominant bilingual group and the Greek-dominant bilingual group ($p<.05$), the Greek child monolingual group ($p<.05$) and the Greek adult monolinguals ($p<.05$). It was only the English-dominant bilinguals that produced *what*-embedded interrogatives in which the subjects were preverbal and not postverbal, as is the appropriate option in Greek.

Table 6 shows the mean scores and the standard deviation (SD) from the acceptability judgment task for the use of postverbal subjects in *what*-embedded interrogatives.

Table 6 Mean scores for the use of postverbal subjects in *what*-embedded interrogatives: Acceptability Judgment Task (out of 6)

	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
Structure				
VS: Mean (SD)	3.94 (1.73)	5.75 (0.58)	6.00 (0.00)	6.00 (0.00)

The same pattern is observed in this task as well, namely that the English-dominant bilingual group did not perform as high as the Greek-dominant bilingual group and

the Greek monolingual groups. The one-way ANOVA revealed a significant difference between the four groups ($F(3,58)=15.66$; $p<.001$).

Further post hoc comparisons using the Tukey test were carried out and the results indicated that the mean score of the English-dominant bilingual group for the acceptability judgement task was also significantly different from the Greek-dominant bilingual group ($p<.001$), the Greek child monolingual group ($p<.001$) and the Greek adult monolingual group ($p<.001$). The English-dominant bilinguals, therefore, accepted inappropriate *what*-embedded interrogatives in which the subjects appeared preverbally and not postverbally significantly more frequently than the other participants.

Although the English-dominant bilinguals overextended preverbal subjects in both wide-focus contexts and in *what*-embedded interrogatives the overuse of preverbal subjects is more prevalent in the wide-focus contexts (see Tables 3, 4, 5 & 6 above). Thus, it would be interesting to see whether there are significant differences between the English-dominant bilinguals' preference for preverbal subjects in the discourse (i.e. wide-focus contexts) and syntactic (i.e. *what*-embedded interrogatives) environments tested. In order to explore this issue further, we carried out a repeated measures ANOVA for the English-dominant bilingual group. The two within subjects variables were: Structure (two levels: postverbal subjects in wide-focus contexts; postverbal subjects in *what*-embedded interrogatives), and Task (two levels: elicited production (EP) and acceptability judgement (AJ) task). The results from the repeated measures ANOVA showed that the factor Structure is significant ($F(1,15)=21.76$; $p<.001$); the factor Task was not found significant ($F(1,15)=.993$; $p>.05$) and the interaction between the two factors was not significant either ($F(1,15)=3.71$; $p>.05$). A paired-sample T-test was subsequently performed on this data in order to investigate the significant main effect of the factor Structure. We performed one T-test for two pairs of variables: a) the use of postverbal subjects in wide-focus contexts vs. the use of postverbal subjects in *what*-embedded interrogatives in the respective elicited production tasks; b) the use of postverbal subjects in wide-focus contexts vs. the use of postverbal subjects in *what*-embedded interrogatives in the relevant acceptability judgement tasks. The difference between the means in both pairs of variables was significant, i.e. first pair of variables: $t(15)=$

-3.85; $p < .01$; second pair of variables: $t(15) = -3.19$; $p < .01$. Therefore, the English-dominant bilinguals overused preverbal subjects significantly more often in wide-focus contexts, a syntax-pragmatics interface structure, than in *what*-embedded interrogatives, a purely syntactic structure.

5.3.2. The use of object clitic pronouns in declaratives

Table 7 presents the mean scores and standard deviation (SD) from the elicited productions task with regard to the use of object clitics in declarative sentences.

Table 7 Mean scores for the use of preverbal object clitics in declaratives: Elicited production task (out of 6)

	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
Structure				
cIV: Mean (SD)	6.00 (0.00)	6.00 (0.00)	6.00 (0.00)	6.00 (0.00)

Table 8 illustrates the mean scores and standard deviation (SD) from the acceptability judgement task.

Table 8 Mean scores for the use of preverbal object clitics in declaratives: Acceptability Judgement Task (out of 6)

	Group			
	English-dominant Bilinguals	Greek-dominant Bilinguals	Greek children	Greek adults
Structure				
cIV: Mean (SD)	6.00 (0.00)	6.00 (0.00)	6.00 (0.00)	6.00 (0.00)

All groups performed at ceiling in both the elicited production and the acceptability judgement task. Thus, all the participants used and accepted declaratives in which object clitics appeared preverbally, as expected.

5.4. Chapter summary

The English-Greek bilingual children had a native-like performance in all tasks in English, as predicted. In Greek, all groups had a very good performance in both the production and judgement tasks with respect to the use of null and overt subject pronouns, and the placement of object clitics in declaratives.

However, regarding the placement of subjects in wide-focus contexts, the English-dominant bilinguals used and accepted pragmatically inappropriate preverbal subjects significantly more often than the Greek-dominant bilinguals and the Greek monolingual groups in both tasks. An example from the elicited production task is shown in (122):

(122) Question: *Ti ejine i mpala tu Jorgu?*

‘What happened to Jorgos’s ball?’

Answer: @ *I Maria tin pire.*

the Maria-NOM it-CL took-3SG

‘Maria took it.’

Thus, in many cases the English-dominant bilinguals answered wide-focus questions by using a preverbal subject instead of a postverbal subject in which case was the pragmatically felicitous option. An example from the acceptability judgement task is presented in (123):

(123) Question: *Ti ejine to vivlio tu Kosta?*

‘What happened to Kostas’s book?’

@a. *I Hara to pire.*

the Hara-NOM it-CL took-3SG

‘Hara took it.’

b. *To pire i Hara.*

it-CL took-3SG the Hara-NOM

‘Hara took it.’

In this task the English-dominant bilinguals chose the inappropriate option, i.e. option (a), with the preverbal subject significantly more often than the other groups. Furthermore, the English-dominant bilinguals used and accepted syntactically inappropriate *what*-embedded interrogatives, in which the verb was not adjacent to ‘*ti*’ (*what*), and hence the subject was preverbal and not postverbal, as is appropriate:

(124) O Janis mu ipe ti efaje ala den thimame tora.

‘Janis told me what he ate but I don’t remember now.’

Question: Ti den thimate?

‘What doesn’t she remember?’

Answer: *Den thimate [ti o Janis efaje.]

not remember-3SG [what the Janis-NOM ate-3SG]

‘She doesn’t remember what Janis ate.’

As shown above, the English-dominant bilinguals incorrectly used a preverbal subject in the *what*-embedded interrogative that appeared in their answer to several of the questions in the test items. Similarly in the acceptability judgement task, as illustrated in the following example, the English-dominant bilinguals wrongly chose in several experimental items the option, i.e. option (125b), in which the *what*-embedded interrogative included a preverbal subject:

(125) a. Den thimate [ti agorase o Janis.]

not remember-3SG [what bought-3SG the Janis-NOM]

‘She doesn’t remember what Janis bought.’

b. *Den thimate [ti o Janis agorase.]

not remember-3SG [what the Janis-NOM bought-3SG]

‘She doesn’t remember what Janis bought.’

Consequently, the English-dominant bilinguals inappropriately overextended preverbal subjects to both syntax-pragmatics interface and purely syntactic structures, i.e. wide-focus sentences and *what*-embedded interrogatives, respectively. However, preverbal subjects were overextended significantly more frequently in

wide-focus contexts than in *what*-embedded interrogatives. These findings and their implications will be discussed in the following chapter.

CHAPTER 6

General Discussion

6.1. Introduction

This chapter presents a general discussion of the findings presented in chapter 5 and attempts to draw a more comprehensive picture of the eight-year-old English-Greek bilingual children's simultaneous acquisition of two languages with regard to the constructions under consideration. Furthermore, there will be a discussion of the broader implications of the findings of this study to the issue of crosslinguistic influence in bilingual acquisition.

6.2. Research aims, hypothesis and predictions

The aims of the study were: a) to explore whether crosslinguistic influence occurs from English to Greek in the grammar of eight-year-old English-Greek bilingual children; b) to determine whether the syntax-pragmatics interface structures are more susceptible to crosslinguistic influence than the purely syntactic structures; and c) to investigate whether language dominance, defined as the amount of input the bilinguals receive in each language, plays a role in crosslinguistic influence.

The study's hypothesis predicted that if there were 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 purely syntactic structures in both the English-dominant and the Greek-dominant bilinguals.

Regarding the syntax-pragmatics interface, as a result of crosslinguistic influence from English, the bilinguals were predicted to use and accept overt subject pronouns as coreferential with a subject antecedent significantly more frequently than the Greek monolinguals in [-topic shift] contexts, which require the use of null subjects. Similarly, due to crosslinguistic influence from English, the bilingual children were expected to use and accept preverbal subjects significantly more frequently than the

Greek monolinguals in wide-focus contexts, in which postverbal subjects are the felicitous option.

However, *what*-embedded interrogatives with a subject and object pronouns in declaratives are not relevant to the syntax-pragmatics interface, i.e. they are purely syntactic structures, hence they were not predicted to be vulnerable to crosslinguistic influence. The bilinguals, therefore, were expected to use the subjects appropriately in *what*-embedded interrogatives, that is, preverbally in English (i.e. the verb does not raise to C) and postverbally in Greek (i.e. the verb raises to C). The bilinguals were also expected to place the object pronouns appropriately in each language, i.e. preverbally in Greek and postverbally in English.

6.3. Crosslinguistic influence in the English-Greek bilingual children

The findings of this study raise a number of important questions about the original hypothesis of the study (i.e. that crosslinguistic influence would occur only at interfaces, regardless of dominance), and more generally about the developmental mechanisms that might be responsible for the patterns obtained.

The data of the present study lend support to the original prediction regarding the directionality of crosslinguistic effects. As expected, crosslinguistic influence was unidirectional and occurred from English, the language with the unambiguous input (i.e. preverbal subjects are the only option regardless of contexts) to Greek, the language with the more ambiguous input (i.e. preverbal and postverbal subjects are allowed in different contexts), but not vice versa. Directionality and dominance, however, seem to be related. Although we initially predicted that crosslinguistic effects would appear in both bilingual groups, crosslinguistic influence was evident only in the English-dominant group. This asymmetry indicates that the bilinguals' degree of exposure to their two languages has a role to play in determining the likelihood of crosslinguistic influence. However, language dominance cannot be the sole factor, since there was no crosslinguistic influence from Greek to English in the Greek-dominant group and not all structures were vulnerable to crosslinguistic effects in the English-dominant bilinguals (e.g. object clitics were not problematic).

Moreover, one of the predictions of the study was that both the syntax-pragmatics interface structures tested in Greek would be more vulnerable to crosslinguistic influence from English than the purely syntactic structures. This prediction is partially supported, since only one of the syntax-pragmatics interface structures, i.e. subject placement in wide-focus contexts, was subject to crosslinguistic influence. The bilinguals were overall very sensitive to the discourse appropriate distribution of null and overt subject pronouns in Greek (they had a ceiling performance in the elicited production task), although they tended to accept more frequently than the Greek monolinguals in the judgement task a number of pragmatically infelicitous overt subject pronouns in [-topic shift] contexts in which a null subject would have been appropriate. There was, however, only one significant difference, i.e. between the English-dominant bilinguals and the adults, and thus these findings do not provide evidence for crosslinguistic influence from English.

Furthermore, contrary to the study's predictions, subject placement in *what*-embedded interrogatives, i.e. a purely syntactic structure, was also found to be vulnerable to crosslinguistic influence from English, since preverbal subjects were inappropriately extended to this structure as well. In addition, the English-dominant bilinguals overused preverbal subjects more frequently in wide-focus contexts than in *what*-embedded interrogatives.

As will be discussed below, crosslinguistic influence in this study seems to be the outcome of the combination of different factors. The unidirectionality of crosslinguistic influence from English to Greek suggests that the surface overlap between English and Greek regarding the use of preverbal and postverbal subjects is crucial for the crosslinguistic effects observed at both the syntax-pragmatics interface and purely syntactic structures but the distributional nature of the overlap between the two languages is also important (overt subject pronouns were not subject to crosslinguistic influence); language dominance is a contributing factor as well.

6.3.1. The surface overlap between the bilinguals' two languages and its importance in crosslinguistic influence: does the domain of the overlap matter?

As predicted, due to crosslinguistic influence from English to Greek, the English-dominant bilingual children overextended preverbal subjects to wide-focus contexts, in which postverbal subjects would be the felicitous option. Thus, the more rigid SV(O) word order of English where, regardless of the nature of the focus context, subjects predominantly appear in preverbal position, affected the distribution of subjects in wide-focus contexts in Greek, so that the use of preverbal subjects was inappropriately overgeneralised to these contexts.

Preverbal subjects, however, were also extended to syntactically inappropriate contexts in Greek, i.e. *what*-embedded interrogatives, in contrast to our predictions. Preverbal subjects, therefore, were extended to both a syntax-pragmatics interface and a purely syntactic structure, although preverbal subjects were inappropriately extended significantly more often in wide-focus contexts than in *what*-embedded interrogatives.

These findings highlight the importance of the surface overlap between the two languages as an important factor in the occurrence of crosslinguistic influence. Thus, the same argument developed for interface phenomena could also be applied to narrow syntax: that there is a surface overlap between English and Greek regarding the use of preverbal and postverbal subjects and this seems to be an important factor for the occurrence of the crosslinguistic effects observed at both the syntax-pragmatics interface and purely syntactic structures.

As has already been discussed in chapter 2, this thesis assumes that input ambiguity and the overlap between the two languages are considered to be at a very superficial level (as is also typically assumed in other studies in bilingual first language acquisition, e.g. Paradis and Navarro, 2003). The idea with respect to the surface overlap is that the bilinguals' two languages share two superficially similar forms with different underlying structure: the input in both languages provides positive evidence for the same surface string. Thus, there is a similarity at the surface between utterances containing the same form in the two languages. On the basis of this surface (superficial) similarity between the two languages and since the input

from one of the languages provides support for the overlapping option only, the bilingual child may equate the function of this overlapping form in the two languages, i.e. the child may think that the function of the overlapping option is the same in both languages, and hence the use of the overlapping form would be extended to inappropriate contexts.

More precisely, we would suggest that 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 restricted discourse-pragmatic contexts and in restricted syntactic environments (in subordinate clauses); the plentiful evidence from English (a language that allows only preverbal subjects) strengthens the preverbal subject option regardless of the discourse-pragmatic or syntactic environment (i.e. one language provides evidence for two different analyses and the other language provides evidence for just one of these analyses; see for example, Müller and Hulk, 2001; Serratrice et al., 2004) and leads to its extension to the wrong discourse-pragmatic or syntactic environment in the English-dominant bilinguals who, by definition, have greater exposure to English than to Greek. Consequently, due to crosslinguistic influence from English, the English-dominant bilinguals inappropriately overextended the use of preverbal subjects to particular discourse-pragmatic and syntactic contexts.

As was discussed in chapter 3, preverbal and postverbal subjects, in Greek, are felicitous in different discourse-pragmatic contexts. Similarly, preverbal and postverbal subjects are grammatically acceptable in different syntactic contexts in subordinate clauses. On the whole, postverbal subjects seem to be acceptable in all syntactic environments in subordinate clauses in Greek, whereas the use of preverbal subjects is restricted to a number of subordinate sentences (Philippaki-Warbuton, 1987; Lascaratou, 1989).⁴² Specifically, some types of subordinate clauses accept postverbal subjects only e.g. *ja na* purpose-clauses, as in (126), some nominalised

⁴²Lascaratou (1989) investigated two corpora of transitive and intransitive clauses collected from a number of Modern Greek texts covering a wide range of styles including newspapers and novels. She examined 2,530 transitive clauses and she reported that SVO was found in 62.2% of main clauses and in 37.8% of the subordinate clauses. Similarly she investigated 300 intransitive clauses and she found that the majority of SV orders, i.e. 61.1% appeared in main clauses and 38.9% of SV was found in subordinate clauses. Thus, the SV(O) word order seems to appear frequently both in main and subordinate clauses in Greek.

clauses, as shown in (127) (from Philippaki-Warburton, 1982), and *wh*-embedded interrogatives, as in (128) (the subject NPs are written in bold):

(126) a. Klisame tin porta [ja na filisi **o Nikos** tin Elena.]
 closed-1PL the door-ACC [for to kiss-3SG the Nikos-NOM the Elena-ACC]

‘We closed the door in order for Nikos to kiss Elena.’

b.*Klisame tin porta [ja na **o Nikos** filisi tin Elena.]
 closed-1PL the door-ACC [for to the Nikos-NOM kiss-3SG the Elena-ACC]

‘We closed the door in order for Nikos to kiss Elena.’

(127) a. To [na filisi **o Janis** ti Maria] den to perimeno.
 it-CL [to kiss-3SG the Janis-NOM the Maria-ACC] not it-CL expect-1SG

‘I do not expect Janis to kiss Maria.’

b.*To [na **o Janis** filisi ti Maria] den to perimeno.
 it-CL [to the Janis-NOM kiss-3SG the Maria-ACC] not it-CL expect-

1SG

‘I do not expect Janis to kiss Maria.’

(128) a. Den ksero [ti ipje **i Elena.**]
 not know-1SG [what drank-3SG the Elena-NOM]

‘I do not know what Elena drank.’

b.*Den ksero [ti **i Elena** ipje.]
 not know-1SG [what the Elena-NOM drank-3SG]

‘I do not know what Elena drank.’

In contrast, other subordinate sentences allow both preverbal and postverbal subjects. For instance, overt subjects of *oti* (that)-clauses, as exhibited in (129), are mostly preverbal but postverbal subjects are used as well (Johannessen, 1995). *Pos/pu* (that)-clauses as shown in (130) and (131) respectively accept both preverbal and

postverbal subjects as well (Philippaki-Warburton, 1987). Similarly, *epidi* (because)-clauses and conditional clauses accept both preverbal and postverbal subjects, as illustrated in (132):

(129) a. To ksero [oti **o Nikos** efaje to milo].
 it-CL know-1SG [that the Nikos-NOM ate-3SG the apple-ACC]
 ‘I know that Nikos ate the apple.’

b. To ksero [oti efaje **o Nikos** to milo.]
 it-CL know-1SG [that ate-3SG the Nikos-NOM the apple-ACC]
 ‘I know that Nikos ate the apple.’

(130) a. Nomizo [pos **o Nikos** efaje to milo.]
 think-1SG [that the Nikos-NOM ate-3SG the apple-ACC]
 ‘I think that Nikos ate the apple.’

b. Nomizo [pos efaje **o Nikos** to milo.]
 think-1SG [that ate-3SG the Nikos-NOM the apple-ACC]
 ‘I think that Nikos ate the apple.’

(131) a. Lipame [pu **o Nikos** efaje to milo.]
 sorry-1SG [that the Nikos-NOM ate-3SG the apple-ACC]
 ‘I am sorry that Nikos ate the apple.’

b. Lipame [pu efaje **o Nikos** to milo.]
 sorry-1SG [that ate the Nikos-NOM the apple-ACC]
 ‘I am sorry that Nikos ate the apple.’

(132) a. Eklapse [epidi **o Nikos** efaje to milo.]
 cried-3SG [because the Nikos-NOM ate-3SG the apple-ACC]
 ‘She cried because Nikos ate the apple.’

b. Eklapse [epidi efaje **o Nikos** to milo.]
 cried-3SG [because ate-3SG the Nikos-NOM the apple-ACC]
 ‘She cried because Nikos ate the apple.’

Conversely, English has a fixed SV(O) word order overall, and hence the use of preverbal subjects is the only appropriate option both in discourse-pragmatic and syntactic contexts. Thus, due to crosslinguistic influence from English, where subjects appear mainly in preverbal position regardless of contexts, the English-dominant bilinguals optionally selected preverbal subjects, which are overwhelmingly available in English and they are not pragmatically and syntactically constrained in the same way as in Greek, and extended them inappropriately to wide-focus contexts and *what*-embedded interrogatives. In other words, these bilingual children chose preverbal subjects, a syntactic option that is allowed in Greek in restricted discourse-pragmatic and syntactic contexts but it is not constrained in English in the same sense, and extended it inappropriately to the relevant discourse-pragmatic and purely syntactic contexts in which Greek does not allow it.

Object clitics were not subject to crosslinguistic influence; this finding gives further support to the proposal about the importance of the surface overlap between the two languages. This result is not surprising since there is not an overlap at the surface level across the two languages, i.e. there are no object clitics in English. Thus, there seems to be a clear contrast between postverbal object pronouns in English and preverbal object clitics in Greek (for similar results see Serratrice et al., 2004). The overlap, therefore, in the surface forms of the bilinguals' two languages seems to play an important role in crosslinguistic influence.

Crosslinguistic effects from English to Greek in the present study were found to be constrained by factors that were partly different from those proposed by recent research. Thus, the syntax-pragmatics interface seems to add an extra dimension to the possibility of crosslinguistic influence in the case of a surface overlap of the two languages for a particular structure. The existence of a surface overlap between the two languages, even if it is just relevant to purely syntactic structures, appears to be the crucial point. Consequently, these results do not support the recent view with regard to the exclusive susceptibility of syntax-pragmatics interface overlapping structures to crosslinguistic effects. In the light of these findings, this proposal needs to be refined, in the sense that other grammatical domains could potentially be subject to crosslinguistic influence if there is a surface overlap between the bilinguals' two languages.

Similar proposals about the vulnerability of partially overlapping structures to crosslinguistic influence have also been postulated by other studies in bilingual acquisition, e.g. Döpke (1998, 2000); Müller (1998); Pannemann (in press). Döpke's (1998, 2000) and Müller's (1998) studies also showed that the overlapping structures in the input to which the bilinguals were exposed (i.e. German main and subordinate clauses instantiate both V-XP and XP-V orders, while English/French and Italian exhibit only V-XP), being similar at the surface level, led to the inappropriate overextension of the non-target V-XP constructions in the young bilingual children's German. In a similar vein, Pannemann (in press) found that narrow syntax structures, such as the position of the attributive adjective in French and Swedish/Dutch, which instantiate a surface overlap between the two languages (i.e. French allows for prenominal and postnominal adjectives, whereas Swedish and Dutch allow for prenominal adjectives) can also be susceptible to crosslinguistic influence in young bilinguals.

Nevertheless, the present study showed that there is a difference between the use of preverbal subjects in wide-focus contexts and *what*-embedded interrogatives, i.e. preverbal subjects were overgeneralised significantly more frequently in wide-focus contexts than in *what*-embedded interrogatives. Therefore, although the domain of the surface overlap does not seem to be important in terms of the actual occurrence of crosslinguistic influence in these older bilinguals, it does seem to affect the extent of susceptibility of a certain overlapping structure to crosslinguistic effects.

Overlapping structures that are relevant to narrow syntax and not to the syntax-pragmatics interface may also be susceptible to crosslinguistic effects in pre-school and school-age bilingual children, although probably to a lesser degree in older bilinguals. A wider range of grammatical domains that instantiate a surface overlap between the two languages appear to be susceptible to crosslinguistic effects in earlier and later stages of bilingual development. Thus, the domain of overlap (narrow syntax vs. syntax-pragmatics) does not seem to be an important factor in the occurrence of crosslinguistic influence in these older bilinguals, however, it does play a role in terms of the extent of vulnerability to crosslinguistic effects.

6.3.2. Differences among overlapping structures in terms of their susceptibility to crosslinguistic influence

The distribution of overt subject pronouns, in contrast to preverbal subjects, was not found to be susceptible to crosslinguistic influence, although the use of null vs. overt subject pronouns also instantiates a surface overlap between Greek and English. This result could be due to a conspiracy of factors. Such possible factors might be related to the degree of saliency of the constraints on the distribution of subject pronouns vs. the placement of subjects, and to the extent of the availability of the contexts in which the overlapping options are disallowed in the Greek input.

We could propose that the Greek input displaying the placement of preverbal and postverbal subjects in different discourse-pragmatic and syntactic structures may not be that salient from the language learner's perspective, in the sense that each of the subject options can be appropriate in various discourse conditions and in different purely syntactic contexts. For instance, postverbal subjects tend to be used in wide-focus contexts, all-focus contexts and in narrow focus non-contrastive contexts, whereas preverbal subjects tend to appear in narrow contrastive focus contexts (although they can appear in other discourse pragmatic contexts as well; see chapter 3). In addition, both preverbal and postverbal subjects are syntactically allowed in some subordinate clauses, whereas a number of subordinate clauses accept only postverbal subjects, e.g. *what*-embedded interrogatives, as was shown above.

The input data, however, regarding the alternation of null and overt subject pronouns, can potentially be considered as being more salient from the learner's point of view, i.e. null subjects are used when the subject argument is coreferential with a prominent topic antecedent, whereas overt subject pronouns are disallowed in such contexts since they are associated with non-coreferential contexts ([+topic shift] contexts) in Greek. Thus, there may be more salient evidence for the language learner regarding the contexts in which overt subject pronouns are disallowed than is the case with preverbal subjects, i.e. the bilingual child needs to determine a greater number of different contexts in which preverbal subjects are not allowed (both discourse-pragmatic and purely syntactic contexts) than in the case of overt subject pronouns.

We may also add that the contexts in which overt subject pronouns are not allowed are more overwhelmingly instantiated in the Greek input than the discourse-pragmatic and purely syntactic contexts in which preverbal subjects are disallowed. In other words, the contexts in which overt subject pronouns are not allowed, i.e. [-topic shift] contexts (the subject arguments are coreferential with a prominent topic antecedent and thus null subjects are used), are more extensively available to the language learner than the various discourse-pragmatic (focus contexts) and purely syntactic contexts (subordinate clauses) in which preverbal subjects are disallowed. Thus, this could be yet another factor that may have contributed to the observed difference.

In order to gain some information of the type of Greek input the bilingual children receive in both the UK and Greece, samples of spontaneous conversation between a bilingual child and his/her Greek parent (or one of the Greek parents when both parents are Greek) were investigated. The aim was to see how frequently null and overt subjects, preverbal and postverbal subjects are generally provided in child-directed utterances in Greek. In this way, we could investigate the extent of the overall availability of the contexts in which overt subject pronouns and preverbal subjects are disallowed. A 30-40 minutes conversation between 7 bilingual children and their Greek parent in Greece and 6 bilingual children and their Greek parent (or one of the Greek parents) in the UK was tape-recorded. All interactions were transcribed by the researcher and another Greek-speaking colleague.

All the clauses that included a verb and a null or overt subject were analysed; the subject arguments were coded for being null or overt, and if the subjects were overt they were also coded for their position with respect to the verb, i.e. preverbal or postverbal; In order to calculate the frequency of these structures we divided the number of each structure's occurrence with the total number of verbal utterances with a subject (null or overt) in each interaction. We were also interested in investigating the availability of postverbal subjects in the contexts tested in the present study. As a result, we coded for *what*-embedded interrogatives with an overt subject (we initially coded for *wh*-embedded interrogatives with an overt subject in order to see the overall availability of such structures), as well as for wide-focus contexts of the type tested in the present study.

The parental data in Greece included 1046 (mean: 149) verbal utterances with a subject (null or overt) and the parental data in the UK consisted of 1138 verbal utterances with a subject (null or overt) (mean: 190). The results are presented in the following table:

Table 9

Parental data in the UK	Parental data in Greece
Null subjects: 82.65%	Null subjects: 76.52%
Overt subjects: 17.35%	Overt subjects: 23.48%
Preverbal subjects: 7.77%	Preverbal subjects: 10.75%
Postverbal subjects: 9.58%	Postverbal subjects: 12.73%

As shown in the previous table, null subjects were very frequently provided by the Greek parents in both countries, whereas postverbal subjects were not used as frequently.⁴³ *Wh*-embedded interrogatives with overt subjects were provided infrequently, i.e. 1.18% for the parents in Greece and 1.41% for the parents in the UK. Note that *what*-embedded interrogatives with a subject represented only a part of the total number of *wh*-embedded clauses in general, i.e. 0.84% and 0.76% for the parents in the UK and Greece respectively. Postverbal subjects were used in direct questions (126), in various subordinate clauses (127), as well as in some sentences that contained all new information (128) (postverbal subjects are written in bold) :

(126) Parent: Pote tha genitheí **to moraki**?

when will born-3SG the baby-NOM

‘When will the baby be born?’

(127) Parent: Ine kanoniko panteloni [ja na vgeni **kanis** ekso]

is-3SG regular trouser-ACC [for to go-3SG someone-NOM out]

‘It’s regular trousers for someone to go out.’

⁴³ Serratrice (2003) noted that in a sample of child-directed caregiver utterances in Italian, 68% of the subject arguments were null.

- (128) Parent: Se ligo den tha pigenun **ta aftokinita** ke **ta fortiga**
 in a while not will go-3PL the cars-NOM and the trucks-NOM
 meso Italias.
 through Italy-GEN
 ‘In a while the cars and the trucks will not be going through Italy.’
 Anikse **o dromos** o palios sti Yugoslavia
 opened-3SG the road-NOM the old-NOM in the Yugoslavia-ACC
 ‘The old street in Yugoslavia has been opened.’

Nevertheless, we found no examples of the postverbal subjects’ use in wide-focus contexts similar to the ones tested in this study. Although we investigated only a limited sample of the actual input data the bilingual children obtain in Greek, the figures above clearly demonstrate the marked difference between the provision of null subjects and postverbal subjects in general.⁴⁴ Consequently, the contexts in which overt subject pronouns are disallowed, i.e. [-topic shift] contexts, seem to be more extensively available in the Greek input than the contexts in which preverbal subjects are not allowed, e.g. wide-focus contexts and *what*-embedded interrogatives.

Thus, some overlapping structures may not result in crosslinguistic effects at a specific developmental stage; the nature of the surface overlap between the two languages the bilinguals acquire may play a role in the overlapping structure’s susceptibility to crosslinguistic influence at a particular phase of development. We suggested that factors, such as the salience of the distributional restrictions (be it pragmatic or syntactic) on the two options allowed in one of the languages, as well as the extent of the availability of the contexts in which the overlapping option is disallowed, might further affect the possibility of the overlapping option to be subject

⁴⁴ Recent research has suggested that the quality of the input the bilinguals receive could also be another relevant variable in relation to crosslinguistic influence in bilingual acquisition (Paradis and Navarro, 2003). For instance, the Greek input the English-Greek bilinguals obtain in the UK might be qualitatively different from the input their peers receive in Greece. The bilinguals that live in the UK may receive non-native Greek from their English-speaking parent, and possibly attrited Greek from their Greek-speaking parent(s), from other siblings or Greek-speaking relatives and friends living in the country for a prolonged period (e.g. overextension of preverbal subjects to pragmatically and syntactically inappropriate contexts). Although we did not observe any such effects in the spontaneous data we investigated, the quality of input and its role in crosslinguistic influence should be explored more systematically in future research.

to crosslinguistic influence at a certain developmental stage. These could be some of the mediating factors that differentiate among these overlap cases.

6.3.3. Directionality of crosslinguistic influence

As discussed earlier, crosslinguistic influence in the data was unidirectional, from English, the language with the unambiguous input, to Greek, the language with the more ambiguous input, and not vice versa. To be more specific, ambiguity in the input refers to constructions which seem to allow for more than one grammatical analysis from the perspective of the child grammar, and if there is a surface overlap of the two languages, the language presenting the unambiguous input is predicted to influence the language that provides ambiguous input (e.g. Döpke, 1998, 2000; Müller, 1998).

English provides unambiguous evidence with regard to the placement of subjects, in the sense that preverbal subjects are the only grammatical option and are present in the vast majority of the discourse-pragmatic or syntactic environments, i.e. subjects appear preverbally regardless of their focused status and regardless of the syntactic context in which they are used; English has a fairly fixed SV(O) word order. In contrast, the evidence that Greek provides can be considered ambiguous: Greek displays both preverbal and postverbal subjects, but each of these options is discourse-pragmatically constrained, i.e. preverbal and postverbal subjects are felicitous in different focus contexts, and these options are syntactically constrained in other contexts appearing in different clausal structures (i.e. subordinate clauses). Therefore, nothing gives rise to ambiguity in English with respect to the placement of subjects and no crosslinguistic influence from Greek was expected. In essence, the language that instantiates the less restrictive option seems to affect the other one, but not vice versa. This unidirectionality of crosslinguistic effects has also been attested in other studies in bilingual acquisition, both in narrow syntax and syntax-pragmatics interface structures.

Regarding narrow syntax structures, in Pannemann's (in press) study crosslinguistic influence in young French-Germanic bilinguals was also argued to be unidirectional: from the language with the unambiguous input, i.e. Germanic

languages in which adjectives appear prenominal, to French, the language with the more ambiguous input as adjectives are allowed in prenominal and postnominal position (see also Bernardini, 2003 for similar results). In Döpke's (1998, 2000) and Müller's (1998) studies, German, the language with the ambiguous input, was the target of transfer.

With respect to the syntax-pragmatics interface, Paradis and Navarro (2003), Serratrice et al. (2004), and Serratrice (2005) also argued for crosslinguistic influence from English to Italian and Spanish, respectively, with respect to the overgeneralisation of overt subject pronouns. Crosslinguistic influence occurred from the language with the unambiguous input, i.e. English instantiates one grammatical option, overt subjects, which is not discourse-pragmatically constrained in the same sense as in Italian and Spanish (e.g. overt subject pronouns can appear in both [+topic shift] and [-topic shift] contexts), to the languages with the more ambiguous input and the more complex interface system, i.e. Italian and Spanish allow for both null and overt subjects, whose distribution is discourse-pragmatically constrained by specific discourse-pragmatic factors (e.g. overt subject pronouns can appear only in [+topic shift] contexts). Thus, in all the previous studies the existence of an overlap between the two linguistic systems at the surface level could predict the direction of crosslinguistic influence.

Moreover, overgeneralisation of preverbal subjects in inappropriate discourse contexts has been evidenced in other developmental domains as well. For instance, L1 English near-native speakers of Italian have been found to overgeneralise preverbal subjects in discourse contexts which require the use of postverbal subjects, but they do not do the reverse, i.e. they do not extend postverbal subjects to inappropriate contexts (Sorace, 2005; Belletti, Bennati, and Sorace, 2005). Specifically, in response to a narrow focus question such as 'who coughed?' or an all-focus question such as 'what happened?' the L1 English near-native speakers optionally used a preverbal subject in their answers, whereas the Italian monolingual speakers would use a postverbal subject instead. In the same vein, English L2 speakers of Spanish have also been found to overgeneralise preverbal subjects to pragmatically inappropriate discourse contexts in Spanish in which postverbal

subjects should be used instead (Hertel, 2003). Conversely, L1 Italian/Spanish/Greek learners of L2 English do not transfer VS (Sorace, 2005).

In addition, L1 Greek speakers under attrition from English were shown to prefer the preverbal subject position in all-focus contexts to a greater extent than the controls and the authors claimed that the relative frequency of preverbal subjects increased under the influence of L2 English (Tsimpli et al., 2004).

6.3.4. The role of language dominance in crosslinguistic influence

Although it was initially predicted that crosslinguistic effects in the syntax-pragmatics interface constructions would be observed in both bilingual groups, crosslinguistic influence of English on Greek was only evidenced in the English-dominant bilingual group. The fact that the English-driven preference for preverbal subjects was evident only in the English-dominant bilinguals suggests that language dominance, i.e. the bilinguals' degree of exposure to their two languages, has a role to play in the likelihood of this type of crosslinguistic influence.

The lack of crosslinguistic influence 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, the children's dominant language. Consequently, even though a structure may overlap in the bilinguals' two languages, the possible crosslinguistic influence that would be predicted from one language over the other may not express itself if there is not sufficient input that would tip the balance in its favour.

Similarly, Serratrice (2006) claimed that the fact that the vast majority of the 12 English-Italian eight-year-old bilinguals of her study had a higher exposure to Italian (since they were living in Italy) could well be one of the reasons why crosslinguistic influence did not take place from English to Italian with respect to the distribution of overt subject pronouns in narratives, i.e. the amount of input the bilinguals obtained in English was not sufficiently high to have any crosslinguistic effects for the children's dominant language, Italian.

As was previously discussed, several studies have shown that young bilinguals acquiring English and Spanish or Italian simultaneously from birth overgeneralise overt subject pronouns to discourse-pragmatically inappropriate contexts, e.g. Paradis and Navarro (2003); Serratrice et al. (2004). Therefore, despite the fact that crosslinguistic influence in the distribution of overt subject pronouns did not appear at this developmental stage, it is possible, as in the case of object clitics, that both the English-dominant and Greek-dominant bilinguals may have passed through earlier developmental stages in which they used to overgeneralise overt subject pronouns inappropriately. In a related vein, the Greek-dominant bilinguals may have passed through a similar earlier developmental phase in which they used to overextend preverbal subjects in inappropriate structures but probably due to less sustained and regular exposure to English they managed to converge with the Greek monolinguals sooner than the English-dominant bilinguals.

6.3.5. Crosslinguistic influence as the outcome of different factors

The findings show that crosslinguistic influence can be evident even in eight-year-old bilingual children affecting specific structures and taking place under certain conditions. Crosslinguistic influence in this study seems to be the result of a combination of factors. The existence of a surface overlap between a bilingual's two languages may be a necessary but not sufficient condition for crosslinguistic influence to occur at a particular developmental stage; as was shown in section 6.3.2 above, the distributional nature of this overlap seems to be important. In addition, the fact that crosslinguistic influence from English to Greek occurred only in the English-dominant bilingual group suggests that the bilinguals' degree of exposure to each language contributes to the possibility for crosslinguistic influence.

To be more specific, the English-dominant bilinguals have greater exposure to English than to Greek and preverbal subjects are the norm in English, regardless of pragmatic and syntactic constructions, and they are also found in Greek. Therefore, the preverbal subject option is strengthened compared to the postverbal subject option overall and in the relevant syntactic and pragmatic contexts in particular (i.e. *what*-embedded interrogatives and wide-focus contexts, respectively). In other

words, the overwhelming frequency and obligatory use of preverbal subjects, the partial overlapping structure, in the input obtained by the English-dominant bilinguals, led to the overgeneralisation of this overlapping option to the inappropriate discourse and purely syntactic contexts under consideration in Greek.

One way to account for these findings is to speculate that crosslinguistic effects affect the bilingual children's grammatical representations with respect to subject placement in both the syntax-pragmatics interface and purely syntactic contexts under consideration. The English-dominant bilingual children seem to be overall aware of the availability and use of postverbal subjects in Greek in the relevant discourse-pragmatic and syntactic contexts. The data from the English-dominant bilinguals are characterized by indeterminacy and variability in the sense that most of these children used and accepted occasionally the appropriate postverbal option in both the wide-focus contexts and the *what*-embedded interrogatives. This pattern indicates that the English-dominant bilinguals do have the syntactic knowledge regarding the availability and use of postverbal subjects in Greek in various syntactic and pragmatic contexts. The bilinguals' occasional correct use of postverbal subjects and their advanced performance in the use of null subjects suggest that the English-dominant bilinguals have fully acquired a null subject grammar by setting the null subject parameter to the appropriate value. Thus, the syntactic properties responsible for the licensing of null and postverbal subjects seem to be completely acquired.

The English input, however, present more preverbal subjects on the whole, and a system in which preverbal subjects are used obligatorily regardless of syntactic or discourse-pragmatic structures, in contrast to Greek. Both of these factors might have influenced the English-dominant bilinguals' grammar in Greek with regard to the distribution of preverbal subjects. These bilinguals' preference for a preverbal subject in Greek focused structures violates a discourse-pragmatic constraint, while in *what*-embedded clauses discourse is not relevant, but the preference for a preverbal subject carries over in both constructions from English precisely because it is both overwhelmingly frequent in the input obtained by the English-dominant bilinguals and not subject to any restriction, in contrast to Greek.

In other words, the choice of preverbal subjects, the overlapping option, appears in restricted contexts in Greek, i.e. preverbal subjects are felicitous in certain discourse-

pragmatic contexts (e.g. in narrow contrastive focus contexts); and they are syntactically constrained in the sense that they appear in specific clausal structures, i.e. in a number of subordinate clauses. In English, preverbal subjects are prevalent and not constrained in the same sense, i.e. preverbal subjects appear in all discourse-pragmatic contexts, e.g. in both +/- narrow contrastive focus contexts and in all syntactic contexts, and hence crosslinguistic influence occurred from English to Greek. The outcome was the inappropriate overgeneralisation of preverbal subjects, the option that is present in the two languages, in the relevant discourse-pragmatic and purely syntactic contexts, i.e. in wide-focus contexts and *what*-embedded interrogatives, respectively. We could speculate that the English-dominant bilinguals' indeterminacy is related to their incomplete grasp of the discourse-pragmatic constraints for the use of preverbal subjects in focus contexts and of the appropriate syntactic constraints for the contexts of preverbal subject use in subordinate clauses.

The findings indicated, however, that there is a difference between the overuse of preverbal subjects in wide-focus contexts and *what*-embedded interrogatives, i.e. preverbal subjects were overused more frequently in wide-focus contexts than in *what*-embedded interrogatives. This result indicates that the domain of the surface overlap does seem to be an important factor in terms of the degree of vulnerability of a particular overlapping structure to crosslinguistic influence. In particular, overlapping options relevant to the syntax-pragmatics interface, and hence involving the integration of syntactic and discourse-pragmatic knowledge, may be subject to crosslinguistic effects to a larger extent at a certain developmental stage than overlapping options relevant to the syntax proper alone. Other researchers have argued that there is a difference between purely syntactic properties and interface properties in terms of syntactic complexity: structures that involve the integration of syntactic knowledge and knowledge from other domains may qualify as more complex than structures requiring syntactic knowledge only (see Jakubowicz, 2000; Sorace, 2005). It could therefore be argued that input ambiguity in syntax-pragmatics interface structures, which may be considered as more complex because they involve the mastery of both syntactic and discourse-pragmatic knowledge, may be more

problematic for bilinguals than input ambiguity in purely syntactic structures, which could be considered as less complex since they require syntactic knowledge alone.⁴⁵

Nonetheless, it is possible to interpret the results of this study in a different way. The alternative possible explanation for the fact that crosslinguistic effects were found in both purely syntactic and interface structures is that the effects do not pertain to the level of grammatical representations, but rather to the level of grammatical processing. Recent research on monolingual acquisition has shown that many of the characteristics of child grammar which were regarded as exclusively grammatical in nature are in fact best explained as having a syntactic basis compounded with the inefficiency of processing resources (Avrutin, 1999, 2004; Rizzi, 2002).⁴⁶ The type of data (off-line) presented in this study do not allow us to fully explore this scenario, but it is nevertheless possible to speculate that this type of account allows us to integrate one of the more puzzling characteristics of the original hypothesis: its reliance on surface features of the input.

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) (e.g. Roeper and de Villiers, 1994; Radford, 2004, among others). In addition, several studies have shown that young bilingual children do not make errors of transfer, acceleration or delay in the acquisition of the syntax of one of their languages due to the presence of the other language (e.g. Paradis and 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, Döpke, 1998, 2000; Paradis and Navarro, 2003; Serratrice, 2005). Why would then bilingual children be led astray by the surface overlap between languages?

Clahsen and Felser (2006) argued that adult late bilinguals often engage in 'shallow' processing, which results in privileging non-structural (semantic or

⁴⁵ This proposal is in line with findings in L1 attrition and adult L2 acquisition: it has been shown that aspects of grammar that require not only syntactic knowledge but the ability to coordinate syntactic knowledge with knowledge from discourse-pragmatics (or other domains) are late acquired or possibly never completely acquired by L2 learners and they may be susceptible to attrition effects (e.g. Montrul, 2002, 2004; Sorace, 2005).

⁴⁶ In particular, a variety of production and comprehension errors evident in different domains, e.g. the interpretation of pronouns, use of definite determiners, root infinitives, were traditionally explained in syntactic terms. In recent proposals, however, young children are assumed to possess the relevant linguistic knowledge, while their processing resources are not efficient (Avrutin, 1999).

pragmatic) cues at the expense of structural analyses (see also Felser, et al., 2003). In particular, it was shown that although the late bilinguals were successful in drawing on lexical, morphological and pragmatic sources of information, they underused syntactic structure, which resulted in shallower and less detailed processing than that of native speakers. Therefore, the authors indicated that an account for L2 speakers' divergent behaviour does not necessarily have to involve positing 'representational deficits' since L2 speakers can and indeed do attain target representations of the L2 but they may nevertheless compute incomplete or shallow syntactic parses in certain complex contexts that impose a greater processing overload, e.g. when faced with sentence ambiguities. In this sense, shallow processing might be characterised as a relief strategy that is available to all speakers but bilingual speakers especially may rely more on it (Sorace, 2006). Arguably, the coordination of the choice of syntactic options with the appropriate syntactic or pragmatic conditions in particular complex contexts may be more likely to exceed bilingual speakers' capacity and to force them to resort to shallow computations.

In a similar vein, it is possible to speculate that the bilingual children's 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, particularly when dealing with structures whose instantiation, in one of their languages, is subordinated to complex conditions in particular pragmatic or syntactic contexts.

Thus, it is possible that the overgeneralisation of preverbal subjects in wide-focus contexts may be due to shallow processing of the interface conditions regulating the use of preverbal subjects in different discourse contexts and subsequent assimilation of preverbal subjects in Greek to the corresponding preverbal subjects in English, which unlike preverbal subjects in Greek, are used in all types of discourse contexts. Similarly, the inappropriate use of preverbal subjects in *what*-embedded interrogatives may stem from shallow processing of the syntactic conditions governing the distribution of preverbal subjects in various subordinate clauses and consequent equation of preverbal subjects in Greek to the corresponding preverbal

subjects in English, which unlike preverbal subjects in Greek, are used in all subordinate clauses.

Admittedly, structures that involve the coordination of syntax and pragmatics may be more likely to stretch the bilingual children's processing abilities to their limits and hence to force them to resort more often to shallow computations than structures that involve syntax alone, as is also suggested by the present study. The increased difficulty posed by the interfaces may stem from the bilingual children's not consistently having the processing abilities in coordinating and integrating different types of knowledge (see Sorace, 2005, 2006, for more discussion on this issue in the context of L1 attrition and advanced L2 speakers). In this context we could suggest that ambiguity in the input may be more problematic for bilinguals in syntax-pragmatics interface structures, which seem to pose more processing difficulties for the bilinguals, than input ambiguity in narrow syntax structures, as the current findings have also indicated.

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. Thus, 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 choice of syntactic options with the appropriate (syntactic or discourse-pragmatic) conditions.

As has already been discussed, the English-dominant bilingual children can, and occasionally do use postverbal subjects in Greek in the relevant discourse-pragmatic and syntactic contexts appropriately. Although their grammatical knowledge may not be affected, this is clearly not sufficient to ensure consistently targetlike performance in subject placement in constructions both at the syntax-pragmatics interface and syntax proper.⁴⁷ As a result, these bilinguals are not consistent in applying the appropriate discourse-pragmatic constraints on the placement of subjects in the wide-focus contexts tested and the appropriate syntactic constraints on the position of subjects in *what*-embedded interrogatives. The overwhelming frequency and less

⁴⁷ The fact that these bilingual children can and do use postverbal subjects appropriately, although in a minority of cases, suggests that they are not 'incomplete acquirers' of Greek like, for example, the descendants of first-generation Spanish immigrants in the US studied by Montrul (2004). These children use also null subjects in a targetlike way: they have acquired a null subject grammar.

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.

In conclusion, the surface overlap between the two languages and its distributional properties, i.e. the salience of the conditions (be it in syntactic or pragmatic) on the distribution of the two options allowed in one of the languages, and the availability of the contexts in which the overlapping structure is disallowed, as well as language dominance, intended as the amount of input the bilinguals receive in each language, seem to determine the occurrence of crosslinguistic influence in the eight-year-old English-dominant bilinguals of the present study. It is important to note that the domain of the surface overlap seems to play a role in the degree of susceptibility of a particular overlapping structure to crosslinguistic influence in these older bilinguals, i.e. preverbal subjects were overused significantly more often in the syntax-pragmatics interface structure rather than in the syntax proper one.

The combined role of a surface overlap between the two languages, and language dominance in crosslinguistic influence has been proposed by other researchers as well in simultaneous bilingual acquisition. For instance, Bernardini (2003) argued that the effects of crosslinguistic influence in partially overlapping structures were more evident in the bilinguals who were dominant in the language that allowed only the overlapping option (i.e. Swedish).

While no firm conclusions can be drawn on the basis of this study alone, the different facets of this pattern of results might also be consistent with the view that crosslinguistic effects, in older bilingual children, may affect the level of processing, rather than that of grammatical representations, which might probably be targetlike at this later stage of development. In other words, it is possible that crosslinguistic effects in older bilinguals due to the surface overlap between the two languages in syntax-pragmatics interface and purely syntactic structures might possibly relate to the grammatical competence level or to the processing level. Future studies should find methodologically appropriate ways to investigate further this complex matter.

6.3.6. Mixed results on the effects of crosslinguistic influence in simultaneous bilingual acquisition regarding the distribution of overt and null subject pronouns: Some methodological considerations

Previous studies on the distribution of null and overt subjects in bilingual children acquiring English together with Spanish or Italian (Paradis and Navarro, 2003; Serratrice, Sorace and Paoli, 2004; Serratrice, 2005) indicated that the use and interpretation of overt subject pronouns was subject to crosslinguistic influence from English. In contrast, Serratrice (2006) and the current study did not find any significant difference between the bilingual children and their monolingual peers in the production and acceptability of overt subject pronouns.

Several methodological differences between the studies cited can potentially account for these contrasting results. First, Paradis and Navarro (2003) and Serratrice et al. (2004) were single case studies of younger pre-school children, whereas Serratrice (2005), Serratrice (2006) and the present study tested a greater number of older school-age bilingual children. In the latter two studies, it could be the case that the bilinguals might have gone through a similar stage of producing pragmatically inappropriate overt subject pronouns at an earlier developmental phase but they eventually managed to converge with the monolinguals.

Serratrice (2005), however, did find some evidence for crosslinguistic influence in the interpretation of null and overt subject pronouns even though she also tested eight-year-old bilingual children. One possible explanation for the different results could be related to the different tasks used for the elicitation of the relevant data. Serratrice (2005) used a picture verification task in which the participants heard a main clause with two gender-matched referents, preceded or followed by a subordinate clause with either a null or an overt subject pronoun. Upon hearing each stimulus the informants had to choose one of three pictures; each picture was associated with a different interpretation of the pronoun used in the subordinate clause. In one picture the pronoun was interpreted as coreferential with the subject in the main clause, in the second picture the pronoun was interpreted as coreferential with the object in the main clause, and in the third picture the pronoun referred to a third gender-matched antecedent that had not been mentioned.

In the current study, we used both an elicited production task, and a forced-choice acceptability judgement task. The comprehension tasks used in this study and Serratrice's (2005) study, i.e. forced-choice and picture verification task, are potentially different with regard to the nature of demands imposed on the informants. In the forced-choice judgement task the stimuli were presented orally and the choice was between two options, i.e. null or overt subject pronouns. In the picture-verification task however, the participants had to coordinate information from the oral and the visual modality, and the choice was between three different options rather than two (Serratrice, 2006). As Serratrice (2006) noted, the extra processing load might have affected the informants' linguistic behaviour to some degree. The data from the Greek adult monolingual group in our study provide further support for Serratrice's proposal since the adults performed at ceiling with 100% correct answers, whereas in Serratrice's (2005) study the Italian monolingual adults chose an inappropriate subject referent for an overt subject pronoun between 8 and 13% of the time.

Moreover, Serratrice's (2006) production data are in line with our study's production data, i.e. in both studies, the production tasks indicated that overt subject pronouns were not subject to crosslinguistic effects in contrast to Serratrice's (2005) findings. One of the reasons for the difference between these production and comprehension data may possibly be related to the general difference between production and comprehension tasks.

In particular with respect to pronouns, Serratrice (2006) argued that production and comprehension of pronouns are associated with different psycholinguistic processes. She claimed that in production the speaker chooses to use a null or an overt pronoun based on the discourse context he or she wants to express.

In comprehension, however, upon hearing an overt subject pronoun the listener has to consider another referential expression the speaker could have possibly used, that is a null pronominal subject, make a comparison between the interpretation associated with the overt subject pronoun heard (i.e. non-coreferential interpretation), and the interpretation of a null subject pronoun (i.e. coreferential interpretation), and subsequently realise that if the speaker used the overt subject pronoun the appropriate interpretation is the one in which the referent is not a subject (Serratrice,

2006). This evaluative process requires the listener to consider the speaker's perspective and imposes a substantial processing load on the listener.

The author pointed out that in everyday communicative situations there are additional discourse cues available to the listener in order to disambiguate the pronouns, but in experimental conditions in which informants are invited to make judgements on a one-sentence discourse context, this evaluative process is tested to its limits, and as a result pragmatically inappropriate choices might occur.

6.3.7. Chapter summary

The main objective of this thesis was to explore the occurrence of crosslinguistic influence in the domains of the syntax-pragmatics interface and narrow syntax in two groups of eight-year-old English-Greek bilinguals. We also wanted to investigate whether language dominance, in the sense of the quantity of input received by the bilinguals in each of their two languages, plays a role in crosslinguistic influence.

This study provides evidence that crosslinguistic influence can persist over time and it can affect both purely syntactic and syntax-pragmatics interface structures in school-age bilingual children, albeit to a different degree. Syntactic and pragmatic transfer errors can be evident even in later developmental stages of bilingual acquisition, well after the C-domain is in place. Furthermore, crosslinguistic influence is unidirectional from English to Greek; the major factor determining the directionality of crosslinguistic influence is the surface overlap between the two languages regarding individual structures. Crosslinguistic influence in this study is the outcome of different factors; namely the nature of the surface overlap between the two languages and language dominance contribute to the occurrence of crosslinguistic influence at this developmental stage.

In particular, this study indicates that although a surface overlap between two languages in bilingual acquisition may provide a potential for crosslinguistic influence, some of the overlapping structures may be more vulnerable to crosslinguistic effects at a certain developmental stage due to the influence of other factors possibly related to the distributional nature of the overlap. Furthermore, the domain of the surface overlap seems to matter only in relation to the degree of

vulnerability of a specific structure to crosslinguistic effects. Nevertheless, this potential for crosslinguistic effects seems to be also partially determined by the amount of exposure the bilinguals have to their two languages overall. 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 does not allow us to draw any definite conclusions at this stage. Concluding remarks and suggestions for future research are presented in the following chapter.

CHAPTER 7

Conclusions

7.1. Empirical findings and their implications for bilingual language acquisition research

This study on crosslinguistic influence in eight-year-old English-Greek bilingual has made a number of empirical and theoretical contributions which are relevant to research on childhood bilingualism.

This thesis provided new empirical data from a previously untested language pair in relation to the conditions that may favour the occurrence of crosslinguistic influence in school-age bilingual children. Crosslinguistic influence in these eight-year-old English-Greek bilingual children was found to be a constrained phenomenon that seems to obey certain conditions and affects only particular structures.

The surface overlap between the bilinguals' two languages seems to be a crucial condition for crosslinguistic influence to occur in these eight-year-old English-Greek bilingual children. It was argued that due to crosslinguistic influence from English, preverbal subjects-the overlapping option between Greek and English-was inappropriately overextended in the syntax-pragmatics interface domain, i.e. to wide-focus contexts, and in the purely syntactic domain, i.e. to *what*-embedded interrogatives, by the English-dominant bilinguals. In addition, crosslinguistic influence occurred unilaterally, as predicted, from English, the language in which preverbal subjects are overwhelmingly instantiated and are not constrained by discourse-pragmatic and syntactic factors in the same way as in Greek, to Greek, the language in which preverbal subjects are allowed in specific discourse-pragmatic and syntactic contexts.

A number of previous studies, e.g. Paradis and Navarro (2003) and Serratrice et al. (2004) and Serratrice (2005) showed that at later developmental stages, after the C-domain is established, the outcome of crosslinguistic influence is the acceptance of pragmatically infelicitous options. On the other hand, the findings of the present

study showed that crosslinguistic influence in the English-dominant bilinguals resulted in both pragmatically and syntactically inappropriate subject placement errors. Purely syntactic structures, that instantiate a surface overlap between the bilinguals' two languages, can be equally prone to crosslinguistic influence as the constructions relevant to the syntax-pragmatics interface, even in older simultaneous bilinguals. Thus, the existence of a surface overlap between the bilinguals' two languages, even if it's just relevant to narrow syntax, seems to be the important condition for crosslinguistic influence to take place. However, the domain of the surface overlap seems to matter in terms of the degree of vulnerability of a specific structure to crosslinguistic influence, i.e. syntax-pragmatics interface structures were affected to a larger extent by crosslinguistic influence than the purely syntactic structures. This empirical evidence suggests that the claim regarding the particular susceptibility of syntax-pragmatics interface overlapping structures to crosslinguistic influence in bilingual acquisition needs to be reconsidered, and a wider typology of cases needs to be explored.

In contrast to preverbal subjects, the distribution of overt subject pronouns was not found to be susceptible to crosslinguistic influence, although there is an overlap between the two languages regarding this structure (for similar results see also Serratrice, 2006). It was argued that other factors relevant to the distributional nature of the overlap between the two languages, i.e. the degree of salience of the distributional restrictions (syntactic or pragmatic) on the two options allowed in one of the languages and the extent of the availability of the contexts in which the overlapping structure is disallowed, may also further affect the vulnerability of overlapping structures to crosslinguistic influence at a specific developmental phase. Consequently, what seems to matter in crosslinguistic influence in this study is the distributional nature of the overlap between the two languages and not the domain in which the overlap is instantiated (narrow syntax vs. syntax-pragmatics interface).

In other words, we propose that when the choice of a morphosyntactic option, which is shared by the two languages (e.g. preverbal subjects), is allowed in restricted contexts (e.g. discourse-pragmatic and/or syntactic contexts) in language A, but it is not a constrained option in the same sense in language B, unidirectional crosslinguistic influence is likely to occur from language B to language A. In that

case, the bilingual child might extend this option to inappropriate contexts-possibly to a larger extent in discourse-pragmatic contexts than in purely syntactic contexts-in language A, i.e. the bilingual child might optionally select the syntactic option that is allowed in the target language in restricted contexts and extend it to contexts in which the target language does not allow it. Nonetheless, some overlapping structures may be more susceptible to crosslinguistic influence in older bilinguals due to the impact of other factors, such as the degree of saliency of the distributional constraints of the two options present in one of the bilinguals' languages.

Moreover, the present study demonstrated that the potential for crosslinguistic influence in the case of a surface overlap between the bilingual's two languages is at least partially modulated by language dominance, in the sense of the amount of input the bilinguals obtain in each language. Several researchers have argued that this factor is important in crosslinguistic influence (e.g. Yip and Matthews, 2000), while others have claimed that this factor does not play a role in crosslinguistic influence since in several cases the directionality of crosslinguistic effects was from the weaker to the dominant language (e.g. Müller and Hulk, 2001).

This study illustrated that language dominance, in the sense of the amount of input the bilinguals obtain in each language, can actually affect the likelihood of crosslinguistic influence. It could be the case that language dominance, in this sense, is even more relevant as a contributing factor to crosslinguistic influence in older than in younger bilinguals. This is because the amount of input in the majority language increases as soon as the bilingual child starts attending school, where the community language is the language of instruction and the language used in most of the children's social interactions (see also Döpke, 1992).

Generally, after the age of 4-5 years the child's social network changes in the vast majority of cases, in the sense that the bilingual child interacts mostly with monolingual speakers of the majority language on a regular basis during daily activities, e.g. sports, social gatherings, school, music schools etc. Thus, it is inevitable, even for children who have fairly regular and balanced exposure to their two languages, that the language of the community in which they live is the one used in most of their social interactions. In other words, the language the bilinguals use to interact with their peers will become increasingly more important by the time they

start attending school, and in most cases this is the language of the country in which the bilinguals live. Language dominance therefore, defined as the quantity of input the bilinguals obtain in each language on a regular basis, should be examined carefully when investigating issues of crosslinguistic influence in older bilinguals. The amount of input the bilinguals receive in each language is yet another variable that was shown to have an important explanatory power in this study of crosslinguistic influence in older bilinguals.

The discussion of the mixed results on the impact of crosslinguistic influence in simultaneous bilingual children regarding the distribution of overt and null subjects raised a number of methodological issues that future research on childhood bilingualism will have to consider in order to achieve a better understanding of the bilingual children's linguistic development and interaction between the two languages.

Crosslinguistic influence in the present study seems to be the outcome of different factors. This proposal is in line with Meisel's (1983) claim that convergence of strategies can be the most appropriate explanation of crosslinguistic influence (for a similar proposal, see also Paradis and Navarro, 2003). Crosslinguistic effects from English to Greek were found to be constrained by conditions that were partly different from those hypothesized by recent research: the effects are not found in all syntax-pragmatics interface structures, nor do they appear to be restricted to this interface, since they were also obtained in some syntax proper structures. More specifically, the existence of a surface overlap between the two languages seems to be the main determinant of the occurrence and directionality of crosslinguistic influence. However, this particular factor appears to be a necessary but not sufficient condition for crosslinguistic influence to occur: certain overlapping structures might be more susceptible to crosslinguistic effects at a particular developmental stage because of the influence of other factors associated with the nature of the surface overlap between the two languages. In addition, although the domain of the surface overlap does not seem to be important regarding the occurrence of crosslinguistic influence, overlapping structures can be vulnerable to crosslinguistic effects to different degrees depending on the domain they involve (syntax-pragmatics interface vs. narrow syntax). Furthermore, the actual occurrence of crosslinguistic interaction

seems to be at least partially affected by language dominance, in the sense of the amount of input received, since it is manifested only in the English-dominant bilingual children.

Crosslinguistic influence, therefore, appears to be a multifaceted constrained phenomenon, whose occurrence in older bilingual children may be dependent on the combination of a number of different factors. Furthermore, although no firm conclusions can be drawn on the basis of this study alone, the current findings might suggest that crosslinguistic effects, in older bilingual children, may affect the level of processing, rather than that of grammatical representations, which may be targetlike at this later developmental phase.

The present study indicated that crosslinguistic influence can occur even in older simultaneous bilingual children under specific conditions and therefore an interesting empirical question is whether the English-dominant bilinguals, who are simultaneous bilingual children from birth, will ever converge with the Greek-dominant bilinguals and their Greek monolingual peers. It is generally assumed that although the human language capacity includes a disposition for multilingualism, this language ability decreases continually as the child matures (Critical Period Hypothesis) (Meisel, 2004). Thus, if the prerequisite for native-like ultimate attainment is age of acquisition, it is predicted that the development and grammatical knowledge ultimately attained in simultaneous bilingual acquisition is equal to the development and grammatical knowledge in monolingual L1 acquisition, whereas second language learners exhibit significant differences compared to those of monolingual learners.

Previous research has shown that it is the same grammatical domains that appear to be unstable in language development and change, irrespective of the circumstances in which development occurs (Sorace, 2005). In other words, it is the same areas of grammar that exhibit vulnerability to crosslinguistic influence in different types of language learners.

Recent research has pointed to a split between narrow syntax and syntax-pragmatics interface structures in terms of their vulnerability to crosslinguistic influence in adult L2 acquisition and in L1 non-pathological attrition (Montrul, 2002, 2004; Tsimpli et al., 2004; Belletti et al., 2005; Sorace, 2005, among others). Narrow

syntax phenomena are (relatively) stable, and thus are acquired successfully by adult L2 learners and are usually not affected in the L1 under attrition. In contrast, phenomena that are relevant to the syntax-pragmatics interface may never be completely acquired by the L2 learners and may be susceptible to the effects of attrition (e.g. Montrul, 2004). Sorace (2005) points out that it is among these grammatical domains that one finds 'residual' L2 optionality due to the influence of the native language and 'emerging' optionality due to the influence of the second language. Syntax-pragmatics interface structures have also been found vulnerable to crosslinguistic effects in young and older simultaneous bilingual children (see Paradis and Navarro, 2003; Serratrice et al., 2004; Serratrice, 2005).

In this study, crosslinguistic influence affected both syntax-pragmatics interface and narrow syntax phenomena (to different degrees) but only in the English-dominant bilingual group: preverbal subjects were overused more frequently in the syntax-pragmatics interface structures than in the narrow syntax structures (see also Sorace 2005, for similar findings in adult L2 acquisition and L1 attrition).

Although there is very limited data in terms of the ultimate attainment in older simultaneous bilinguals who have been exposed to both languages within the critical period and no firm conclusions can be drawn, given the fact that the English-dominant bilinguals have been continuously exposed to both languages from birth, we could speculate that they will eventually converge with the target regarding the placement of subjects in *what*-embedded interrogatives and wide-focus contexts in Greek. The difference between these two domains might be that the bilinguals may take longer to converge with the monolinguals regarding the syntax-pragmatics interface domain (which is more problematic) than the narrow syntax domain. Thus, even though crosslinguistic interaction was evidenced in these domains, the effects should be at most temporary.

The syntax-pragmatics interface aspects of grammar that require not only syntactic knowledge, but the ability to coordinate syntactic knowledge with knowledge from other domains may be late acquired or possibly never completely acquired by L2 learners and can be prone to attrition in L1, as shown by several studies (Sorace, 2005; Tsimpli et al., 2004). However, the prediction with regard to narrow syntax would be that near-native grammars would converge with monolingual grammars,

and grammars under attrition would not diverge from native grammars, as has been found in a number of studies (see Sorace, 2005). These speculative remarks must suffice for the time being while more research is needed to explore this complex issue in more depth.

7.2. Suggestions for future research

The vast majority of studies in bilingual acquisition have addressed the issue of crosslinguistic influence in early stages of bilingual development. Recent studies on older bilinguals, including this one, have shown that crosslinguistic influence may persist over time in specific contexts given regular exposure to two languages. Consequently, although it is invaluable to investigate the early stages of bilingual acquisition, more research on crosslinguistic influence in later stages of bilingual development is required, in order to obtain a more complete picture regarding the nature of crosslinguistic influence and the factors that may favour its occurrence in these stages.

In this study, crosslinguistic influence was found to be a constrained phenomenon that affects specific structures and manifests itself under certain conditions. However, more empirical evidence from different language pairs is needed in order to further substantiate our proposal about the role the nature of the surface overlap between the two linguistic systems and language dominance play in crosslinguistic influence in older bilinguals. Furthermore, more empirical data are necessary in order to see whether such crosslinguistic effects, found at later stages of bilingual development, may remain a characteristic feature of bilingual competence.

The surface overlap between the bilinguals' two languages has been shown to be an important factor for crosslinguistic influence to occur in a number of studies, including this one. Future research in bilinguals should examine different grammatical phenomena that instantiate a surface overlap between the two linguistic systems (i.e. one language provides evidence for two different analyses and the other language provides evidence for just one of these analyses) and are anchored to narrow syntax or the syntax-pragmatics interface, or other grammatical domains, in order to investigate whether the surface overlap between the two languages is

important for crosslinguistic influence to occur in other domains as well. Moreover, more overlapping structures from the same grammatical domain should be explored in order to see the extent to which all such structures are equally prone to crosslinguistic influence and to identify possible factors that may further affect their vulnerability to crosslinguistic influence. Future studies in younger and older bilingual should also investigate whether there is a difference in the degree of susceptibility to crosslinguistic effects between a wider range of narrow syntax and syntax-pragmatics interface overlapping structures.

Another way for future research to further substantiate the argument about the surface overlap and its importance in crosslinguistic influence is to test overlapping structures in both languages of the bilingual children. For example, English could be the language that provides evidence for two grammatical analyses and Greek could then be the language that provides evidence for one of these analyses, and vice versa.

Language dominance, defined as the amount of input the bilinguals obtain in each language, was also found to be an important factor in crosslinguistic influence in this study. Therefore, the role of the quantity of input the bilinguals obtain in each language should be explored more systematically in future research on crosslinguistic influence in older bilinguals. A further interesting point concerning the role of input in crosslinguistic influence could be that the input which bilingual children receive might already be qualitatively different from the input in a monolingual community. As a result, both aspects of the input the bilinguals obtain should be carefully examined in future research in childhood bilingualism in order to investigate more systematically their role in crosslinguistic influence.

The results of this thesis indicate that current research in bilingual acquisition needs to focus on the interaction of different factors that may favour crosslinguistic influence in older bilingual children, as well as to investigate the way crosslinguistic influence might affect the course of language acquisition at these later developmental stages. Additionally, future research should find theoretically and methodologically appropriate ways to disentangle representational and processing effects in bilingual language development. We believe that this line of inquiry will shed more light on the precise nature of the contact between the two languages of older bilingual children.

BIBLIOGRAPHY

- Agouraki, G. (1990). On the projection of maximal categories. *UCL Working Papers in Linguistics*, 2, 182-200.
- Alexiadou, A. and Anagnostopoulou E. (1998). Parametrizing Agr: Word order, V-movement and EPP-checking. *Natural Language and Linguistic Theory*, 16, 491-539.
- Alexiadou, A. and Anagnostopoulou, E. (2000). Greek syntax: A principles and parameters perspective. *Journal of Greek Linguistics*, 1, 171-222.
- Alexopoulou, T. (1999). The syntax of discourse functions in Greek: a non configurational approach. University of Edinburgh, Doctoral dissertation.
- Allen, S. (2000). A discourse-pragmatic explanation for argument representation in child Inuktitut. *Linguistics*, 38, 483-521.
- Allen, S. (2001). The importance of discourse-pragmatics in acquisition. *Bilingualism, Language and Cognition*, 4, 23-25.
- Allen, S. and Schroder, H. (2003). Preferred argument structure in early Inuktitut spontaneous speech data. In J. W. Du Bois, L. Kumpf and W. Ashby (eds.), *Preferred argument structure: Grammar and architecture for function*, 301-338. Amsterdam: John Benjamins.
- Avrutin, S. (1999). *Development of the syntax-discourse interface*. Dordrecht: Kluwer.
- Baker, N. and Greenfield, P. (1988). The development of new and old information in young children's early language. *Language Sciences*, 10(1), 3-34.
- Belletti, A. (1988). The case of unaccusatives. *Linguistic Inquiry*, 19, 1-34.
- Belletti, A. and C. Leonini (2004). Subject inversion in L2 Italian. In S. H. Foster-Cohen, M. Sharwood Smith, A. Sorace and M. Ota (eds.), *Eurosla Yearbook*, 95-118. Amsterdam: John Benjamins.
- Belletti, A., Bennatti, E. and Sorace, A. (2005). Theoretical and developmental issues in the syntax of subjects: evidence from near-native Italian. Ms, submitted.
- Bergman, C. (1976). Interference vs. independent development in infant bilingualism. In G. Keller, R. Tescner and S. Viera (eds.), *Bilingualism in the bicentennial and beyond*. New York: Bilingual Press.
- Bernardini, P. (2003). Child and adult acquisition of word order in the Italian DP. In N. Müller (ed.), *(In)vulnerable domains in multilingualism*, 41-81. Amsterdam: John Benjamins.

- Bernardini, P. and Sclyter, S. (2002). Growing syntactic structure and code-mixing in the weaker language. Paper presented at IASCL/SRCLD 2002: July 16-21, Madison, Wisconsin.
- Bialystok, E. (2001). *Bilingualism in development: Language, literacy and cognition*. Cambridge: Cambridge University Press.
- Bloom P. (1990). Subjectless sentences in child language. *Linguistic Inquiry*, 21, 491-504.
- Brown, R. (1973). *A first language: The early stages*. Cambridge, MA: Harvard University Press.
- Burkhardt, P. (2005). *The syntax-discourse interface: Representing and interpreting dependency*. Amsterdam: John Benjamins.
- Burzio, L. (1986). *Italian syntax*. Dordrecht: Reidel.
- Catsimali, G. (1990). Case in Modern Greek. Implications for clause structure. University of Reading, Doctoral dissertation.
- Chiat, S. (1986). Personal pronouns. In P. Fletcher and M. Garman (eds.), *Language Acquisition*, 339-355. Cambridge: Cambridge University Press.
- Chomsky, N. (1981). *Lectures on Government and Binding*. Dordrecht: Foris.
- Clahsen, H. and Felser, C. (2006). Grammatical processing in language learners. *Applied Psycholinguistics* 27 (1), 3-42.
- Clancy, P. M. (1993). Preferred argument structure in Korean acquisition. In E. Clark (ed.), *Proceedings of the 25th Annual Child Language Research Forum*, 307-314. Stanford: CSLI Publications.
- Clancy, P.M. (1997). Discourse motivations for referential choice in Korean acquisition. In H. Sohn and J. Haig (eds.), *Japanese/Korean linguistics*, vol. 6, 639-659. Stanford: CSLI Publications.
- Clancy, P.M. (2003). The lexicon in interaction: Developmental origins of preferred argument structure in Korean. In J. W. DuBois, L. E. Kumpf and W. J. Ashby (eds.), *Preferred argument structure: Grammar as architecture for function*. Amsterdam: John Benjamins.
- Cromdal, J. (1999). Childhood bilingualism and metalinguistic skills: Analysis and control in young Swedish-English bilinguals. *Applied Psycholinguistics*, 20, 1-20.
- De Cat, C. (2004). Early 'pragmatic' competence and the null subject phenomenon. In R. Bok-Bennema, B. Hollebrandse, B. Kampers-Manhe and P. Sleeman (eds.),

- Romance Languages and Linguistic Theory 2002. Selected papers from Going Romance 2002*, 17-32. Amsterdam: John Benjamins.
- De Houwer, A. (1990). *The acquisition of two languages from birth: a case study*. Cambridge: Cambridge University Press.
- De Houwer, A. (1995). Bilingual Language Acquisition. In P. Fletcher and B. MacWhinney (ed.), *The Handbook of Child Language*, 219-250. Oxford: Blackwell.
- De Houwer, A. (1998). By way of introduction: Methods in studies of bilingual first language acquisition. *International Journal of Bilingualism*, 2, 249-263.
- Deuchar, M. and Quay, S. (2000). *Bilingual acquisition: theoretical implications of a case study*. Oxford: Oxford University Press.
- Déprez, V. and Pierce A. (1993). Negation and functional projections in early grammar. *Linguistic Inquiry*, 24, 25-67.
- De Villiers J.G. and De Villiers, P.A. (1985). The acquisition of English. In D.I. Slobin (ed.), *The crosslinguistic study of language acquisition*, Vol. 1, 27-139. *The data*. New Jersey: Lawrence Erlbaum Associates.
- Diessel H. (2004). *The acquisition of complex sentences*. Cambridge: Cambridge University Press.
- Dimitriadis, A. (1996). When pro-drop languages don't: Overt pronominal subjects and pragmatic inference. In L.M. Dobrin, K. Singer, and L. McNair (eds.), *Papers from the 32nd Regional Meeting of the Chicago Linguistics Society*, pp. 33-47. Chicago: Chicago Linguistics Society.
- Döpke, S. (1992). *One parent one language: an interactional approach*. Amsterdam: John Benjamins.
- Döpke, S. (1998). Competing language structures: the acquisition of verb placement by bilingual German-English children. *Journal of Child Language*, 25, 555-584.
- Döpke, S. (2000). Generation of and retraction from cross-linguistically motivated structures in bilingual first language acquisition. *Bilingualism: Language and Cognition*, 3, 209-226.
- Dyakonova, M. (2004). Information structure development: Evidence from the acquisition of word order in Russian and English. *University of Tromsø Working Papers on Language and Linguistics*, 32, 1-22.
- Edwards, J. V. (2004). Foundations of bilingualism. In T. K. Bhatia and W. C. Ritchie (eds.), *The handbook of bilingualism*, 7-31. Oxford: Blackwell.

- Enç, M. (1986), Topic switching and pronominal subjects in Turkish, in Slobin, D. and K. Zimmer, (eds.) *Studies in Turkish Linguistics*, 195-208, Amsterdam: John Benjamins.
- Erteschik-Shir, N. (1997). *The dynamics of focus structure*. Cambridge: Cambridge University Press.
- Felser, C., Roberts, L., Gross, R., and Marinis, T. (2003). The processing of ambiguous sentences by first and second language learners of English. *Applied Psycholinguistics*, 24, 453-489.
- Galambos, S.J. and Hakuta, K. (1988). Subject-specific and task-specific characteristics of metalinguistic awareness in bilingual children. *Applied Psycholinguistics*, 9, 141-162.
- Genesee, F. (1989). Early bilingual development: One language or two? *Journal of Child Language*, 6, 161-179.
- Genesee, F., Nicoladis, N. and Paradis, J. (1995). Language differentiation in early bilingual development. *Journal of Child Language*, 22, 611-631.
- Genesee, F. (2000). Introduction. *Bilingualism, Language and Cognition*, 3, 167-172.
- Genishi, C. (1981). Codeswitching in Chicano six-year-olds. In R. P. Durán (ed.), *Latino language and communicative behaviour*, 133-152. Norwood, NJ: ABLEX Publishing Corporation.
- Gerken, L. A. (1991). The metrical basis for children's subjectless sentences. *Journal of Memory and Language*, 30, 431-451.
- Grimshaw, J. and Samek-Lodovici, V. (1998). Optimal subjects and subject universals. In Barbosa P., D. Fox, P. Hangstrom, M. McGinnis, and D. Pesetsky (eds.), *Is the best good enough? Optimality and competition in syntax*, 193-291, Cambridge, MA: MIT Press.
- Grosz, B., A. K. Joshi and S. Weinstein (1995). Centering: A framework for modelling the local coherence of discourse. Technical Report IRCS-95-01, IRCS, University of Pennsylvania.
- Grosjean, F. (1982). *Life with two languages: An introduction to bilingualism*. Cambridge, MA: Harvard University Press.
- Guasti, M.T. (1993/1994). Verb syntax in Italian child grammar: Finite and non-finite verbs. *Language Acquisition*, 3, 1-40.
- Guasti, M.T. (1996). The acquisition of Italian interrogatives. In H. Clahsen (ed.), *Generative perspectives on language acquisition*. Amsterdam: John Benjamins.

- Guasti, M.T. (2000). An excursion into interrogatives in early English and Italian. In M. A. Friedemann and L. Rizzi (eds.), *The acquisition of syntax*, 105-128. London: Longman.
- Guasti, M.T. (2002). *Language acquisition: the growth of grammar*. Cambridge, MA: MIT Press.
- Guerriero, S., Cooper, A., Oshima-Takane, Y. and Kuriyama, Y. (2001). A discourse-pragmatic explanation for argument realisation and omission in English and Japanese children's speech. In A. H.-J. Do, L. Dominquez and A. Johansen (eds.), *Proceedings of the 25th Annual Boston University Conference on Language Development*, 319-330. Somerville, MA: Cascadilla Press.
- Hacohen, A. and Schaeffer, J. (2005). Subject realization in early Hebrew/English bilingual acquisition: The role of crosslinguistic influence. Ms., Ben-Gurion University of the Negev.
- Haegeman, L. (1996). Root infinitives, clitics and truncated structures. In H. Clahsen (ed.), *Generative perspectives on language acquisition: Empirical findings, theoretical considerations and crosslinguistic comparisons* [Language acquisition and language disorders 14]. Amsterdam: John Benjamins.
- Haegeman, L. (1997). Register variation, truncation, and subject omission in English and in French. *English Language and Linguistics*, 1, 233-270.
- Haegeman, L. (2000). Adult null subjects in non pro-drop languages. In M.A. Friedemann and L. Rizzi (eds.), *The acquisition of syntax: Studies in comparative developmental linguistics*. London: Longman.
- Haegeman, L. and Ihsane, T. (2001). Adult null subjects in the non-pro-drop languages: Two diary dialects. *Language Acquisition*, 9, 329-347.
- Hertel, T.J. (2003). Lexical and discourse factors in the second language acquisition of Spanish word order. *Second Language Research*, 19, 273-304.
- Hickman, M. (2003). *Children's discourse: Person, space and time across languages*. Cambridge: Cambridge University Press.
- Holmberg, A. (2005). Is there a little *Pro*? Evidence from Finnish. *Linguistic Inquiry*, 36, 533-564.
- Huang, C-T. J. (1984). On the distribution and reference of empty pronouns. *Linguistic Inquiry*, 15, 531-574.
- Hulk, A. and Müller, N. (2000). Bilingual first language acquisition at the interface between syntax and pragmatics. *Bilingualism: Language and Cognition*, 3, 227-244.
- Hulk, A. and Cornips, L. (2005). Differences and similarities between L2 and (2)L1:

- DO-support in child Dutch. In L. Dekydtspotter, R. A. Sprouse, and A. Liljestrundet (eds.), *Proceedings of the 7th Generative Approaches to Second Language Acquisition Conference (GASLA 2004)*, 163-177. Somerville, MA: Cascadilla Proceedings Project.
- Huxley, R. (1970). The development of the correct use of subject personal pronouns in two children. In G.B. Flores d' Arcais and W.J.M. Levelt (eds.), *Advances in Psycholinguistics*. Amsterdam: North-Holland.
- Hyams, N. (1986). *Language acquisition and the theory of parameters*. Dordrecht: Reidel.
- Hyams, N. and Wexler, K. (1993). On the grammatical basis of null subjects in child language. *Linguistic Inquiry*, 24, 421-459.
- Hyams, N. (1996). The underspecification of functional categories in early grammar. In H. Clahsen (ed.), *Generative approaches to language acquisition*, 91-128. Amsterdam: John Benjamins.
- Hyams, N. (2001). Now you hear it, now you don't: The nature of optionality in child grammars. In A. H.-J. Do, L. Dominquez and A. Johansen (eds.), *Proceedings of the 25th Annual Boston University Conference on Language Development*, 34-58. Somerville, MA: Cascadilla Press.
- Jaeggli, O. and Safir, K. (1989). The null subject parameter and parametric theory. In O. Jaeggli and K. Safir (eds.), *The null subject parameter*, 1-44. Dordrecht: Kluwer.
- Jakubowicz, C., Durand, C., Rigaut, C. and Van der Velde, M. (2001). Computational complexity over time: The development of functional categories in French-speaking children with SLI. *Proceedings of the 25th Annual Boston University Conference on Language Development*, 365-376. Somerville, MA: Cascadilla Press.
- Juan-Garau, M., and Pérez-Vidal, C. (2000). Subject realisation in the syntactic development of a bilingual child. *Bilingualism: Language and Cognition*, 3, 173-192.
- Jusczyk, P. W. (1982). Auditory versus phonetic coding of speech signals during infancy. In J. Mehler, E. C.T. Walker and M. Garrett (eds.), *Perspectives on mental representation: Experimental and theoretical studies of cognitive processes and capacities*. Hillsdale, NJ: Erlbaum.
- Jusczyk, P. W. (2000). *The discovery of spoken language*. Cambridge, MA: MIT Press.
- Kessler, K. (1984). Language acquisition in bilingual children. In Miller, N. (ed.), *Bilingualism and Language Disability. Assessment and Remediation*, 26-55. London: Croon Helm.

- Kessler, C. and Quinn, M. E. (1987). Language minority children's linguistic and cognitive creativity. *Journal of Multilingual and Multicultural Development*, 8, 173-186.
- Kim, Y. (1997). The acquisition of Korean. In D.I. Slobin, (ed.), *The crosslinguistic study of language acquisition*, Vol. 4, 335-443. New Jersey: Lawrence Erlbaum Associates.
- Klausen, T., Subritzky, M. and Hayashi, M. (1993). Initial production of inflections in bilingual children. In D. J. Messer and G. J. Turner (eds.), *Critical influences on child language acquisition and development*, 65-92. New York: St Martin's Press.
- Klima, E. and Bellugi, U. (1966). Syntactic regularities in the speech of children. In J. Lyons and R.J. Wales (eds.), *Psycholinguistic Papers*, 183-208. Edinburgh: Edinburgh University Press.
- Köppe, R. (1996). Language differentiation in bilingual children: the development of grammatical and pragmatic competence. *Linguistics*, 34, 927-954.
- Köppe, R. (1997). Sprachentrennung im frühen bilingualen Erstspracherwerb Französisch/Deutsch. Tübingen: Gunter Narr Verlag.
- Köppe, R. and Meisel, J. M. (1995). Codeswitching in bilingual first language acquisition. In M. Milroy and P. Muysken (eds.), *One speaker, two languages: Cross-disciplinary perspectives on codeswitching*, 276-301. Cambridge, UK: Cambridge University Press.
- Kuczaj, S. and Brannick, N. (1979). Children's use of the wh question modal auxiliary placement rule. *Journal of Experimental Child Psychology*, 28, 43-67.
- Ladd, D. R. (1980). *The structure of intonational meaning: Evidence from English*. Bloomington: Indiana University Press.
- Ladd, D. R. (1996). *Intonational phonology*. Cambridge: Cambridge University Press.
- Lakoff, G. (1972). The global nature of the Nuclear Stress Rule. *Language*, 48, 285-303.
- Lanza, E. (1992). Can bilingual two-year-olds code switch? *Journal of Child Language*, 19, 633-658.
- Lanza, E. (1997). *Language mixing in infant bilingualism*. Oxford: Clarendon Press.
- Lascaratou, C. (1989). A functional approach to constituent order with particular reference to Modern Greek: Implications for language learning and language teaching. *Parousia Journal Monograph Series*, Vol. 5. Athens.

- Leopold, W. (1949). *Speech development in a bilingual child*, vol. iii. New York: AMS Press.
- Levin, B. and Rappaport-Hovav, M. (1995). *Unaccusativity: At the syntax-lexical semantics interface*. (Linguistic Inquiry Monograph 26). Cambridge, MA: MIT Press.
- MacWhinney, B. and Bates, E. (1978). Sentential devices for conveying givenness and newness: A crosscultural developmental study. *Journal of Verbal Learning and Verbal Behaviour*, 17, 539-558.
- Marinis, T. (2000). The acquisition of clitic objects in Modern Greek: Single clitics, clitic doubling and clitic left dislocation. *ZAS Papers in Linguistics*, 15, 260-283.
- McClure, E. (1981). Formal and functional aspects of the codeswitched discourse of bilingual children. In R.P. Durán (ed.), *Latino language and communicative behaviour*, 69-94. Norwood, NJ: ABLEX Publishing Corporation.
- Mehler, J., Lambertz, G., Jusczyk, P. and Amiel-Tison, C. (1986). Discrimination de la langue maternelle pour le nouveau-né *Académie des Sciences* 3, 637-640.
- Meisel, J. M. (1983). Strategies of second language acquisition. More than one kind of simplification. In R. Andersen (ed.), *Pidginisation and creolisation as language acquisition*, 120-157. Rowley, MA: Newbury House Publishers.
- Meisel, J. M. (1989). Early differentiation of languages in bilingual children. In K. Hyltenstam and L.K. Obler (eds.), *Bilingualism across the lifespan: Aspects of acquisition, maturity and loss*, 13-40. Cambridge: Cambridge University Press.
- Meisel, J. M. (1990). INFL-lection: Subjects and subject-verb agreement. In J.M. Meisel (ed.), *Two first languages: Early grammatical development in bilingual children* (Studies in Language Acquisition, 10), 237-298. Dordrecht: Foris.
- Meisel, J. M. (2004). The bilingual child. In T. K. Bhatia and W. C. Ritchie (eds.), *The handbook of bilingualism*, 91-112. Oxford: Blackwell.
- Miltsakaki E. (2001). Centering in Greek. *Proceedings of the 15th International Symposium on Theoretical and Applied Linguistics*, 309-327. Aristotle University of Thessaloniki, School of English.
- Montrul, S. (2002). Incomplete acquisition and attrition of Spanish tense/aspect distinctions in adult bilinguals. *Bilingualism: Language and Cognition*, 5(1), 39-68.
- Montrul, S. (2004). Subject and object expression in Spanish heritage speakers: A case of morpho-syntactic convergence. *Bilingualism: Language and Cognition*, 7(2), 1-18.

- Müller, N. (1998). Transfer in bilingual first language acquisition. *Bilingualism: Language and Cognition*, 1, 151-171.
- Müller, N. and Hulk, A. (2001). Crosslinguistic influence in bilingual language acquisition: Italian and French as recipient languages. *Bilingualism: Language and Cognition*, 4, 1-21.
- Nicoladis, E. and Genesee, F. (1996). A longitudinal study of pragmatic differentiation in young bilingual children. *Language Learning*, 46, 439-464.
- O'Grady W. (1997). *Syntactic development*. Chicago: The University of Chicago Press.
- O'Grady, W., Peters, A. M. and Masterson, D. (1989). The transition from option to required subjects. *Journal of Child Language*, 16, 513-529.
- Pannemann, M. (in press). Prenominal elements in French-Germanic bilingual first language acquisition: Evidence for cross-linguistic influence. In V. Torrence and L. Escobar (eds.), *The Acquisition of Syntax in Romance Languages*. Amsterdam: John Benjamins.
- Paradis, J. and Genesee, F. (1996). Syntactic acquisition in bilingual children: autonomous or interdependent. *Studies in Second Language Acquisition*, 18, 1-25.
- Paradis, J. (2001). Do bilingual two-year-olds have separate phonological systems? *International Journal of Bilingualism*, 5, 19-38.
- Paradis, J. and Navarro, S. (2003). Subject realization and crosslinguistic interference in the bilingual acquisition of Spanish and English: What is the role of input?. *Journal of Child Language*, 30, 371-393.
- Petersen, I. (1988). Word-internal code-switching constraints in a bilingual child's grammar. *Linguistics*, 26, 479-493.
- Petinou, K. and Terzi, A. (2002). Clitic misplacement among normally developing children and children with Specific Language Impairment and the status of Infl heads. *Language Acquisition*, 10, 1-28.
- Platzack, C. (1999). The vulnerable C-domain. Paper presented at the 4th GALA conference, Potsdam, September 1999.
- Platzack, C. (2001). The vulnerable C-domain. *Brain and Language*, 77, 364-377.
- Panagiotidis, P. & Tsiplakou, S. (2003). *The articulation of the left periphery in the acquisition of English L2 by Greek L1 speakers: evidence for impaired representation in the interlanguage*. Paper presented at the 13th European Second Language Association conference (EUROSLA), Edinburgh.

- Philippaki-Warbuton, I. (1982). Provlimata schetika me ti sira ton oron stis ellinikes protaseis. *Glossologia*, 1, 99-107.
- Philippaki-Warbuton, I. (1985). Word order in Modern Greek. *Transactions of the Philological Society*, 2, 113-143.
- Pinker, S. (1984). *Language learnability and language development*. Cambridge, MA: Harvard University Press.
- Pinto, M. (1997). Licensing and Interpretation of Inverted Subjects in Italian. University of Utrecht, Doctoral Dissertation.
- Pinto, M. (2005). Subject pronouns in bilinguals: interference or maturation? Ms., Utrecht University.
- Quay, S. (1995). The bilingual lexicon: implications for the study of language choice. *Journal of Child Language*, 22, 369-387.
- Radford, A. (1990). *Syntactic theory and the acquisition of English syntax*. Oxford, MA: Blackwell.
- Radford, A. (2004). *English syntax : An introduction*. Cambridge: Cambridge University Press.
- Redlinger W. E. and Park, T. (1980). Language mixing in young bilinguals. *Journal of Child Language*, 7, 337-352.
- Rizzi, L. (1982). *Issues in Italian syntax*. Dordrecht: Foris.
- Rizzi, L. (1990). *Relativised minimality*. Cambridge: MIT Press.
- Rizzi, L. (1994). Early null subjects and root null subjects. In T. Hoekstra and B. Schwartz (eds.), *Language acquisition studies in generative grammar*. Amsterdam: John Benjamins.
- Rizzi, L. (1996). Residual verb second and the *Wh*-criterion. In A. Belletti and L. Rizzi (eds.), *Parameters and functional heads: essays in comparative syntax*, 63-90. Oxford: Oxford University Press.
- Rizzi, L. (1997). The fine structure of the left periphery. In L. Haegeman (ed.), *Elements of Grammar*, 281-337. Dordrecht: Kluwer.
- Rizzi, L. (2000). Remarks on early null subjects. In M.A. Friedemann and L. Rizzi (eds.), *The acquisition of syntax*, 269-292. London: Longman.
- Roberts, I. and Holmberg, A. (2002). Null subjects and structure of parametric theory. Ms., University of Cambridge.

- Roeper, T. and de Villiers, J.G. (1994). Lexical links in the Wh-chain. In B. Lust, G. Hermon and J. Kornfilt (eds.), *Syntactic theory and first language acquisition: Cross-linguistic perspectives, Volume II: Binding, dependencies and learnability*, 357-390. Hillsdale, New Jersey: Lawrence Erlbaum Associates.
- Romaine, S. (1995). *Bilingualism*. Oxford: Blackwell Publishing.
- Schlyter, S. (1993). The weaker language in bilingual Swedish-French children. In K. Hyltenstam and Å. Viberg (eds.), *Progression and regression in language*, 289-308. Cambridge: Cambridge University Press.
- Schmerling, S. (1976). Aspects of English sentence stress. Austin and London: University of Texas Press.
- Serratrice, L. (2000). *The emergence of functional categories in bilingual first language acquisition*. University of Edinburgh, Doctoral dissertation.
- Serratrice, L. (2002). Overt subjects in English: evidence for the marking of person in one English-Italian bilingual child. *Journal of Child Language*, 29, 1-29.
- Serratrice, L. and Sorace, A. (2003). Overt and null subjects in monolingual and bilingual Italian acquisition. In B. Beachley, A. Brown and F. Conlin (eds.), *Proceedings of the 27th Annual Boston University Conference on Language Development*, 739-750. Somerville, MA: Cascadilla Press.
- Serratrice, L., Sorace, A. and Paoli, S. (2004). Crosslinguistic influence at the syntax-pragmatics interface: Subjects and objects in English-Italian bilingual and monolingual acquisition. *Bilingualism: Language and Cognition*, 7, 183-205.
- Serratrice, L. (2005). Anaphoric interpretation of null and overt pronominal subjects in Italian. University of Manchester, Ms. under review.
- Serratrice, L. (2006). Referential cohesion in the narratives of bilingual English-Italian children and monolingual peers. University of Manchester, Ms. under review.
- Serratrice, L. (Submitted). The role of discourse pragmatics in the acquisition of subjects in Italian. *Applied Psycholinguistics*.
- Skarabela, B. and Allen, S. (2002). The role of joint attention in argument realisation in child Inuktitut. In B. Skarabela, S. Fish and A. H.J. Do (eds.), *Proceedings of the 26th Annual Boston University Conference on Language Development*, 620-630. Somerville, MA: Cascadilla Press.
- Skarabela, B. (2005). The role of social cognition in early syntax: The case of joint attention in argument realization in child Inuktitut. University of Boston, Doctoral dissertation.
- Sorace, A. (2003). Near-nativeness. In M. Long and C. Doughty (eds.), *Handbook of*

second language acquisition theory and research, 130-152. Oxford: Blackwell.

Sorace, A. and Ladd, D.R. (2004). Raising bilingual children. Series: Frequently Asked Questions, Linguistic Society of America.

Sorace, A. (2005). Selective optionality in language development. In L. Cornips and K. Corrigan (eds.), *Syntax and variation: Reconciling the biological and the social* 46-111. Amsterdam: John Benjamins.

Sorace, A. (2006). Possible manifestations of shallow processing in advanced second language speakers. *Applied Psycholinguistics* 27 (1), 88-91.

Stephany, U. (1997). The acquisition of Greek. In D.I. Slobin, (ed.), *The crosslinguistic study of language acquisition*, vol. 4, 183-333. New Jersey: Lawrence Erlbaum Associates.

Tanz, C. (1974). Cognitive principles underlying children's errors in pronominal case-marking. *Journal of Child Language*, 1, 271-276.

Terzi, A. (1999). Cypriot Greek clitics and their positioning restrictions. In A. Alexiadou, G. Horrocks and M. Stavrou (eds.), *Studies in Greek syntax*, 227-240. Dordrecht: Kluwer.

Toribio, A. (2001). On Spanish language decline. *Proceedings of the 25th Annual Boston University Conference on Language Development*, 768-779. Somerville, MA: Cascadilla Press.

Torrens, V. (1995). The acquisition of inflection in Spanish and Catalan. In C. T. Schütze, J. B. Ganger and K. Broihier (eds.), *Papers on Language Processing and Acquisition*, 451-472. MIT Working Papers in Linguistics, 26. Cambridge, MA: MIT, MITWPL.

Trehub, S. (1973). Auditory-linguistic sensitivity in infants. Mc Gill University, Doctoral dissertation,.

Tsakali, V. and Wexler, K. (2003). Why children omit clitics in some languages and not in others: New evidence from Greek. Paper presented at GALA 2003: September 4-6, Utrecht.

Tsimpli, I.M. (1990). The clause structure and word order of Modern Greek. *UCL Working Papers in Linguistics*, 2, 226-255.

Tsimpli, I.M. (1995). Focusing in Modern Greek. In K.E. Kiss (ed.), *Discourse configurational languages*. Oxford: Oxford University Press.

Tsimpli, I. M. and Stavrakaki, S. (1999). The effects of a morphosyntactic deficit in the determiner system: The case of a Greek SLI child. *Lingua*, 108, 31-85.

- Tsimpli, I.M., Sorace, A., Heycock, C., Filiaci, F. and Bouba, M. (2003). Subjects in L1 attrition: evidence from Greek and Italian near-native speakers of English. In B. Beachley, A. Brown, and F. Colin (eds.), *Proceedings of the 27th Annual Boston University Conference on Language Development*, 787-797. Somerville, MA: Cascadilla Press.
- Tsimpli, I.M., Sorace, A., Heycock, C. and Filiaci, F. (2004). First language attrition and syntactic subjects: a study of Greek and Italian near-native speakers of English. *International Journal of Bilingualism*, 8, 257-277.
- Tsimpli, I.M. (2005). Peripheral positions in early Greek. In M. Stavrou and A. Terzi (eds.), *Advances in Greek generative syntax*, 178-216. *Linguistics Today* 76. Amsterdam: John Benjamins
- Tsimpli, I.M. and Sorace, A. (2006). Differentiating interfaces: L2 performance in syntax-semantics and syntax-discourse phenomena. In D. Bamman, T. Magnitskaia and C. Zaller (eds.), *Proceedings of the 30th Annual Boston University Conference on Language Development*, 653-664. Somerville, MA: Cascadilla Press.
- Tsiplakou, S. (1998). *Focus in Greek: its structure and interpretation*. University of London, Doctoral dissertation.
- Tzanidaki, D.I. (1996). Configurationality and Greek clause structure. *UCL Working Papers in Linguistics*, 8, 449-84.
- Unsworth, S. (2003). Testing Hulk and Müller (2000) on crosslinguistic influence: Root infinitives in a bilingual German/English child. *Bilingualism: Language and Cognition*, 6, 143-158.
- Valian, V. (1991). Syntactic subjects in the early speech of American and Italian children. *Cognition*, 40, 21-81.
- Valian, V. (1994). Children's postulation of null subject: parameter setting and language acquisition. In B. Lust, G. Hermon, and J. Kornfilt (eds.), *Syntactic theory and first language acquisition: Crosslinguistic perspectives: vol. 2. Binding, dependencies and learnability*. New Jersey: Lawrence Erlbaum Associates.
- Vihman, M. (1985). Language differentiation by the bilingual child. *Journal of Child Language*, 12, 297-324.
- Volterra, V. and Taescner, T. (1978). The acquisition and development of language by bilingual children. *Journal of Child Language*, 5, 311-326.
- Weissenborn, J. (1992). Null subjects in early grammars: Implications for parameter-setting theories. In J. Weissenborn, H. Goodluck and T. Roeper (eds.), *Theoretical issues in language acquisition*, 269-299. Hillsdale, NJ: Lawrence Erlbaum.

Wells, B., Peppé, S. and Goulandris, N. (2004). Intonation development from five to thirteen. *Journal of Child Language*, 31, 749-778.

Yip, V. and Matthews, S.J. (2000). Syntactic transfer in a Cantonese-English bilingual child. *Bilingualism: Language and Cognition*, 3, 193-208.

APPENDICES

APPENDIX I

I. Materials for English and Greek

1. English

Elicited production task (For each task, we present one example of a test item with its accompanying picture)

General practice items

- 1) The boy is called Alan and the girl Helen. Which of his friends did he see this afternoon?
- 2) The man is called John and the girl Zoe. Who has the toy-rabbit?
- 3) This is John. What did John do this evening?
- 4) The dog is called Pan and the bird Black. What happened to Pan's sticks?

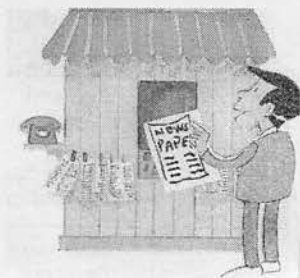
a. Null and overt subject pronouns in [- topic shift] contexts

Practice item

The girl is called Catherine. Why did Catherine go to the shop?

Test items

1. The man is called John. Why did John go to the kiosk?



2. The girl is called Maria. Why did Maria put on the mask?
3. The man is called George. Why did George run?
4. The girl is called Eva. Why did Eva take her hands off the bike?
5. The woman is called Helen. Why did Helen go to the toy-shop?
6. The boy is called Jim. Why did Jim pick up the comb?

Fillers

1. The boy is called John. Why was John scared?
2. The mouse is called Tom. Why was Tom sad?
3. The woman is called Helen. Why was Helen angry?

b. Preverbal and postverbal subjects in wide-focus contexts

Test items

1. The boy is called Paul and the girl Penny. What happened to Paul's car?



2. The girl is called Maria and the dog Kim. What happened to Maria's ball?
3. The boy is called Nick and the girl Helen. What happened to Nick's ball?
4. The man is called Rob and the dog Spot. What happened to Rob's bone?
5. The man is called John and the boy Peter. What happened to John's ship?
6. The girl is called Helen and the mouse Tom. What happened to Helen's cheese?

Fillers

1. The girl is called Maria and the boy John. What happened to their pot?
2. The girl is called Anna and the boy Nick. What happened to their dog?
3. The boy is called George and the girl Chloe. What happened to George's pencil?

c. What-embedded interrogatives with a subject

Practice item

John told me what he bought but I don't remember now.

Q: What doesn't she remember?

Test items

1. Nick told me what he ate but I don't remember now.



Q: What doesn't she remember?

2. Nick told me what he wore but I don't remember now.

Q: What doesn't she remember?

3. Nick told me what he drank but I don't remember now.

Q: What doesn't she remember?

4. Mary told me what she ate but I don't remember now.

Q: What doesn't she remember?

5. Mary told me what she wore but I don't remember now.

Q: What doesn't she remember?

6. Mary told me what she drank but I don't remember now.

Q: What doesn't she remember?

Fillers

1. I don't remember Nick's car.

Q: What doesn't she remember?

2. I don't remember Maria's street.

Q: What doesn't she remember?

3. I don't remember Nick's telephone number.

Q: What doesn't she remember?

d. Object pronouns in declaratives

Test items

1. What did the dog do to the ball?



2. What did the girl do to the dog?

3. What did the dog do to the toy-rabbit?

4. What did the boy do to the dishes?

5. What did the boy do to the dog?

6. What did the boy do to the ball?

Fillers

1. What did the fox do with the paint-brush?

2. What did the children do in the playground?

3. What did the dog do in the shop?

Acceptability judgement task

General practise items

1. What did Mary do this morning?

a) She painted her room.

b) *Painted her room.

2. a) Maria bought a ball.

b) *The Maria bought a ball.

3. Who came to school?

a) The teacher came.

b) *Came the teacher.

4. Where did you see the blouse?

a) On the red chair.

b) *The red chair on.

a. Null and overt subject pronouns in [- topic shift] contexts

Test items

1. Why did Vicky go to the bookshop this morning?

- a) Because she wanted to buy a book.
 - b) *Because wanted to buy a book.
2. Why did John go to the cinema this evening?
- a) *Because wanted to see a movie.
 - b) Because he wanted to see a movie.
3. Why did Nick go to the bakery this morning?
- a) *Because wanted to buy a cheese pie.
 - b) Because he wanted to buy a cheese pie.
4. Why did Penny go to the hospital this afternoon?
- a) Because she wanted to see a doctor.
 - b) *Because wanted to see a doctor.
5. Why did Paul go to the pharmacy this evening?
- a) Because he wanted to buy a drug.
 - b) *Because wanted to buy a drug.
6. Why did Helen go to the theatre this evening?
- a) Because she wanted to see a theatre-play.
 - b) *Because wanted to see a theatre-play.

Fillers

1. Did your grandfather buy a coat?
- a) *Yes, bought.
 - b) Yes, he bought one.
2. Did your aunt buy a blouse?
- a) Yes, she bought one.
 - b) *Yes, bought.
3. Did your friend bring a pencil?
- a) Yes, he brought one
 - b) *Yes, brought.

b. Preverbal and postverbal subjects in wide-focus contexts

Test items

- 1) What happened to Mike's book?
- a) Maria took it.
 - b) *Took it Maria.
2. What happened to Eric's pencil?
- a) *Hid it Maria.
 - b) Maria hid it.
3. What happened to Mike's rubber?
- a) Maria threw it.
 - b) *Threw it Maria.
4. What happened to Eric's ruler?
- a) *Took it Maria.
 - b) Maria took it.
5. What happened to Mike's mug?
- a) *Threw it Maria.
 - b) Maria threw it.
6. What happened to Eric's hat?
- a) Maria hid it.

b)*Hid it Maria.

Fillers

1. Where did you put the ball?
 - a) *The room in.
 - b) In the room.
2. Where did you put the socks?
 - a) * The wardrobe in.
 - b) In the wardrobe.
3. Where did you find the ball?
 - a) *The table on.
 - b) On the table.

c. What-embedded interrogatives with a subject

Test items

1. a)* She doesn't remember what bought Elisa.
b) She doesn't remember what Elisa bought.
2. a)* She doesn't remember what drank Vicky
b) She doesn't remember what Vicky drank.
3. a) She doesn't remember what Michael ate.
b)* She doesn't remember what ate Michael.
4. a) She doesn't remember what Sara bought.
b)*She doesn't remember what bought Sara.
5. a) *She doesn't remember what ate Peter.
b) She doesn't remember what Peter ate.
6. a) She doesn't remember what Jim drank.
b) *She doesn't remember what drank Jim.

Fillers

1. a) She doesn't remember the dog's name.
b)*She doesn't remember the name dog's.
2. a) *She doesn't remember mother Elisa's.
b) She doesn't remember Elisa's mother.
3. a) She doesn't remember John's brother.
b)*She doesn't John's remember brother.

d. Object pronouns in declaratives

Test items

1. Who threw my rubber?
 - a) *Mum it threw.
 - b) Mum threw it.
2. Who ate my ice-cream?
 - a) Mum ate it.
 - b)*Mum it ate.
3. Who threw my toy-car?
 - a) Grandfather threw it.
 - b)* Grandfather it threw.
4. Who found my pencil?
 - a) *Grandfather it found.
 - b) Grandfather found it.

5. Who ate my banana?

a) *Grandmother it ate.

b) Grandmother ate it.

6. Who found my blouse?

a) Grandmother found it.

b)* Grandmother it found.

Fillers

1. Where did you put my ball?

a) Under the bed.

b) *Under bed.

2. Where did you see my book?

a) *The table on.

b) On the table.

3. Where did you see my blouse?

a) *In wardrobe.

b) In the wardrobe.

2. Greek

Elicited production task

General practice items

1) To agori lejete Janis ke to koritsi Eleni.
the boy-NOM called-3SG Janis and the girl-NOM Eleni

Q: Pia fili tu ide to agori to apogevma?
which friend-ACC his-CL saw-3SG the boy-NOM the afternoon-ACC

‘The boy is called Janis and the girl Eleni. Which of his friends did the boy see this afternoon?’

2) O kirios lejete Nikos ke to koritsi Evi.
the man- NOM called-3SG Nikos and the girl- NOM Evi

Q: Pios exei to kouneli?
who- NOM has-3SG the toy-rabbit- ACC

‘The man is called Nikos and the girl Evi. Who has the toy-rabbit?’

3) O skilos lejete Pit ke to puli Blak.
the dog-NOM called-3SG Pit and the bird-NOM Blak

Q: Ti ejine to ksilo tu Pit?
what happened-3SG the sticks-NOM of the Pit-GEN

‘The dog is called Pit and the bird Black. What happened to Pit’s sticks?’

4) Aftos ine o Janis.
he-NOM is-3SG the Janis-NOM

Q: Ti ekane o Janis to vradi?
what did-3SG the Janis-NOM the evening

‘This is Janis. What did Janis do in the evening?’

a. Null and overt subject pronouns in [- topic shift] contexts

Practice item

To koritsi lejete Katerina.
the girl- NOM called-3SG Katerina

Q: Jati pige i Katerina sto magazi?
why went-3SG the Katerina- NOM to the shop

‘The girl is called Katerina. Why did Katerina go to the shop?’

Test items

1. To koritsi lejete Evi.
the girl- NOM called-3SG Evi

Q: Jati afise i Evi to timoni tu podilatu?
why left-3SG the Evi- NOM the steering wheel- NOM of the bike-GEN

‘The girl is called Evi. Why did Evi take her hands off the bike?’

2. To koritsi lejete Maria.
the girl- NOM called-3SG Maria

Q: Jati evale i Maria ti maska?
why put-3SG the Maria- NOM the mask- ACC

‘The girl is called Maria. Why did Maria put the mask on?’

3. O antras lejete Jorgos.
the man- NOM called-3SG Jorgos

Q: Jati etrekse o Jorgos?

- why ran-3SG the Jorgos- NOM
 ‘The man is called Jorgos. Why did Jorgos run?’
4. O antras lejete Janis.
 the man- NOM called-3SG Janis
- Q: Jati piye o Janis sto periptero?
 why went-3SG the Janis- NOM to the kiosk
 ‘The man is called Janis. Why did Janis go to the kiosk?’
5. I jineka lejete Eleni.
 the woman- NOM called-3SG Eleni
- Q: Jati piye i Eleni sto magazi pexnidion?
 why went-3SG the Eleni- NOM to the shop of toys-GEN
 ‘The woman is called Eleni. Why did Eleni go to the toy-shop?’
6. To agori lejete Dimitris.
 the boy- NOM called-3SG Dimitris
- Q: Jati pire o Dimitris ti xtena?
 why took-3SG the Dimitris- NOM the comb- ACC
 ‘The boy is called Dimitris. Why did Dimitris pick up the comb?’

Fillers

1. To pontiki lejete Tom.
 the mouse- NOM called-3SG Tom
- Q: Jati itan lipimenos o Tom?
 why was-3SG sad- NOM the Tom- NOM
 ‘The mouse is called Tom. Why was Tom sad?’
2. To agori lejete Janis.
 the boy- NOM called-3SG Janis
- Q: Jati tromakse o Janis?
 why got scared-3SG the Janis- NOM
 ‘The boy is called Janis. Why did Janis get scared?’
3. I jineka lejete Eleni.
 the woman- NOM called-3SG Eleni
- Q: Jati thimose i Eleni?
 why got angry-3SG the Eleni- NOM
 ‘The woman is called Eleni. Why did Eleni get angry?’

b. Preverbal and postverbal subjects in wide-focus contexts

Test items

1. O kirios lejete Kostas ke o skilos Fap.
 the man- NOM called-3SG Kostas and the dog- NOM Fap
- Q: Ti ejine to kokalo tu Kosta?
 what happened-3SG the bone- NOM of the Kostas-GEN
 ‘What happened to Kostas’s bone?’
2. To koritsi lejete Maria ke o skilos Kim.
 the girl- NOM called-3SG Maria and the dog- NOM Kim
- Q: Ti ejine i mpala tis Marias?
 what happened-3SG the ball- NOM of the Maria- GEN
 ‘What happened to Maria’s ball?’
3. To agori lejete Jorgos ke to koritsi Maria.

the boy- NOM called-3SG Jorgos and the girl- NOM Maria

Q: Ti ejine i mpala tu Jorgu?

what happened-3SG the ball- NOM of the Jorgos- GEN

‘What happened to Jorgos’s ball?’

4. To agori lejete Janis ke to koritsi Eleni.

the boy- NOM called-3SG Janis and the girl- NOM Eleni

Q: Ti ejine to aftokinitaki tu Jani?

what happened-3SG the toy-car- NOM of the Janis- GEN

‘What happened to Janis’s toy-car?’

5. O kirios lejete Nikos ke to agori Petros.

the man- NOM called-3SG Nikos and the boy- NOM Petros

Q: Ti ejine to karavi tu Niku?

what happened-3SG the ship- NOM of the Nikos- GEN

‘What happened to Nikos’s toy-ship?’

6. To koritsi lejete Maria ke to pontiki Tom.

the girl- NOM called-3SG Maria and the mouse- NOM Tom

Q: Ti ejine to tiri tis Marias?

what happened-3SG the cheese- NOM of the Maria- GEN

‘What happened to Maria’s cheese?’

Fillers

1. To koritsi lejete Maria ke to agori Janis.

the girl- NOM called-3SG Maria and the boy- NOM Janis

Q: Ti ejine i katsarola tus?

what happened-3SG the pot- NOM their-CL

‘The girl is called Maria and the boy Janis. What happened to their pot?’

2. To koritsi lejete Anna ke to agori Nikos.

the girl- NOM called-3SG Anna and the boy- NOM Nikos

Q: Ti ejine o skilos tus?

what happened-3SG the dog- NOM their- CL

‘The girl is called Anna and the boy Nikos; What happened to their dog?’

3. To agori lejete Petros ke to koritsi Eleni.

the boy- NOM called-3SG Petros and the girl- NOM Eleni

Q: Ti ejine to molivi tu Petru?

what happened-3SG the pencil- NOM of the Petros- GEN

‘The boy is called Petros and the girl Eleni. What happened to Petros’s pencil?’

c. *What-embedded interrogatives with a subject*

Practice item

I Maria mu ipe ti agorase ala den thimame tora.

the Maria-NOM me-CL told-3SG what bought-3SG but not remember-1SG now

‘Maria told me what she bought but I don’t remember now.’

Q:Ti den thimate?

what not remember-3SG

‘What doesn’t she remember?’

Test items

1. O Nikos mu ipe ti efaje ala den thimame tora.

the Nikos-NOM me-CL told-3SG what ate-3SG but not remember-1SG now

'Nick told me what he ate but I don't remember now.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

2. O Nikos mu ipe ti forese ala den thimame tora.
the Nikos- NOM me- CL told-3SG what wore-3SG but not remember-1SG now

'Nick told me what he wore but I don't remember now.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

3. O Nikos mu ipe ti ipje ala den thimame tora.
the Nikos- NOM me- CL told-3SG what drank-3SG but not remember-1SG now

'Nick told me what he drunk but I don't remember now.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

4. O Janis mu ipe ti efaje ala den thimame tora.
the Janis- NOM me- CL told-3SG what ate-3SG but not remember-1SG now

'Janis told me what he ate but I don't remember now.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

5. O Janis mu ipe ti forese ala den thimame tora.
the Janis- NOM me- CL told-3SG what wore-3SG but not remember-1SG now

'Janis told me what he wore but I don't remember now.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

6. O Janis mu ipe ti ipje ala den thimame tora.
the Janis- NOM me- CL told-3SG what drank-3SG but not remember-1SG now

'Janis told me what he drank but I don't remember now.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

Fillers

1. Den thimame to aftokinito tu Niku.
not remember-1SG the car-ACC of the Nikos-GEN

'I don't remember Nikos's car.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

2. Den thimame tin odo tu Jani.
not remember-1SG the street- ACC of the Janis-GEN

'I don't remember Janis's street.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

3. Den thimame to telefono tu Niku.

not remember-1SG the phone number- ACC of the Nikos-GEN

'I don't remember Nikos's phone number.'

Q: Ti den thimate?

what not remember-3SG

'What doesn't she remember?'

d. Object clitics in declaratives

Test items

1. Ti ekane to agori sta piata?

what did-3SG the boy-NOM to the dishes- ACC

'What did the boy do to the dishes?'

2. Ti ekane to koritsi sto skilo?

what did-3SG the girl- NOM to the dog- ACC

'What did the girl do to the dog?'

3. Ti ekane o skilos sto kuneli?

what did-3SG the dog- NOM to the rabbit- ACC

'What did the dog do to the rabbit?'

4. Ti ekane o skilos stin mpala?

what did-3SG the dog- NOM to the ball- ACC

'What did the dog do to the ball?'

5. Ti ekane to agori sto skilo?

what did-3SG the boy- NOM to the dog- ACC

'What did the boy do to the dog?'

6. Ti ekane to agori stin mpala?

what did-3SG the boy- NOM to the ball- ACC

'What did the boy do to the ball?'

Fillers

1. Ti ekane i alepu me to pinelo?

what did-3SG the fox-NOM with the brush- ACC

'What did the fox do with the paint brush?'

2. Ti ekanan ta pedia stin pediki hara?

what did-3PL the children- NOM (in) the playground

'What did the children do in the playground?'

3. Ti ekane o skilos mesa sto magazí?

what did-3SG the dog- NOM in the shop

'What did the dog do in the shop?'

Acceptability judgement task

General practice items

1) Ti ekane i Maria to proi?
what did-3SG the Maria-NOM the morning-ACC
'What did Maria do this morning?'

a) Evapse to domatio tis.
painted-3SG the room- ACC her-CL
'Painted her room.'

b) Afti evapse to domatio tis.
she- NOM painted-3SG the room- ACC her- CL
'She painted her room.'

2) a) I Maria agorase mia mpala.
the Maria- NOM bought-3SG a ball- ACC
'Maria bought a ball.'

b)*Maria agorase mia mpala..
Maria- NOM bought-3SG a ball- ACC
'Maria bought a ball.'

3) Pu idate tin mplusa?
where saw-2PL the blouse- ACC
'Where did you see the blouse?'

a) Pano stin karekla.
on the chair- ACC
'On the chair.'

b) Stin karekla pano.
the chair- ACC on
'On the chair.'

4) Pios irthe sto sholio?
who-NOM came-3SG (to)the school- ACC
'Who came to the school?'

a) Irthe i daskala.
came-3SG the teacher- NOM
'The teacher came.'

b) *Irthe daskala.
came-3SG teacher- NOM
'The teacher came.'

a. Null and overt subject pronouns in [- topic shift] contexts

Test items

1. Jati pije o Jorgos sto vivliopolio to proi?
why went-3SG the Jorgos- NOM to the bookshop-ACC the morning-ACC
'Why did Jorgos go to the bookshop this morning?'

c) Epidi aftos ithele na agorasi ena vivlio.
because he- NOM wanted-3SG to buy-3SG a book- ACC
'Because he wanted to buy a book.'

d) Epidi ithele na agorasi ena vivlio.
because pro wanted-3SG to buy-3SG a book- ACC
'Because he wanted to buy a book.'

2. Jati pije i Maria sto sinema to vradi?

why went-3SG the Maria- NOM to the cinema- ACC the evening- ACC

'Why did Maria go to the cinema this evening?'

c) Epidi ithele na di mia tainia.

because pro wanted-3SG to see-3SG a movie- ACC

'Because she wanted to see a movie.'

d) Epidi afti ithele na di mia tainia.

because she- NOM wanted-3SG to see-3SG a movie- ACC

'Because she wanted to see a movie.'

3. Jati pi je i Eleni sto furno to apogevma?

why went-3SG the Eleni- NOM to the bakery- ACC the afternoon- ACC

'Why did Eleni go to the bakery this afternoon?'

c) Epidi ithele na agorasei mia tiropita.

because pro wanted-3SG to buy-3SG a cheesepie- ACC

'Because she wanted to buy a cheesepie.'

d) Epidi afti ithele na agorasei mia tiropita.

because she-NOM wanted-3SG to buy-3SG a cheesepie- ACC

'Because she wanted to buy a cheesepie.'

4. Jati pi je o Nikos sto nosokomio to apogevma?

why went-3SG the Nikos-NOM to the hospital-ACC the afternoon- ACC

'Why did Nick go to the hospital this afternoon?'

c) Epidi aftos ithele na di ena jatro.

because he- NOM wanted-3SG to see-3SG a doctor- ACC

'Because he wanted to see a doctor.'

d) Epidi ithele na di ena jatro.

because pro wanted-3SG to see-3SG a doctor- ACC

'Because he wanted to see a doctor.'

5. Jati pi je o Kostas sto farmakio to mesimeri?

why went-3SG the Kostas- NOM to the pharmacy- ACC the midday- ACC

'Why did Kostas go to the pharmacy at midday?'

a) Epidi ithele na agorasei ena farmako.

because pro wanted-3SG to buy-3SG a drug- ACC

'Because he wanted to buy a drug.'

b) Epidi aftos ithele na agorasei ena farmako.

because he- NOM wanted-3SG to buy-3SG a drug- ACC

'Because he wanted to buy a drug.'

6. Jati pi je i Vaso sto theatro to vradi?

why went-3SG the Vaso- NOM to the theatre- ACC the evening- ACC

'Why did Vaso go to the theatre this evening?'

a) Epidi ithele na di ena theatriko ergo.

because pro wanted-3SG to see-3SG a theatre-play- ACC

'Because she wanted to see a theatre-play.'

b) Epidi afti ithele na di ena theatriko ergo.

because she- NOM wanted-3SG to see-3SG a theatre-play- ACC

'Because she wanted to see a theatre-play.'

Fillers

1. Agorasei palto o papus sas?

bought-3SG coat- ACC the grandfather- NOM your-CL

'Did your grandfather buy a coat?'

- a) Ne, agorase ena.
yes bought-3SG one- ACC
'Yes, he bought one.'
- b) Ne, agorase.
yes bought-3SG
'Yes, he bought one.'
2. Agorase mplusa i thia sas?
bought-3SG blouse-ACC the aunt-NOM your-CL
- a) Ne, agorase mia.
yes bought-3SG one- ACC
'Yes, she bought one.'
- b) Ne, agorase.
yes bought-3SG
'Yes, she bought one.'
3. Efere molivi i fili sas?
brought-3SG pencil- ACC the friend-NOM your-CL
'Did your friend bring a pencil?'
- a) Ne, efere.
yes brought-3SG
'Yes, she brought one.'
- b) Ne, efere ena.
yes brought-3SG one- ACC
'Yes, she brought one.'

b. Preverbal and postverbal subjects in wide-focus contexts

Test items

- 1) Ti ejine to vivlio tu Kosta?
what happened-3SG the book-NOM of the Kostas-GEN
'What happened to Kostas's book?'
- a) I Hara to pire.
the Hara-NOM it-CL took-3SG
'Hara took it.'
- b) To pire i Hara.
it-CL took-3SG the Hara- NOM
'Hara took it.'
2. Ti ejine to molivi tu Jani?
what happened-3SG the pencil- NOM of the Janis-GEN
'What happened to Janis's pencil?'
- a) To ekripi i Hara.
it-CL hid-3SG the Hara- NOM
'Hara hid it.'
- b) I Hara to ekripi.
the Hara- NOM it-CL hid-3SG
'Hara hid it.'
3. Ti ejine i goma tu Kosta?
what happened-3SG the rubber- NOM of the Kostas-GEN
'What happened to Kostas's rubber?'
- a) I Hara tin petakse.

- the Hara-NOM it-CL threw-3SG
 'Hara threw it.'
- b) Tin petakse i Hara.
 it-CL threw-3SG the Hara- NOM
 'Hara threw it.'
4. Ti ejine o xarakas tu Jani?
 what happened-3SG the ruler- NOM of the Janis-GEN
 'What happened to Janis's ruler?'
- a) Ton pire i Hara.
 it-CL took-3SG the Hara- NOM
 'Hara took it.'
- b) I Hara ton pire.
 the Hara- NOM it-CL took-3SG
 'Hara took it.'
5. Ti ejine to potiri tu Kosta?
 what happened-3SG the glass- NOM of the Kostas-GEN
 'What happened to Kostas's glass?'
- a) To petakse i Hara.
 it-CL threw-3SG the Hara- NOM
 'Hara threw it.'
- b) I Hara to petakse.
 the Hara- NOM it-CL threw-3SG
 'Hara threw it.'
6. Ti ejine to kapelo tu Jani?
 what happened-3SG the hat- NOM of the Janis-GEN
 'What happened to Janis's hat?'
- a) I Hara to ekripte.
 the Hara- NOM it-CL hid-3SG
 'Hara hid it.'
- b) To ekripte i Hara.
 it-CL hid-3SG the Hara- NOM
 'Hara hid it.'

Fillers

1. Pu valate tin mpala?
 where put-2PL the ball-ACC
 'Where did you put the ball?'
- a) Mesa sto domatio.
 in the room- ACC
 'In the room.'
- b) Sto domatio mesa.
 the room- ACC in
 'In the room.'
2. Pu valate tis kaltse?
 where put-2PL the socks- ACC
 'Where did you put the socks?'
- a) Mesa stin ntulapa.
 in the wardrobe- ACC
 'In the wardrobe.'

- b) Stin ntulapa mesa.
the wardrobe- ACC in
'In the wardrobe.'
3. Pu vrikate tin mpala?
where found-2PL the ball- ACC
'Where did you find the ball?'
- a) Sto trapezi pano.
the table- ACC on
'On the table.'
- b) Pano sto trapezi.
on the table- ACC
'On the table.'

c. *What-embedded interrogatives with a subject*

Test items

1. a) *Den thimate ti i Anna efaje.
not remember-3SG what the Anna-NOM ate-3SG
'She doesn't remember what Anna ate.'
- b) Den thimate ti efaje i Anna.
not remember-3SG what ate-3SG the Anna- NOM
'She doesn't remember what Anna ate.'
2. a) *Den thimate ti i Zoi ipie.
not remember-3SG what the Zoi- NOM drank-3SG
'She doesn't remember what Zoi drank.'
- b) Den thimate ti ipie i Zoi.
not remember-3SG what drank-3SG the Zoi- NOM
'She doesn't remember what Zoi drank.'
3. a) Den thimate ti agorase o Janis.
not remember-3SG what bought-3SG the Janis- NOM
'She doesn't remember what Janis bought.'
- b) *Den thimate ti o Janis agorase.
not remember-3SG what the Janis- NOM bought-3SG
'She doesn't remember what Janis bought.'
4. a) Den thimate ti efaje i Viky.
not remember-3SG what ate-3SG the Vicky- NOM
'She doesn't remember what Vicky ate.'
- b) *Den thimate ti i Viky efaje.
not remember-3SG what the Vicky- NOM ate-3SG
'She doesn't remember what Vicky ate.'
5. a) *Den thimate ti o Kostas agorase.
not remember-3SG what the Kostas- NOM bought-3SG
'She doesn't remember what Kostas bought.'
- b) Den thimate ti agorase o Kostas.
not remember-3SG what bought-3SG the Kostas- NOM
'She doesn't remember what Kostas bought.'
6. a) Den thimate ti ipie o Nikos.
not remember-3SG what drank-3SG the Nikos- NOM
'She doesn't remember what Nikos drank.'

b)*Den thimate ti o Nikos ipie
 not remember-3SG what the Nikos- NOM drank-3SG
 'She doesn't remember what Nikos drank.'

Fillers

1. a)*Den thimate to tu onoma skilu.
 not remember-3SG the-ACC the-Gen name- ACC dog-GEN
 'She doesn't remember the dog's name.'

b) Den thimate to onoma tu skilu.
 not remember-3SG the name- ACC of the dog- GEN
 'She doesn't remember the dog's name.'

2. a)*Den thimate ti mama Marias tis.
 not remember-3SG the mum- ACC Maria- GEN the- GEN
 'She doesn't remember Maria's mum.'

b) Den thimate ti mama tis Marias.
 not remember-3SG the mum- ACC of the Maria- GEN
 'She doesn't remember Maria's mum.'

3. a) Den thimate ton aderfo tu Kosta.
 not remember-3SG the brother- ACC of the Kostas- GEN
 'She doesn't remember Kostas's brother.'

b)*Den thimate aderfo ton tu Kosta.
 not remember-3SG brother- ACC the- ACC the- GEN Kostas-GEN
 'She doesn't remember Kostas's brother.'

d. Object clitics in declaratives

Test items

1. Pios petakse ti goma mu?
 who-NOM threw-3SG the rubber- ACC my- GEN
 'Who threw my rubber?'

a) *I mama petakse tin.
 the mum-NOM threw-3SG it-CL
 'Mum threw it.'

b) I mama tin petakse.
 the mum-NOM it- CL threw-3SG
 'Mum threw it.'

2. Pios efaje to pagoto mu?
 who- NOM ate-3SG the ice-cream- ACC my- GEN
 'Who ate my ice-cream?'

a) I jaja to efaje.
 the grandmother- NOM it- CL ate-3SG
 'Grandmother ate it.'

b) *I jaja efaje to.
 the grandmother- NOM ate-3SG it- CL
 'Grandmother ate it.'

3. Pios vrike to molivi mu?
 who- NOM found-3SG the pencil- ACC my- GEN
 'Who found my pencil?'

a) O papus to vrike.
 the grandfather- NOM it- CL found-3SG

- 'Grandfather found it.'
- b)* O papus vrike to.
the grandfather- NOM found-3SG it- CL
'Grandfather found it.'
4. Pios efaje tin mpanana mu?
who- NOM ate-3SG the banana- ACC my- GEN
'Who ate my banana?'
- a) *I mama efaje tin.
the mum- NOM ate-3SG it- CL
'Mum ate it.'
- b) I mama tin efaje.
the mum- NOM it- CL ate-3SG
'Mum ate it.'
5. Pios vrike tin mpluza mu?
who- NOM found-3SG the blouse- ACC my- GEN
'Who found my blouse?'
- a) *I jaja vrike tin.
the grandmother- NOM found-3SG it- CL
'Grandmother found it.'
- b) I jaja tin vrike.
the grandmother- NOM it- CL found-3SG
'Grandmother found it.'
6. Pios petakse to aftokinitaki mu?
who- NOM threw-3SG the toy-car- ACC my- GEN
'Who threw my toy-car?'
- a) O papus to petakse.
the grandfather- NOM it- CL threw-3SG
'Grandfather threw it.'
- b)*O papus petakse to.
the grandfather- NOM threw-3SG it- CL
'Grandfather threw it.'

Fillers

1. Pu idate to vivlio mu?
where see-2PL the book-ACC my- CL
'Where did you see my book?'
- a)*Pano trapezi sto.
on table- ACC the- ACC
'On the table.'
- b) Pano sto trapezi.
on the table- ACC
'On the table.'
2. Pu valate tin mpala mu?
where put-2PL the ball- ACC my- CL
'Where did you put my ball?'
- a) Kato apo to krevati.
under from the bed- ACC
'Under the bed'
- b)* Kato apo krevati to.

under from bed- ACC the- ACC
'Under the bed.'

3. Pu idate tin mpluza mu?
where see-2PL the blouse- ACC my- CL
'Where did you see my blouse?'

a)*Mesa ntoulapa stin.
in wardrobe- ACC the- ACC
'In the wardrobe.'

b) Mesa stin ntoulapa.
in the wardrobe- ACC
'In the wardrobe.'

APPENDIX II

II. Instructions for the elicited production task and the acceptability judgement task in English and Greek

The participants were given general instructions at the beginning of each task, i.e. elicited production task and the acceptability judgement task, and they were also given additional instructions before each individual task in Greek or English depending on the session.

1. English

Elicited production task

General instructions

This task includes four different sections. In all these sections you will be seeing a number of different pictures showing one or more characters, e.g. persons or animals, and various events. Each of the pictures is accompanied by a simple question relevant to the character(s) and the events presented in every picture. Your role will be to answer each of these simple questions orally and I will use this tape-recorder to record your answers. Every section is slightly different from the others and therefore I will be giving you more details about the individual sections at the beginning of each of these sections and I will also be telling you what you have to do. You will have four practice trials now so that you can get an idea of what you have to do and then we will proceed to the main part of the task.

a. Null and overt subject pronouns

In this section you will view a number of pictures showing someone involved in a certain activity. For each picture, you will first hear the name of this character and then you will hear a simple question about what the picture shows. All the questions start with 'why' and you always have to remember to begin your answer with the word 'because'. Please pay attention to each question and answer it. You will have a practice trial first and then we will proceed to the main part.

b. Preverbal and postverbal subjects

In this section you will view a number of pictures presenting two characters participating in a certain event. For each picture, you will first hear the names of these characters and then a simple question about the situation depicted in each picture will follow. Please pay attention to each question and answer it.

c. What-embedded interrogatives

In this section you will be viewing the same picture of an old lady throughout the task. In each item the old lady will be telling you what she does not remember about one of her two grandchildren that are called *Nick* and *Maria*. The old lady does not remember some personal information about her grandchildren or their activities; the question will always be the same, and it will be about what the old lady does not remember about either of her two grandchildren. Then you will have to answer these simple questions by saying what the old lady does not remember about either of the two children. The question will be 'What doesn't she remember?' and you will

always have to begin your answer with the phrase ‘*Grandmother doesn’t remember...*’. You must also remember to include in every response you give the name of the grandchild mentioned in the old lady’s sentence. Please pay attention to each of the old lady’s sentence and answer the question. You will have a practice trial first and then we will proceed to the main part.

d. Object pronouns

In this section you will be seeing a number of pictures showing an event in which two characters or a character and an object or an animal are involved. Each picture is accompanied by a simple question about the event depicted in it. Please pay attention to each question and answer it.

Acceptability judgement task

General instructions

This task includes four different sections as well. You will be seeing a number of short videos with three characters present in most of them, i.e. two puppets and a girl, who is their friend. In every such video the girl will be asking the puppets a different question, which they will be both answering, and thus there will be two answers for each question. In other videos though only the two puppets will be present. In these cases each puppet will be saying one sentence without having being asked a specific question, as in the other videos.

Note that each pair of answers or sentences produced by the puppets will have the same meaning, that is, they will give the same information. The two answers or sentences, however, will be different from each other in the way each puppet’s answer or sentence is formed, for example the words may not be in the same order in the two answers or sentences. Because of this difference between the two answers or sentences, one answer or sentence will sound better than the other one in English.

Now your role is to simply identify the puppet, whose answer or sentence you think will be the most appropriate to say in English, that is, you have to indicate the puppet whose answer you think is the most appropriate to give to the question asked and whose sentence is the most appropriate to say. I will be noting down your answers on this piece of paper. You have to remember to pay attention to all the question-answer pairs you hear. Every section is slightly different from the others and therefore I will be giving you more details about the individual sections at the beginning of each of these sections and I will also be reminding you of what you have to do. We will have four practice trials now for you to get an idea of what you have to do and then we will proceed to the four sections.

a. Null and overt subject pronouns

In this section you will be viewing a number of videos in which the two puppets and their girlfriend will be present. The puppets’ friend is a curious person and she will be asking the puppets several questions about their friends’ and relatives’ activities during the day. The puppets will answer the questions giving the same information but as I said before one answer will sound better than the other one in English. In every video, remember to attend to each question and the pair of answers given to it and then you have to point at the puppet whose answer you think would be the most appropriate to say in English.

b. Preverbal and postverbal subjects

In this section you will be viewing a number of videos in which the two puppets and their girlfriend will be present. The story is that two friends of the puppets, called *Mike* and *Eric* (*Janis* and *Kostas*), came to their place yesterday and they forgot some of their personal belongings, i.e. their ruler, their rubber, their pencil etc. Their friends came back to get their things but they cannot find them. The puppets' friend therefore will be asking the puppets about what has happened to these objects. The puppets will be replying giving the same information but as I said before one answer will sound better than the other one in English. In each video, remember to attend to every question and the pair of answers given to it and then you have to point at the puppet whose answer you think would be the most appropriate to say in English.

c. What-embedded interrogatives

In this section you will be viewing a number of videos in which only the two puppets will be present. At first, you have to know that the two puppets have a grandmother who has problems with her memory. In this section the puppets will not be asked any questions but they will be simply telling you what their grandmother does not remember today. The puppets' statements will have the same content but as I said before one sentence will sound better than the other one in English. In each video remember that you have to point at the puppet whose sentence you think would be the most appropriate to say in English.

d. Object pronouns

In this section you will be viewing a number of videos in which the two puppets and their girlfriend will be present. The puppets' friend discovered that someone has been going through her personal belongings without her knowledge. She will therefore be asking the puppets certain questions about this situation in order to obtain more information from the puppets' answers. The puppets will be replying giving the same information content but as I said before one answer will sound better than the other one in English. In each video, remember to attend to every question and the pair of answers given to it and then you have to point at the puppet whose answer you think would be the most appropriate to say in English.

2. Greek

Elicited production task

General instructions

Αυτό το κομμάτι του πειράματος έχει τέσσερα διαφορετικά μέρη. Σε όλα αυτά τα μέρη θα βλέπεις διαφορετικές εικόνες που δείχνουν έναν ή περισσότερους χαρακτήρες, π.χ. ανθρώπους ή ζώα, και διάφορα γεγονότα. Κάθε εικόνα συνοδεύεται από μία απλή ερώτηση σχετικά με τους χαρακτήρες και τα γεγονότα που παρουσιάζονται στην κάθε εικόνα. Εσύ θα πρέπει να απαντάς καθεμιά από αυτές τις ερωτήσεις προφορικά και εγώ θα χρησιμοποιώ αυτό το μαγνητόφωνο για να μαγνητοφωνώ τις απαντήσεις σου. Κάθε μέρος όμως είναι λίγο διαφορετικό από τα άλλα και για αυτό θα σου δίνω περισσότερες λεπτομέρειες στην αρχή του καθενός από αυτά τα μέρη και θα σου λέω επίσης τι πρέπει να κάνεις. Θα κάνεις εξάσκηση με τέσσερα παραδείγματα τώρα για να δεις τι πρέπει να κάνεις και μετά θα προχωρήσουμε στο κύριο μέρος του πειράματος.

a. Null and overt subject pronouns

Σε αυτό το μέρος θα δεις μερικές εικόνες που δείχνουν κάποιον να κάνει κάτι συγκεκριμένο. Σε κάθε εικόνα, θα ακούς πρώτα το όνομα αυτού του ατόμου και μετά θα ακούς μια απλή ερώτηση σχετικά με αυτό που δείχνει η εικόνα. Όλες οι ερωτήσεις ξεκινούν με τη λέξη 'γιατί' και εσύ θα πρέπει να θυμάσαι πάντα να ξεκινάς την απάντησή σου με τη λέξη 'επειδή'. Σε παρακαλώ άκου με προσοχή την κάθε ερώτηση και απάντησέ την. Θα κάνεις εξάσκηση με ένα παράδειγμα τώρα και μετά θα συνεχίσουμε.

b. Preverbal and postverbal subjects

Σε αυτό το μέρος θα δεις μερικές εικόνες που δείχνουν δύο άτομα να συμμετέχουν σε ένα συγκεκριμένο γεγονός. Σε κάθε εικόνα, θα ακούς πρώτα τα ονόματα αυτών των ατόμων και μετά θα ακούς μια απλή ερώτηση σχετικά με αυτό που δείχνει η εικόνα. Σε παρακαλώ άκου με προσοχή την κάθε ερώτηση και απάντησέ την.

c. What-embedded interrogatives

Σε αυτό το μέρος θα βλέπεις συνέχεια την ίδια εικόνα μιας γιαγιάς. Κάθε φορά αυτή η γιαγιά θα σου λέει τι δεν θυμάται για ένα από τα δύο εγγόνια της, που τα λένε Νίκο και Μαρία. Αυτή η κυρία λοιπόν δεν θυμάται κάποια πράγματα για τα εγγόνια της. Θα ακούς πάντα την ίδια ερώτηση η οποία θα είναι για το τι δεν θυμάται η γιαγιά για ένα από τα εγγόνια της. Μετά θα πρέπει να απαντήσεις αυτές τις απλές ερωτήσεις και θα πρέπει να πεις τι δεν θυμάται η γιαγιά για τα εγγόνια της. Η ερώτηση θα είναι 'Τι δεν θυμάται;' και θα πρέπει πάντα να ξεκινάς την απάντησή σου με τη φράση 'Η γιαγιά δεν θυμάται...'. Θα πρέπει επίσης να θυμάσαι να λες το όνομα του εγγονιού που αναφέρει η γιαγιά στην κάθε πρόταση που λέει. Σε παρακαλώ άκου με προσοχή αυτό που λέει η γιαγιά κάθε φορά και απάντησε την ερώτηση. Θα κάνεις εξάσκηση με ένα παράδειγμα τώρα και μετά θα συνεχίσουμε.

d. Object pronouns

Σε αυτό το μέρος θα δεις μερικές εικόνες που δείχνουν δύο άτομα να κάνουν κάτι ή δείχνουν κάποιον να κάνει κάτι με ένα αντικείμενο ή ένα ζώο. Σε κάθε εικόνα θα

ακούς μια απλή ερώτηση σχετικά με αυτό που δείχνει η εικόνα. Σε παρακαλώ άκου με προσοχή την κάθε ερώτηση και απάντησέ την.

Acceptability judgement task

General instructions

Αυτό το κομμάτι του πειράματος έχει επίσης τέσσερα διαφορετικά μέρη. Θα βλέπεις κάποια μικρά βίντεο με τρία πρόσωπα, δηλαδή δύο κούκλες και μια κοπέλα που είναι φίλη τους. Σε καθένα από αυτά τα βίντεο η κοπέλα θα ρωτάει μια διαφορετική ερώτηση την οποία θα απαντούν και οι δυο κούκλες. Δηλαδή θα υπάρχουν δύο απαντήσεις για κάθε ερώτηση. Σε κάποια από τα βίντεο όμως θα βλέπεις μόνο τις δύο κούκλες. Σε αυτά τα βίντεο η κάθε κούκλα θα λέει από μια πρόταση χωρίς να απαντά σε μια συγκεκριμένη ερώτηση όπως στα προηγούμενα βίντεο.

Οι δύο προτάσεις που θα λένε οι κούκλες θα έχουν το ίδιο νόημα, την ίδια σημασία, δηλαδή θα δίνουν τις ίδιες πληροφορίες. Όμως η κάθε κούκλα θα λέει με διαφορετικό τρόπο την κάθε απάντηση ή πρόταση, για παράδειγμα, οι λέξεις μπορεί να μην είναι στην ίδια σειρά στις δύο απαντήσεις ή προτάσεις που λένε οι κούκλες. Για αυτό το λόγο, η μία απάντηση ή πρόταση θα σου φαίνεται ή θα σου ακούγεται καλύτερη από την άλλη στα Ελληνικά.

Εσύ θα πρέπει λοιπόν να λες κάθε φορά ποια κούκλα νομίζεις ότι απάντησε με τον καλύτερο τρόπο στην κάθε ερώτηση ή ποια κούκλα νομίζεις ότι είπε την καλύτερη πρόταση στα Ελληνικά. Εγώ θα γράφω τις απαντήσεις σου σε αυτό το χαρτί. Θα πρέπει να ακούς προσεχτικά κάθε ερώτηση και τις δύο απαντήσεις που δίνουν οι κούκλες. Κάθε μέρος είναι λίγο διαφορετικό από τα άλλα και για αυτό θα σου δίνω περισσότερες λεπτομέρειες στην αρχή του καθενός από αυτά τα μέρη και θα σου υπενθυμίζω επίσης τι πρέπει να κάνεις. Θα κάνεις εξάσκηση με τέσσερα παραδείγματα τώρα για να δεις τι πρέπει να κάνεις και μετά θα προχωρήσουμε στο κύριο μέρος του πειράματος.

a. Null and overt subject pronouns

Σε αυτό το μέρος θα βλέπεις κάποια μικρά βίντεο με τις δύο κούκλες και την φίλη τους. Η φίλη των κούκλων είναι περίεργη και για αυτό θα ρωτάει τις κούκλες διάφορες ερωτήσεις για το τι έκαναν οι φίλοι τους και οι συγγενείς τους εκείνη την ημέρα. Οι κούκλες θα απαντούν στις ερωτήσεις δίνοντας και οι δύο τις ίδιες πληροφορίες αλλά όπως είπαμε η μία απάντηση θα σου φαίνεται ή θα σου ακούγεται καλύτερη από την άλλη στα Ελληνικά. Σε κάθε βίντεο να ακούς προσεχτικά την ερώτηση και τις δύο απαντήσεις που δίνουν οι κούκλες και μετά θα πρέπει να δείχνεις την κούκλα που νομίζεις ότι απάντησε με τον καλύτερο τρόπο στην ερώτηση.

b. Preverbal and postverbal subjects

Σε αυτό το μέρος θα βλέπεις κάποια μικρά βίντεο με τις δύο κούκλες και την φίλη τους. Η ιστορία σε αυτά τα βίντεο είναι ότι δύο φίλοι των κούκλων, που λέγονται Γιάννης και Κώστας, ήρθαν στο σπίτι τους την προηγούμενη ημέρα και ξέχασαν κάποια από τα πράγματά τους, όπως τον χάρακά τους, τη γόμα τους, το μολύβι τους. Οι φίλοι τους λοιπόν ήρθαν την επόμενη μέρα για να πάρουν τα πράγματά τους αλλά δεν μπορούσαν να τα βρουν. Η φίλη των κούκλων λοιπόν θα τις ρωτάει για το πού είναι τα πράγματα που έχουν χαθεί. Οι κούκλες θα απαντούν στις ερωτήσεις δίνοντας και οι δύο τις ίδιες πληροφορίες αλλά όπως είπαμε η μία απάντηση θα σου

φαίνεται ή θα σου ακούγεται καλύτερη από την άλλη στα Ελληνικά. Σε κάθε βίντεο να ακούς προσεχτικά την ερώτηση και τις δύο απαντήσεις που δίνουν οι κούκλες και μετά θα πρέπει να δείχνεις την κούκλα που νομίζεις ότι απάντησε με τον καλύτερο τρόπο στην ερώτηση.

c. What-embedded interrogatives

Σε αυτό το μέρος θα βλέπεις κάποια μικρά βίντεο μόνο με τις δύο κούκλες. Θα πρέπει να σου πω ότι οι κούκλες έχουν μια γιαγιά με προβλήματα μνήμης, δηλαδή ξεχνάει συχνά και δεν θυμάται διάφορα πράγματα. Σε αυτά τα βίντεο δεν θα κάνει κανείς ερωτήσεις στις κούκλες. Οι κούκλες θα σου λένε απλά για τη γιαγιά τους και για το τι ακριβώς δεν θυμάται. Οι προτάσεις που θα λένε οι κούκλες θα έχουν την ίδια σημασία, δηλαδή θα δίνουν τις ίδιες πληροφορίες αλλά όπως είπαμε η πρόταση της μιας κούκλας θα σου φαίνεται ή θα σου ακούγεται καλύτερη από την άλλη στα Ελληνικά. Σε κάθε βίντεο να ακούς προσεχτικά και τις δύο προτάσεις που λένε οι κούκλες και μετά θα πρέπει να δείχνεις την κούκλα που νομίζεις ότι είτε την πρόταση με τον καλύτερο τρόπο.

d. Object pronouns

Σε αυτό το μέρος θα βλέπεις κάποια μικρά βίντεο με τις δύο κούκλες και την φίλη τους. Η φίλη των κούκλων ανακάλυψε ότι κάποιος έψαχνε τα πράγματά της χωρίς να το ξέρει. Για αυτό το λόγο η κοπέλα θα ρωτάει τις κούκλες για αυτό το γεγονός ώστε να πάρει πληροφορίες από αυτές. Οι κούκλες θα απαντούν στις ερωτήσεις δίνοντας και οι δύο τις ίδιες πληροφορίες αλλά όπως είπαμε η απάντηση της μιας κούκλας θα σου φαίνεται ή θα σου ακούγεται καλύτερη από την άλλη στα Ελληνικά. Σε κάθε βίντεο να ακούς προσεχτικά την ερώτηση και τις δύο απαντήσεις που δίνουν οι κούκλες και μετά θα πρέπει να δείξεις την κούκλα που νομίζεις ότι απάντησε με τον καλύτερο τρόπο στην ερώτηση.

APPENDIX III

The parents of the bilingual children were asked to complete the following questionnaire as a part of the screening process.

III. Questionnaire

This questionnaire will be used to assess the quantity and quality of input your child gets in both languages. Please write in your answers in the space provided below. Please note that all the information will be treated confidentially and the child's identity will not be revealed in any case. Thank you very much for your cooperation.

1. What is the child's date and place of birth?
.....
2. What is the native language of the parents?
.....
.....
3. In case the parents have different native languages, does each of the parents speak/understand the other parent's language? How proficient is she/he?
.....
.....
4. Is any of the parents bilingual from birth?
.....
5. Was the child exposed to both Greek and English within the first week of life?
.....
6. Has the child been regularly exposed exclusively to Greek and English from birth up until now?
.....
7. Has the child always lived in Greece/Britain respectively?
.....
8. What childcare provisions have been made for the child so far and what was the language of the caregivers?
.....
9. When did the child start attending nursery and what was the language of instruction?
.....
10. What are the language(s) each of the parents has used so far with the child?

.....
11. What language does the child use when addressing each of the parents?
.....

12. What is the language each parent uses with the child when discussing various daily activities, such as homework or other school related issues, sports, casual conversation? What is the language the child uses when discussing these matters with each of the parents?
.....
.....
.....
.....

13. What type of school (public/state) does the child attend? What is the language of instruction? Does the child take extra classes in English or Greek, if yes for how many hours a week?
.....
.....
.....

14. How many trips to Greece/Britain does the child take every year? For how long does she/he usually stay there?
.....
.....

15. Do your relative/friends and the child's grandparents visit you often? If yes, how often?
.....
.....

16. In case there are visitors what is the language spoken?
.....
.....

17. What are the regular weekly activities and in each context what is the language spoken (visits to relatives/friends, children's parties, sports classes etc.)?
.....
.....
.....
.....

18. Does your child mainly socialise with Greek- or English-speaking monolingual children?
.....

19. With the help of the checklist below state the child's sources of input for both languages (mark E for English and G for Greek, where appropriate):

Books.....

Songs/music.....

Audiovisual material (videos, films, TV).....

20. Give an approximate percentage estimate of your child's (usual) overall exposure to Greek and English on a regular basis, i.e. consider the amount of exposure he/she has to each language in the various social settings he/she participates regularly, e.g. at school, at home, social gatherings or other social activities, and then try to estimate your child's overall exposure to Greek and English.

Greek.....

English.....

APPENDIX IV

IV. Biographical data of the bilingual and monolingual participants

a. Exposure and age of the English-Greek bilinguals

Table 1 Exposure and age of the Greek-dominant Bilinguals

Bilinguals	Exposure %		Age
	Greek	English	
1	70	30	7.8
2	70	30	8.2
3	60	40	8.5
4	70	30	8.4
5	65	35	8.5
6	70	30	8.3
7	70	30	8.6
8	70	30	8.0
9	70	30	7.7
10	70	30	8.2
11	65	35	9.4
12	70	30	7.9
13	70	30	7.8
14	60	40	7.5
15	70	30	8.0
16	70	30	9.0

Table 2 Exposure and age of the English-dominant Bilinguals

Bilinguals	Exposure %		Age
	English	Greek	
1	65	35	8.0
2	70	30	8.0
3	65	35	8.0
4	70	30	8.0
5	60	40	9.5
6	70	30	7.6
7	70	30	8.6
8	70	30	8.0
9	65	35	8.1
10	70	30	9.0
11	65	35	7.6
12	65	35	8.4
13	70	30	8.3
14	65	35	7.7
15	70	30	7.5
16	65	35	8.0

b. Age of the English and Greek monolingual children

Table 3 Age of the English monolingual children

Monolinguals	Age
1	8.0
2	8.0
3	9.6
4	7.5
5	7.7
6	7.7
7	8.0
8	7.6
9	9.1
10	7.8
11	8.0
12	7.8
13	7.6
14	7.9
15	8.7

Table 4 Age of the Greek monolingual children

Monolinguals	Age
1	8.1
2	7.8
3	8.3
4	7.8
5	7.6
6	9.7
7	9.0
8	8.0
9	9.1
10	7.7
11	7.8
12	7.5
13	7.9
14	7.7
15	8.1

c. Age of the English and Greek monolingual adults

Table 5 Age of the English monolingual adults

Monolinguals	Age
1	22
2	25
3	24
4	23
5	24
6	24
7	24
8	23
9	24
10	22
11	24
12	25
13	24

Table 6 Age of the Greek monolingual adults

Monolinguals	Age
1	22
2	25
3	24
4	23
5	24
6	24
7	22
8	24
9	24
10	22
11	24
12	26
13	25
14	26
15	26