French-English bilingual children’s encoding of old and new information

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Abstract

This thesis examines the issue of cross-linguistic influence (CLI), i.e. language interaction, in context of the bilingual first language acquisition of French and English. It establishes itself in the current line of research that aims to refine the language-internal and language-external predictors of CLI (Hulk & Müller, 2000; Nicoladis, 2006; Serratrice, Sorace, & Paoli, 2004). A large body of research has shown that referential markers of discourse-pragmatics (i.e. determiners, pronouns, dislocations) are ideal candidates to investigate CLI (Hacohen & Schaeffer, 2007; Kupisch, 2007; Müller & Hulk, 2001; Notley, van der Linden, & Hulk, 2007; Serratrice, Sorace, Filiaci, & Baldo, 2009; Unsworth, 2012b). The study of the local and global markers of old and new information is particularly interesting in the context of French-English bilingualism as it provides a unique opportunity to examine a range of variables that may affect CLI.

The first two studies investigate the role of typological differences and similarities on CLI by examining whether the contrasting distribution of determiners (i.e. presence vs. absence of definite articles in generic noun phrases), and the comparable pronominal systems (i.e. two non-null argument languages) in French and English predict this phenomenon. The analyses are based on the longitudinal corpus of two French-English children (Anne 2;4-3;4 and Sophie 2;6-3;7). At the determiner level, the results indicate the existence of bi-directional CLI that is determined by both structural overlap (Hulk & Müller, 2000) and economical considerations (Chierchia, 1998) as a function of language proficiency. At the pronominal level, the data indicates that CLI does not occur for structurally similar constructions.

Aside from moving the issue of CLI from local referential expressions to the sentence level (i.e. dislocations), the third study investigates the role of input quality, language dominance, frequency, and structural complexity on CLI in the longitudinal corpus. The findings clearly show that input quality does not affect this phenomenon. In fact, the data displays a rather complex picture for CLI. It suggests that a multitude of variables interact with one another and drive this phenomenon. In particular, two measures of language dominance (i.e. children’s language exposure and their expressive skills) affect CLI differently as a function of the frequency and complexity of the structure vulnerable to this phenomenon (i.e. determiners vs. dislocations).

Finally, the corpus-based analyses are supplemented by two experimental studies using the priming paradigm to investigate the role of language processing and language exposure on CLI. The findings indicate that (i) bilingual children’s mental representation of syntactic structures is affected by the simultaneous acquisition of two languages; and that (ii) language exposure plays a role on the degree of activation of a particular structure in bilingual children’s processing.

Ultimately, the present research shows that CLI is caused by the interaction of a multitude of variables (i.e. language processing, language dominance, frequency, structural complexity) rather than being the consequence of a combination of two factors (e.g. structural overlap, discourse-pragmatics interface) (Hulk & Müller, 2000).
Declaration

I declare that no portion of the work referred to in the thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Signed ......................................................... (candidate)
Date: 01/12/2014

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1 Introduction

The general consensus in the field of Bilingual First Language Acquisition (BFLA) is that bilingual children acquire their two languages as largely separate systems (De Houwer, 1990; Meisel, 1989; Paradis & Genesee, 1996). A large body of research has shown that (i) bilingual children differentiate their two language systems at the level of phonology, lexicon and morpho-syntax (Bosch & Sebastián-Gallés, 2001a; Kupisch & Müller, 2007; Quay, 1995); and (ii) their development is parallel to that of monolingual children (De Houwer, 1990; Hulk, 2000, 2004; Meisel, 1990). Although bilingual children typically use their two languages in target-like ways from early on, a growing body of evidence suggests that their linguistic systems develop with some degree of interdependence. Interactions between the two linguistic systems have been observed in a wide range of language pairs (Döpke, 1998: German-English; Grinstead, 2000: Catalan-Spanish; Hacohen & Schaeffer, 2007: Hebrew-English; Hulk, 2004: Dutch-French; Paradis & Navarro, 2003: Spanish-English; Paradis & Nicoladis, 2007: French-English; Schmitz, Patuto, & Müller, 2012: French-Italian; Serratrice et al., 2004: Italian-English). These interactions are known as manifestations of cross-linguistic influence (CLI). In the past fourteen years, researchers have tried to define and refine the predictors of CLI.

In the early 00’s, Hulk & Müller (2000) formulated the hypothesis that CLI would be unidirectional and would involve structures at the syntax-pragmatics interface in the presence of a structural overlap across the two languages. While a number of studies have confirmed the vulnerability of the syntax and discourse-pragmatics interface, CLI has also been reported for structures that do not meet Hulk & Müller’s conditions. In addition, the possibility to observe a bidirectional influence has also been demonstrated (Foroodi-Nejad & Paradis, 2009). Therefore, researchers have started examining the role of other variables such as language processing, frequency, typological distance, input quality and language dominance on CLI.

The present work establishes itself in this line of research. Specifically, I investigate the conditions under which CLI occurs in context of French-English
bilingualism. Referential markers of discourse-pragmatics are ideal to examine the variety of variables that affect CLI in this context. The study of local markers (determiners; pronouns) allows building on the wealth of research that has focused on the development of referential expressions in other Romance-Germanic language pairs. It also provides a unique opportunity to investigate the role of typological differences (i.e. determiners) and similarities (i.e. pronouns in two non-null argument languages) on CLI. The study of a global marker (i.e. dislocation) of old and new information permits to shift the debate from individual referential expressions to the sentence level. In this case, the investigation of the vulnerability to CLI of dislocations also allows examining whether the frequency of this structure plays a role on this phenomenon.

This study on CLI in French-English bilingual children is based on both naturalistic and experimental data. These two types of data provide a complementary picture of the phenomenon under investigation. The longitudinal corpus of two French-English children (Anne 2;4-3;4 and Sophie 2;6-3;7) offers not only the possibility to document the development of discourse-pragmatic markers over a year, but it also permits to assess the role of input quality and language dominance on CLI. The inclusion of monolingual English and French data provides a solid ground to examine the bi-directionality of CLI. Finally, the two experimental studies were designed to test the role of language processing and language exposure on CLI on a larger sample of bilinguals.

This thesis is organised as follows. Chapter 2 presents an overview of the issue of CLI in bilingual development, including a discussion of the language-internal (i.e. discourse-pragmatics interface, overlap, language processing) and language-external (i.e. language dominance, input) variables that have been found to play a role on this phenomenon. In particular, Hulk & Müller's (2000) seminal hypothesis is reviewed alongside a discussion of the limitations of their proposal in light of relevant subsequent evidence. The role of language processing in CLI is examined together with a focus on the need to investigate the issue of conceptual overlap. With regard to language-external factors, a case is made for the need to distinguish language dominance in terms of both input quantity (i.e. language exposure) and children's expressive abilities, together
with the need to use quantitative measures of language dominance. Finally, the notion of discourse-pragmatics is introduced and discussed in terms of its implications for bilingual development.

Chapter 3 consists of a comprehensive overview of the methodology and data used in this thesis. After a survey of the key methodological issues in BFLA, there is an introduction to the longitudinal corpus of two French-English children used for the analyses presented in chapter 4 and 5. Then, the bilingual children’s language dominance is assessed by considering several quantitative measures of language development and language exposure. The case is made for including monolingual and input data in the study of CLI before presenting this additional data. Chapter 3 ends with a presentation of the transcription system and the coding scheme.

Chapter 4 deals with the issue of CLI for local referential markers in the longitudinal corpus collected for this thesis. In particular the issue of CLI is examined in connection with the presence of structural overlap (i.e. the case of determiners) and in the presence of structural similarities (i.e. the case of pronouns). After examining the language-external and language-internal factors that may affect CLI at the determiner level, both structural overlap (Hulk & Müller, 2000) and economical considerations (Chierchia, 1998) are considered as having a different effect on CLI as a function of language dominance. The second half of Chapter 4 examines the development of argument realization in order investigate whether CLI occurs for structures that are structurally highly similar in French and English. Contra to Pirvulescu et al.’s (2012) experimental findings on object realization in French-English children, the present naturalistic French-English data does not display any CLI at the level of argument realization. These contrasting results are discussed in light of methodological differences.

Chapter 5 moves the debate on CLI from local to global referential marking, specifically by examining the two French-English children’s use of dislocations. Language-external variables (i.e. input quality, language dominance) and language processing are considered as potential drivers of CLI for dislocations. The analysis shows that input quality cannot account for CLI in this context. The argument is that CLI is the result of a multitude of variables that interact with one another. In particular, the two measures of language
dominance (i.e. language exposure, expressive skills) may affect CLI differently as a function of the frequency and complexity of the structure vulnerable to this phenomenon.

Chapter 6 presents a series of two elicitation experiments designed to explore the role of language processing and language exposure on CLI. The findings indicate that the mental representation of syntactic structures is affected by the simultaneous development of two languages. Language exposure plays a role on the activation of a structure in bilingual children's mind and in the syntactic form-discourse function mapping of topicality.

Finally, chapter 7 summarizes the main findings and contributions of the thesis to the issue of CLI in bilingual development.
2 Theoretical Overview

This section introduces the fields of BFLA as well as discourse-pragmatics. With regard to BFLA, section 2.1 provides a brief historical overview and presents the two issues that are directly related to the present research, namely (i) the mental representation of the two languages of a bilingual child, and (ii) the relationship between the bilingual child’s languages (i.e. cross-linguistic influence, hereafter CLI – influence of one language on the other). Section 2.2 provides a detailed account of the possible language-internal and language-external factors that constrain CLI. Finally, section 2.3 introduces the field of discourse-pragmatics and concludes on its implication for bilingual development.

2.1 Bilingual First Language Acquisition

2.1.1 A historical perspective

A century ago, the French linguist Jules Ronjat published the first seminal work on bilingual first language acquisition, where he examined the linguistic development of his French-German bilingual son, Louis. Ronjat (1913) developed the notion of *une personne-une langue* (one person-one language), according to which the context of language exposure is separated within the family, the idea being that each parent would speak his or her native language to the child. Three decades later, the second major contribution to bilingual studies was published. Leopold (1939) described the linguistic development of his English-German bilingual daughter, Hildegard, in the four volumes of *Speech Development of a Bilingual Child*. Like Ronjat, Leopold based his work on diaries where he recorded the different stages of his daughter’s linguistic development. In particular, Leopold developed the term *child language* to refer to research on language acquisition (Hakuta, 1989).

Along with the surge of research carried on language development in the ‘60s, Volterra & Taeschner (1978) published the third influential work on child bilingual acquisition. They described the development of four German-Italian
bilingual children and posited the existence of a three-stage bilingual development. According to their hypothesis, bilingual children were thought to go through a first stage where they would have only one lexical system that would include words from both languages; in the second stage, they would have acquired two lexicons but only one morpho-syntactic system; and finally they predicted that children would develop and have two language-specific lexicons and grammars (see Taeschner, 1983 for a comprehensive review). Since then, this controversial paper has motivated extensive investigations into the simultaneous acquisition of two languages in order to examine the nature of language representation and the issue of language separation.

In the eighties, bilingual acquisition studies picked up momentum with a number of researchers on both sides of the Atlantic establishing bilingual development as an autonomous field. Genesee (2005: 890) argued that three factors are responsible for this increased interest in bilingual development: (i) bilingualism was no longer considered as something exceptional; (ii) child language study mainly focused on monolingual acquisition and was mainly silent about bilingual acquisition; (iii) research on bilingual children could stand on its own as it makes a unique contribution to our understanding of the human language faculty.

In the past thirty years, the literature has considerably expanded to address issues that have preoccupied researchers in the first language acquisition literature for a long time (e.g. the nature of children’s early linguistic representations, learning mechanisms), and to explore questions that are specific to the nature of bilingual development (e.g. the degree of autonomy and interdependence between the child’s two linguistic systems; the relationship between the bilingual child’s two languages).

2.1.2 Main issues

Research on bilingual acquisition has focused on three main lines of investigation (Wei, 2007). The first area has examined the simultaneous acquisition of two languages with a view to comparing bilingual and monolingual development, their similarities and their differences. The second line of inquiry
is closely linked to the first and specifically questions whether and how the languages of the bilingual child interact with one another. Finally, a third line of research focuses on how bilingual children *use* their languages in bilingual interaction. The present study is only related to the first and second area of research so only these two will be discussed here.

Volterra & Taeschner’s (1978) seminal paper started a flourishing line of investigation on the nature of bilingual children’s mental representation of grammatical knowledge. The main issues were to investigate the existence of a unitary or a dual language system of representation and to examine whether bilingual children go through the same developmental stages as monolinguals do. Systematic investigations followed Genesee’s (1989) reanalysis of Volterra & Taeschner’s data. Arguments in favour of a unitary system were based on evidence of language mixing, i.e. bilingual children’s production of utterances containing lexical items and even whole clauses from their two languages (Meisel, 2001). In contrast, a bulk of research reported evidence of early language differentiation and developed robust arguments in favour of the Autonomous Development Hypothesis (ADH) (De Houwer, 1990; 2009; Paradis & Genesee, 1996). Detailed analysis of the emergence of lexical knowledge and of grammatical structures in longitudinal corpora involving different language pairs (e.g. French-German; Dutch-English; French-English) demonstrated that the early separation of linguistic systems is not the exception but the rule in bilingual development. The main arguments rest on evidence of fundamental similarities between the linguistic development of bilingual and monolingual children. They both acquire the core aspects of linguistic knowledge at the same pace and bilingual children’s linguistic knowledge is qualitatively indistinguishable from their monolingual peers. Finally, bilinguals differentiate their languages from their very first productions. For instance at the one-word stage, bilingual children are reported to distinguish between their two lexicons, and use words in language-specific ways, i.e. more language-appropriate than non-language-appropriate words as a function of the language of the addressee. At the multi-word stage, they combine grammatical morphemes of one language with the lexicon of the same language and use productively different word-order pattern in their two languages. In addition, their speech acts appear to be mostly
unaffected by transfer from one language to the other (Meisel, 1985; Quay, 1995).

Ten years of investigations on language differentiation have led to a consensus on the relative autonomous development of the two languages at the level of phonology, lexicon and morpho-syntax (see Serratrice, 2012 for a detailed overview). That is to say, bilingual children typically produce target-like utterances in their two languages. However, a large body of empirical evidence suggests that the speech of bilingual children is to a certain extent qualitatively and quantitatively different from that of monolingual children in different domains of language development. Typically, bilingual children differentiate their two phonological systems from early on but these systems do not develop completely autonomously (Bosch & Sebastián-Gallés, 2001b; Paradis, 2001). At the lexical level, bilinguals' vocabularies in each language are smaller than age-matched monolinguals, but the total conceptual vocabulary, i.e. the number of concepts for which they have a label in at least one of their languages, is comparable to monolinguals' (Pearson, Fernandez, & Oller, 1993). At the morpho-syntactic level, instances of CLI have notably been observed at the syntax-pragmatics and syntax-semantics interface (Argyri & Sorace, 2007; Liceras, Fuertes, & de la Fuente, 2012; Paradis & Navarro, 2003; Silva-Corvalán & Montanari, 2008; Unsworth, 2012b). These instances suggest a relative interdependence of the language systems, which is not in complete contradictory with the ADH.

Over ten years ago, the debate largely shifted from the issue of language differentiation to examining the relationship between bilingual children's two languages and especially instances of CLI. Investigating the structures that are vulnerable to CLI and the factors that predict its occurrence sheds light on the mechanisms of language acquisition in bilingualism and on the nature of linguistic representations in bilingual individuals. Numerous studies have tried to establish and refine the determinants of interaction between the two language systems. Much current work examines the role of language processing rather than representational effects (see 2.2 for a detailed overview).
2.2 Cross-linguistic influence

A large body of research has shown that bilingual children’s comprehension and production are qualitatively and quantitatively different from that of monolingual children (Foroodi-Nejad & Paradis, 2009; Nicoladis, Rose, & Foursha-Stevenson, 2010; Patuto, Repetto, & Müller, 2011; Pirvulescu, Pérez-Leroux, & Roberge, 2012; Yip & Matthews, 2007a). In the literature, various terms have characterised this phenomenon: transfer, interference, interdependence, convergence and influence. Here, the term cross-linguistic influence will be used. The review will focus on instances at the morpho-syntactic level, the domain that is related to the present research and which has received the greatest interest.

Numerous instances of CLI have been observed and identified as corresponding to one of the following cases: transfer, delay and acceleration (Paradis & Genesee, 1996). Transfer has been conceptualized in one of two ways: (i) transfer of a grammatical property from one language to the other resulting in a linguistic behaviour that is unattested in the monolingual acquisition of this other language; (ii) use of a construction that is available in language A in contexts in which it is not semantically or pragmatically appropriate in language B. In Yip & Matthews (2000) the first type of transfer was observed from Cantonese to English in areas where the two languages differ typologically: prenominal relatives, wh-in situ interrogatives and null-objects. Consider example (1), the sentence *I want Pet Pet buy that one videotape* could be understood as “I want Pet Pet to buy this video”. However, Yip & Matthews (2000) posit that this sentence should not be interpreted as such since the video had already been bought when the child produced this utterance. So, the child could not have asked Pet Pet to buy this video. The authors argue that this sentence should be understood as “I want the video that Pet Pet bought”. They claim that it would correspond to an instance of transfer from Cantonese in which this prenominal relative would be totally appropriate.

(1) Example from Yip & Matthews (2000: 204)
I want to watch videotape. Butterfly. Patrick buy that one.
I want Pet Pet buy that one videotape.
Instances of wh-in situ interrogatives (e.g. *you are doing what?*) or null-objects (e.g. *I like (it)*) were also observed in this Cantonese-English bilingual’s English. Such occurrences can be observed in the development of monolingual English children too. But, the bilingual child’s language production differed both qualitatively, and quantitatively from a monolingual English-speaking child’s. Null-object appeared mainly after the verb *have* and their occurrence ranged between 9.1% and 28.6% of available contexts, a much higher rate than in monolingual English-speaking children at a similar stage of development.

The second type of transfer has been repeatedly observed in null-subject (e.g. Italian, Spanish) and non-null-subject (e.g. English, German) language pairs. Bilinguals have been reported to use a non-negligible amount of overt subjects in [-topic shift] contexts in their null-subject language as the result of influence from their non-null-subject language (Hacohen & Schaeffer, 2007; Paradis & Navarro, 2003; Serratrice et al., 2004; Sorace, Serratrice, Filiaci, & Baldo, 2009). In these cases, the influence from the Germanic language seems to quantitatively boost a phenomenon attested in Italian and Spanish monolingual acquisition.

CLI also occurs in the form of a *delay*. Typically, it corresponds to higher omission rates than those observed in same-aged monolingual children. In Kupisch (2003), higher determiner omission rates were observed in the early stages of a French-German child’s acquisition of determiners. Specifically, the child omitted determiners in French for a longer period than French monolinguals. The author argued that CLI resulted in a relative delay of the first determiner productions in the bilingual’s French due to her German. Finally, *acceleration* corresponds to a faster development in the acquisition of a grammatical property than in monolingual acquisition. For instance, Kupisch (2007) observed that Italian-German bilingual children produced their first determiners earlier in German than age-matched monolinguals as a consequence of influence from their Romance language in which determiners are acquired earlier than in their Germanic language.

In the last 15 years, the variables determining CLI have been thoroughly examined. A substantial body of research has discussed language-internal and language-external factors potentially affecting this phenomenon. The increase of language pairs and grammatical phenomena examined over the last decade has
clearly managed to disentangle some variables that do not appear to affect CLI. As a consequence, not much is left from the original influential hypothesis. Recent work started investigating the role of language processing, of overlap (in Schmitz et al., 2012 sense) and of input in this yet puzzling phenomenon.

2.2.1 Language-internal factors

2.2.1.1 The syntax-pragmatics interface and the overlap condition

In the early ‘00s, structural overlap was proposed to be one of the possible main predictors of CLI. Within the Competition Model framework (Bates & MacWhinney, 1989), Döpke (1998) examined CLI in the speech of three German-English bilingual children between the ages of 2;0 and 5;0. In German, both the OV and VO word orders are used depending on whether the VP is in a main or subordinate clause. In contrast, English only relies on the VO word order. In this sample, the children were reported to use the non-target VO word order in German in cases where this word order is unattested in German monolingual children. Döpke suggested that this phenomenon could be attributed to the partially overlapping structures in the German and English input that created structural salience for the children. Thus, bilingual children’s production of non-target structures may be caused by some overlap between the structures of their two languages boosting the salience of the overlapping structures.

Within the Universal Grammar Framework, Hulk & Müller (2000) reformulated the overlap condition. In a study examining Dutch-French and German-Italian children’s object realization, Hulk & Müller proposed that CLI would be likely to occur if the two following conditions are met:

a. “Cross-linguistic influence occurs at the interface between two modules of grammar, and more particularly at the interface between pragmatics and syntax in the so-called C(omplementizer)-domain, since this is an area which had been claimed to create problems in L1 acquisition also.
b. Syntactic cross-linguistic influence occurs only if language A has a syntactic construction which may seem to allow more than one syntactic analysis and, at the same time, language B contains evidence for one of these two possible analyses. In other words, there has to be a certain overlap of the two systems at the surface level” (2000: 228-229).

Influence from one language to the other would then occur at the syntax-pragmatics interface. Specifically, structures existing in the two languages but which would exhibit different grammatical analyses as in (2) would lead bilingual children to opt more often than monolingual children to use structure X in context 2 in language B due to CLI from language A.

(2) Language A: structure X in context 1 and structure X in context 2
Language B: structure X in context 1 and structure Y in context 2

According to Hulk & Müller's proposal, bilingual and monolingual children’s language use would differ in terms of quantity rather than quality. The authors emphasise the necessity of these two conditions but also suggest that other variables may affect CLI.

Contrary to Hulk & Müller’s first condition, instances of CLI have been observed after instantiation of the C-domain in null-subject and non-null-subject language pairs (Paradis & Navarro, 2003; Serratrice et al., 2004). Serratrice et al. (2004) proposed to extend the original hypothesis after instantiation of the C-system. In their analysis of an Italian-English bilingual child (1;10-4;6), Serratrice et al. did not identify pragmatically infelicitous overt subjects before the establishment of the C-system but after, in particular between the ages of 3;0 and 4;0. They argued that children are becoming more aware of the language-specific requirements at the C-system stage but that the complexity of coordinating syntactic and pragmatic information will lead bilingual children to make some pragmatically inappropriate choices even after instantiation of the C-system. In addition, Serratrice et al. (2004: 201) proposed that “cross-linguistic influence will go uni-directionally from the language with fewer pragmatic constraints [...] to the language [...] regulated by pragmatically complex
constraints”. This revised hypothesis has satisfactorily accounted for the overproduction and over-acceptance of overt-arguments in bilingual children acquiring null-subject and non-null-subject language pairs (Greek-English: Argyri & Sorace, 2007; Hebrew-English: Hacohen & Schaeffer, 2007; German-Italian: Hauser-Grüdl, Arencibia Guerra, Witzmann, Leray, & Müller, 2010; Turkish-English: Haznedar, 2007).

Recently, a new language pair (Italian-French) was incorporated into the analysis of subject clitics in Italian-German and Italian-French (Schmitz et al., 2012). Unexpected results on the Italian-French children entirely challenged Hulk & Müller’s overlap condition from their original hypothesis. Similarly to Serratrice et al.’s (2004) results on Italian-English, Italian-German gave rise to the over-realization of subject in Italian but not in the Italian-French combination. The bilingual children’s subject realization mapped those of French and Italian monolinguals. Schmitz et al. proposed a new account of the overlap condition expressed in terms of syntactic derivation rather than pragmatic complexity. This reformulation rests on differences between French and German in the way arguments are omitted. Topics can be dropped in root clauses in German. Pragmatically, sentences containing a dropped subject and those containing an overt pronominal subject are similar; they only differ in terms of speech register (Schmitz et al., 2012: 228). In French, only expletive (3rd person) pronouns can be omitted; arguments have to be overtly realized. Pronoun omission in expletive utterances marks a change of register. In the German-Italian pair, both languages allow subject omission, but pragmatics only governs subject realization in Italian not in German (i.e. semantics). In French-Italian, subjects are strictly realized in a different way. Consequently, Schmitz et al. (2012: 229) argued that when the two languages mark a grammatical phenomenon differently (e.g. null and overt subject in Italian and overt subject in French), a bilingual child will not overgeneralize the less complex analysis in the language offering the more complex one. They posited a new account of the overlap condition in terms of syntactic derivation rather than pragmatic complexity. Their proposal is that:
“b. The surface strings of the two languages A and B are analysable in terms of the syntactic derivation of one language (which is less complex)” (2012: 229).

This new hypothesis constitutes a theoretically independent reformulation. Schmitz et al. admitted that their study only constitutes preliminary work in this new direction and that more data from Italian-French children needs to be examined as well as more language pairs.

In sum, the phenomenon of CLI has been conceptualised in terms of bilingual children’s difficulty at treating grammatical constructions at the syntax-pragmatics interface that present a structural overlap across their two languages (Hulk & Müller, 2000). Serratrice et al. (2004) extended this original hypothesis after instantiation of the C-domain and proposed that the direction of CLI would be governed by pragmatic complexity. Finally, recent work completely challenges Hulk & Müller’s overlap condition and proposes a new formulation of the cross-linguistic hypothesis recasted in terms of syntactic derivation rather than pragmatic complexity (Schmitz et al., 2012). The reformulation of the overlap condition has been accompanied by a substantial amount of studies that have questioned the explanatory power of the interface condition (Sorace, 2011). Despite the relative empirical support to Hulk & Müller’s original hypothesis, a significant number of studies have reported extensive evidence of CLI occurring outside of the scope described above. This phenomenon has been observed at the interface between syntax and semantics as well as in domains that do not involve an interface.

2.2.1.2 CLI outside of the syntax-pragmatics interface

Instances of CLI have been observed outside of the syntax-pragmatics interface. Specifically, instances of transfer involving the choice of referential expression to mark subjects at the syntax-semantics interface and the choice of subject position in a narrow syntax structure, i.e. wh-embedded interrogatives, have recently been observed (Argyri & Sorace, 2007; Fernández Fuertes & Liceras, 2010; Liceras et al., 2012; Serratrice et al., 2009). There is a semantic-
syntactic distinction in the way predicates are realised by the copula in Spanish. The verb *ser* tends to mark Individual Level (IL) predicates, i.e. denoting a permanent property (e.g. *Mi perrito es negro / My doggie is black*); and the verb *estar* tend to encode Stage Level (SL) predicates, i.e. denoting a temporal property (e.g. *Mi perrito esta cansado/ My dog is tired*). However, some type of overlap exists in the way *es* and *estar* precede the two types of predicates. In English, the copula is only realized by the verb *be*. Three studies examined Spanish-English bilinguals’ productions of copula in Spanish and in English respectively (Fernández Fuertes & Liceras, 2010; Liceras et al., 2012; Silva-Corvalán & Montanari, 2008). Silva-Corvalan & Montanari (2008) focused their study on a Spanish–English child’s Spanish production. The child, who was dominant in English, tended to over use *ser* instead of *estar* between 1;7 and 1;10. The authors argue that this small amount of CLI from English to Spanish in the use of copula forms may be due to phonetic realization, *es* being closer to *is* than *esta*. This phenomenon is also observed as related to the dominant language. In two subsequent studies, Fernández Fuertes & Liceras (2010) and Liceras, Fernández Fuertes & Alba de la Fuente (2012) investigated the same phenomenon in two Spanish-English bilingual twins’ production in English. The children, aged between 2 and 3, behaved similarly to Spanish monolinguals as they omitted the copula less frequently with SL predicates than monolinguals in English. The authors proposed that the semantic-syntax distinction between SL and IL in Spanish would accelerate the acquisition of the copula in English. A wider claim is that lexical transparency in language A would accelerate the acquisition of language B (Fernández Fuertes & Alba de la Fuente, 2012: 108).

Another study addressing the issue of CLI at the syntax-semantics interface has examined 6 and 10 year-old Italian-English and Italian-Spanish bilingual children’s acquisition of generic and specific plural noun phrases compared to aged-matched English and Italian monolinguals (Serratrice et al., 2009). In English, plural noun phrases in generic contexts are encoded as bare nouns while in specific contexts they are preceded by the definite article *the*. In contrast, they are preceded by a definite article in both generic and specific contexts in Italian. The results for English are that all groups responded poorly to the task implying that at 6 and 10, children have not acquired the specificity vs.
non-specificity distinction. In Italian, monolingual and Spanish-Italian children’s responses were at ceiling whereas the Italian-English children accepted more ungrammatical bare nouns in generic contexts in Italian. The main interest of these outcomes is that the direction of CLI was opposite to what the overlap condition would predict. Unlike in the case of overt-subjects in [-topic shift] context, CLI occurred from English, the language with the more complex structural pattern (i.e. overt and null determiners), to Italian, the language with the least complex determiner system (i.e. overt determiners). The authors accounted for this unexpected direction of CLI with reference to Chierchia’s (1998) Nominal Mapping Parameter (NMP) hypothesis. Chierchia (1998) offers a theoretical account of the cross-linguistic differences in the distribution of bare NPs in Romance and Germanic languages. In short, this hypothesis divides languages according to the way they refer to kinds. Nouns appear as predicates (e.g. Aurore is a doctor) and as arguments (e.g. A doctor works in a GP practise). Romance languages are characterised by the [-arg, +pred] setting as all nouns are by default predicates. Despite cross-linguistic differences, the projection of a determiner is typically required for a noun to appear in argument position. Germanic languages correspond to the [+arg, +pred] setting since nouns either denote a predicate or an argument. On the one hand, nouns that denote a predicate are countable and need a determiner in argument position (e.g. I moved the chairs into the room/*Chair is not to the table). On the other hand, nouns that denote kinds (e.g. Advice is available online/*Advices are always welcomed) have a mass denotation and appear without determiner in every syntactic position (see Serratrice et al., 2009: 241 for a detailed account). The direction of influence suggests that the children relied on the English most economical system [+arg +pred] rather than on the Italian system [-arg, +pred].

In Serratrice et al.’s study, the effect of CLI was to a certain extent mediated by language dominance since the Italian-English bilinguals in Italy performed significantly better than those in the UK.

Argyri & Sorace (2007) reported further evidence of CLI outside of the syntax-pragmatics interface in Greek-English bilinguals by examining narrow syntax structures (i.e. wh-interrogatives). In both root and embedded interrogatives, the auxiliary/verb has to be adjacent to the wh-expression in
Greek. In contrast, the subject is placed between the wh-expression and the verb in wh-embedded interrogatives in English. Greek-English children between the ages of 7;5 and 9;5 took part in an elicitation and a judgement acceptability task. The English-dominant bilinguals produced and accepted significantly more non-target pre-verbal subject in wh-embedded interrogatives than the Greek-dominant bilinguals and the Greek monolinguals. The core interest of this study is that CLI affects domains other than the syntax-pragmatics interface. These results also suggest that language dominance plays an essential role in the direction of CLI.

These instances of CLI outside of the syntax-pragmatics interface show clear limitations to Hulk & Müller's (2000) hypothesis and their expansions. Moreover, Serratrice et al. (2009) also calls into question how the concept of language complexity should be addressed. While language complexity has largely been treated in terms of structural overlap across the languages as well as pragmatic complexity, Serratrice et al.’s (2009) results on CLI at the determiner level in Italian-English bilinguals demonstrate the difficulty of modelling language complexity (i.e. structural overlap, NMP) and also suggest that children may rely on additional cues. A growing body of research questions the power of Hulk & Müller's (2000) early proposal and investigates the role of other possible child’s language-internal factors on CLI. Specifically, recent studies indicate that processing mechanisms may actually play a role CLI (Nicoladis, 2006; 2012; Vasilyeva et al., 2010).

2.2.1.3 The role of processing in CLI

Fifteen years of intensive research attempting to refine the determinants of CLI have not yet reached a definitive conclusion. Only recently, did a small number of researchers start investigating the role of language processing in this puzzling phenomenon by testing bilingual children's comprehension, production and sensitivity to priming (Nicoladis, 2006, 2012; Sorace et al., 2009; Vasilyeva et al., 2010). Language processing refers to the mapping of syntactic structure onto meaning in the course of sentence comprehension and production. The
processing account suggests that CLI would be driven by language use, i.e. by the comprehension and production of sentences and the relative activation of overlapping structures in their two languages (Serratrice, 2013a). With regard to the three possible instances of CLI the processing account suggests that: (i) **transfer** would be the result of the routine processing of a construction X in language A that would prime this construction X in language B regardless of its appropriateness; (ii) **delay** would be a consequence of the (lack of) processing of a construction X acquired later in language A than in language B that would postpone the productions of construction X in language B compared to monolinguals of language B; (iii) **acceleration** would be the result of the routine processing of a construction X acquired early in language A that would lead to an early production of this construction X in language B acquired later by monolinguals of language B.

The role of language processing has been investigated using different methodologies. The priming paradigm has been successfully used to test whether processing mechanisms are implicated in CLI in bilingual adults (Bernolet, Hartsuiker, & Pickering, 2009; Hartsuiker & Pickering, 2008; Hartsuiker, Pickering, & Veltkamp, 2004). "Syntactic priming is the phenomenon whereby exposure to a sentence with a particular syntactic construction can affect the subsequent processing of an otherwise unrelated sentence with the same (or, perhaps, related) structure, for reasons of that structure" (Branigan, Pickering, Liversedge, Stewart, & Urbach, 1995). Recently, Vasilyeva et al. (2010) started to apply the priming paradigm to explore the role of cross-linguistic structural priming in Spanish-English bilingual children. The syntactic construction under investigation was the passive form of transitive constructions. Spanish has two forms of passives, the so-called *se*-passive and the *fue*-passive. While passives are not frequent in either spoken Spanish or English, the *fue*-passive in Spanish is even more rare. Nonetheless, the *fue*-passive was used in this experiment because of its parallel structural properties with the English passive (prepositional phrase "by-phrase"). Sixty-five 5-year-old Spanish-English bilinguals were cross-linguistically primed from Spanish to English and the reverse. When primed with Spanish *fue*-passive sentences, the children increased their use of passive constructions in English suggesting that
syntactic structures are shared and co-activated between the two languages during processing. However, the reverse effect was not observed; exposure to English passives in the prime sentences did not lead to a significant increase of the use of *fue*-passives in Spanish. The fact that priming from English to Spanish was not successful is somehow problematic. Without independent measures of language dominance, the authors posited on the sole basis of a comparison of the children’s responses that the children had comparable proficiency in the two languages. The authors ruled out the role of language dominance on these asymmetric results. Instead they speculated that the relative infrequency of the *fue*-passive construction in Spanish is responsible for the lack of priming after exposure to English passives. But, the uni-directionality of the priming effect suggests that other elements such as frequency of the structure and language dominance in the sense of exposure to languages (as opposed to production) may also impact on CLI.

Finally, the role of processing mechanisms in bilingual children’s production has been examined through the use of an elicitation task in Nicoladis (2006, 2012) and Nicoladis, Rose & Foursha-Stevenson (2010). The authors made an analogous hypothesis to the processing account that they formulated in terms of a *speech production model* (see Levelt, Roelofs & Meyer 1999 and Ferreira & Dell 2000). According to this model, “a speaker who wished to convey a message would first choose the concepts (the conceptual level), then choose the specific words and syntactic frame to convey the message (the lemma level), and finally the phonological form of the word” (Nicoladis et al., 2010: 347). Nicoladis (2006) suggested that CLI is due to competition, at the lemma level, between constructions from the bilinguals’ two languages. Overlapping structures (at the surface level) from the two languages would be co-activated at the lemma level regardless of the language being used at that particular point in time. This proposal is based on French-English bilingual children’s production of adjectives in their two languages. French allows both adjective-noun (e.g. *des petits sapins*/ small pine trees) and noun-adjective (e.g. *un chien mouillé*/a dog wet) word orders depending on the semantic context. In contrast, English only allows the adjective-noun order (e.g. *a happy dog*). As expected by the overlap condition, the bilingual children made a significant amount of Adj-N word order
errors in French. However, they also unexpectedly made significantly more errors in English than monolinguals and produced N-Adj word orders. Similar results were observed in a study on French-English bilinguals’ production of possessives (Nicoladis, 2012). These children produced significantly more frequently the French-ordered possessive construction (i.e. possessum-possessor) (44%) in English, and the English-ordered possessives (i.e. possessor-possessum) (23.9%) in French than their respective monolingual counterparts. In addition, influence of the French possessive order in English occurred with common nouns (e.g. the hat of the dog) but not with proper nouns (e.g. the hat of Suzanne) as observed with English monolinguals (Skarabela & Serratrice, 2009). In French, CLI was observed with both categories. As a consequence, Nicoladis and colleagues argued that interference would occur as a result of co-activation at the lemma level of the English syntactic frame adjective-noun or possessor-possessum and of the French syntactic frame noun-adjective or possessum-possessor. The words would also be co-activated in the two languages (e.g. brown, dog, chien, noir). The degree of activation of language-specific frame and lexicon would be language-context dependent. Consequently, the language-appropriate frame and lexicon would be produced most of the time; however this competition would also lead to possible bi-directional CLI.

Nicoladis et al. (2010) tested their new hypothesis by examining the role of conceptualisation on CLI. Following Slobin’s (1991) ‘thinking for speaking’ hypothesis, they explored the extent to which conceptualisation is language-specific or language-general and how it impacts on CLI. Substantial cross-linguistic differences at the conceptual level would block CLI at the lemma level. The authors interpreted French-English bilingual children’s preference for language-specific ways to encode motion events as evidence of language-specific conceptualisation. French and English rely on two overlapping constructions to refer to moving figures: a noun modified by a deverbal adjective (e.g. dancing cow / une vache dansante) and a noun modified by a relative clause (NMRC) (e.g. une vache qui danse/ a cow that is dancing). Despite this structural ambiguity, English native speakers strongly favour the verb-ing noun form while French native speakers strongly prefer NMRC suggesting that moving figures are conceptualized in different ways in French and English (i.e. French emphasising
on the referent; English insisting on the movement). In a picture-description task, bilinguals and monolinguals significantly favoured the NMRC construction in French. The bilinguals and monolinguals did not significantly differ in their responses suggesting that the bilinguals conceptualised motion events in the French way. In English, the two groups significantly favoured the verb-ing noun construction. Differences between the two groups indicated very little evidence for CLI as the bilinguals showed a strong tendency for language-specific encoding. Nicoladis et al. proposed that structural overlap plays a role on CLI only if there is also a CLI at the lemma level.

In sum, the processing hypothesis conceptualise CLI in terms of bilinguals’ difficulty at mapping two linguistic forms onto the same meaning. This model successfully accounts for previous instances of CLI in presence or absence of structural ambiguity as well as for CLI in absence of the interface condition. In addition, the processing account considers the possibility of bi-directional CLI in any language combination as a result of the interaction between the two competing linguistic systems. Evidence supporting this hypothesis is observed in instances of bi-directional CLI of structures that do not involve an interface or an overlap such as in the use of possessives in Germanic-Romance language pairs (Nicoladis, 2012: for French-English; Van der Linden & Blok-Boas, 2005: for French-Dutch and Italian-Dutch). More studies clearly need to investigate the notion of conceptual overlap opened by Nicoladis et al. (2010). Systematic investigations of possible bi-directional CLI also need to be examined in order to fill the substantial gap from previous studies which only considered CLI to be uni-directional (Hulk & Müller, 2000; Müller & Hulk, 2001; Serratrice et al., 2004). This phenomenon may actually be bi-directional in most cases. Children’s language external factors such as the quantity and quality of input may impact on the likelihood and magnitude of CLI, which would also go some way towards explaining individual variation.
2.2.2 Language external factors

Early studies have argued that the quality and quantity of input governs certain aspects of CLI (Döpke, 1998; Yip & Matthews, 2000). However, research conducted in the past thirteen years has mainly investigated the role of language-internal factors. The issue of language dominance only picked up momentum in the mid '00s when researchers started questioning the interface and the overlap conditions. To date, the role of language dominance on CLI remains debatable and unclear due to the wide range of measures (i.e. MLU, lexicon size, fluency) assessing this variable.

2.2.2.1 Language dominance

Bilingual children typically do not have the same competence in their two languages (Genesee, Nicoladis, & Paradis, 1995; Paradis & Genesee, 1996). They are often more proficient in one language (dominant language) than in their other language (weaker language) (Döpke, 1992; Gathercole & Thomas, 2009; Schlyter, 1993). Their comprehension and production skills are dependent on their individual social needs to actually use their languages in a variety of social and discourse contexts. As a consequence dominance may change over time (Yip & Matthews, 2006). In bilingual acquisition, linguistic performance is in part mediated by language exposure (Gathercole, 2002a, 2002b). With regard to CLI, many researchers have claimed that language dominance is a determinant of this phenomenon and that it would be a predictor of the direction and magnitude of CLI (Argyri & Sorace, 2007; Austin, 2009; Kupisch, 2007; Yip & Matthews, 2000). However, a few studies challenge this claim (Müller & Hulk, 2001; Nicoladis, 2006; Nicoladis et al., 2010; Unsworth, 2012b). These contrastive findings are fuelled by the lack of a uniform definition of language dominance and by the use of a multiplicity of measures. Typically, researchers have examined this concept by focusing either on comprehension or production. Rare are the studies that have included measures of both types of competencies (Döpke, 1992). The current state of research calls for a more systematic definition of language dominance that would include comprehension and production in order to tease apart the role of this concept on CLI.
To date, the impact of language dominance has been investigated and assessed through a variety of different means: (1) percentage of exposure to each of the two languages estimated through parental questionnaires calculating daily exposure (Paradis, Nicoladis, & Crago, 2007); (2) parents rating the child’s proficiency (Pirvulescu et al., 2012); (3) receptive vocabulary tests (Foroodi-Nejad & Paradis, 2009); (4) amount of input in the two languages, i.e. language of the immediate environment (Argyri & Sorace, 2007; Sorace et al., 2009); (5) fluency, i.e. estimated on the total number of words produced per minute in each language (Cantone & Müller, 2005); (6) length of exposure, i.e. age of first exposure to two languages (Unsworth, 2012a); (7) Mean Length of Utterance in each language (Müller & Hulk, 2001; Yip & Matthews, 2005); (8) Upper Bound, i.e. longest utterance in a transcript (Genesee et al., 1995); (9) lexical diversity (Kupisch, 2007). Most studies have often investigated language dominance by combining one or two of these measures (e.g. parental questionnaire and receptive vocabulary tests). This large variety of tools assessing dominance has contributed to the general lack of clarity regarding its actual predictive power on CLI. Therefore, researchers should consistently evaluate the different measures being used. Moreover, an index of the magnitude of language contrast (while comparing the results observed in the two languages) should be established systematically when two or more measures are combined as in Kupisch (2007).

The impact of language dominance (i.e. as measured by a parental questionnaire and a receptive vocabulary test) on the direction of CLI and on its magnitude was examined in 4 year-old Persian-English bilinguals’ production of compound words (Foroodi-Nejad et al., 2009). In English, compounds are typically right-headed (e.g. apple juice); the right constituent holds the core meaning of the word. In Persian compound nouns can have variable head positions; nevertheless left-headed compounds are more frequent (e.g. ab sib / water apple: apple juice). Overall the bilingual children’s production differed from their monolingual counterparts’ (i.e. significantly more non-target right-headed in Persian than for the monolinguals; significantly more non-target left-headed in English than for the monolinguals). The degree of CLI appeared to be mediated by language dominance in Persian as the Persian-dominant children
tended to produce more target-like left-headed compounds in Persian than the English-dominant. In contrast, no significant differences were observed between the two groups of bilinguals in the productions of left-headed compounds in English. Interestingly, these results showed the bi-directionality of CLI. With regard to language dominance, these results showed an effect only in the more computationally complex language (i.e. Persian). This could imply that dominance would only affect CLI in the language with the more complex linguistic system.

Hauser-Grüdl & Arencibia Guerra (2007) provided further evidence illustrating the role of language dominance on the relative degree of influence. In their study examining object omissions in two Italian-German bilingual children, the authors investigated whether the degree of CLI would be mediated by language dominance as expressed by fluency. To test this hypothesis, they measured the total number of words produced per minute in each language in order to determine the language in which the bilingual child was most fluent. In the domain of object omission, German is the more computational complex language as it allows overt and non-overt objects (object topics are dropped in clause-initial position). In contrast, objects have to be overtly expressed in Italian. Hauser-Grüdl & Arencibia Guerra (2007) showed a strong correlation between language dominance (i.e. fluency) and the amount of non-target object omissions. Specifically, the German dominant child omitted more objects in Italian than in German while the Italian-dominant child did not show evidence of CLI. These conflicting results provide empirical support for the fact that language fluency does play a potential role in CLI. In this case, German (a topic-drop language) appeared to delay the acquisition of non-topic-drop in Italian for the German-dominant child but it did not affect the Italian-dominant one. Subsequently, Hauser-Grüdl et al. (2010: 2648) reformulated their original proposal and argued that “the more fluent the child is in the language with the computationally complex analysis, the least is the effect of cross-linguistic influence”.

Finally, the role of language dominance (i.e. amount of input in each language) was also observed in studies combining elicitation and judgement acceptability tasks or only the latter (Argyri & Sorace, 2007; Sorace et al., 2009).
Specifically, 8-year-old Greek-English bilinguals did not use and accept infelicitous constructions to the same extent as a result of CLI. Only the children dominant in English – the less complex language – accepted and used non-target pre-verbal subjects in wide focus contexts and non-target pre-verbal subjects in what-embedded interrogatives in Greek – the more complex language – as a consequence of influence from English. The Greek-dominant children did not significantly differ from their Greek and English monolingual counterparts. Argyri & Sorace (2007) argued that language dominance is potentially a variable that mediates the degree of CLI. The more a child is dominant in the less complex language (i.e. English) the more likely he would be to produce pre-verbal subjects in wide-focus and in wh-embedded interrogatives in the more complex language (i.e. Greek). Nonetheless, the authors also suggested that this unexpected asymmetry might be triggered by other factors such as overlap. In particular, the fact that infelicitous preverbal subjects were used in both wide-focus context and in wh-embedded interrogatives in Greek indicate that the surface overlap that exists between Greek and English in the use of pre-verbal and post-verbal subjects at the syntax-pragmatics interface and at the purely syntactic level may also contribute to CLI.

In sum, these three studies imply that CLI is at least partly mediated by language dominance. Empirical evidence suggests that children dominant in the more complex language would show evidence of CLI from the more complex language to the less complex language. Conversely, influence may be observed from the less restrictive language to the more restrictive language in children dominant in the less restrictive language (see Table 1).

<table>
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<tr>
<td>Dominance in [- complex] language</td>
<td>- target-like</td>
<td>+ target-like</td>
</tr>
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</table>

Table 1 Predictions on the effect of language dominance on CLI.
Contrasting views are reported in a number of studies that did not find any significant correlations between language dominance and CLI (Müller & Hulk, 2001; Nicoladis et al., 2010; Unsworth, 2012a). In an early study, Müller & Hulk (2001) argued against the role of language dominance on CLI. Their data contained evidence of CLI from German to Italian in the use of object drop in focus contexts in Italian. They explored the role of language dominance in the sense of performance, more specifically examining whether the dominant language influences the weaker language, by using MLU in the two languages as a predictor of influence. Despite the well-known limitations of using MLU to establish dominance (i.e. typological differences, mixed utterances; see Yip & Matthews, 2007b for a detailed review), the authors stated that all children showed evidence of CLI from German to Italian regardless of their dominant language. This influential but somehow dated study ruled out the role of language dominance on the direction of influence by using a single and rather limited measure. However, the authors did not question the role of language dominance on the degree of CLI (i.e. individual variation).

Further arguments against the impact of dominance on CLI have been raised by studies reporting very small degrees of CLI. For instance, Nicoladis et al. (2010) observed little influence in the way French-English bilingual children encoded moving figures. The children consistently chose the language-specific construction to conceptualise movement (e.g. English: *dancing cow* / French: *vache qui danse*). Dominance, in the sense of language proficiency, was assessed by the parents on a nine-point scale and did not appear to be an influential factor on CLI.

Unsworth (2012) also observed very little evidence of CLI from Dutch to English in 5 year-olds' production of specific indirect objects in English. In order to examine the role of language dominance, she assessed the children's vocabulary in Dutch and in English and collected detailed information on the children's length of exposure and age. Despite the lack of correlation between language exposure and the children's acceptance of specific interpretation, Unsworth argued that there might be a general effect of language of the community as all the children she tested lived in the Netherlands. For this
A proposal to hold true, bilinguals in the UK should exhibit the opposite response pattern than those in the Netherlands.

A common characteristic to these latter studies is that they treated language dominance in terms of performance/production. The measures were all based on different calculations of expressive language. This contrasts with two of the studies reporting an effect of language dominance as a measure of the bilinguals’ exposure to their languages (i.e. comprehension). Therefore, further research is needed in this domain in order to examine the different implications of measures of performance vs. comprehension. It also seems important to systematically develop quantified measures of language dominance. Finally, investigations should include an index of magnitude of inter-language contrast in order to establish quantified comparison across languages (see details in section 3.2.3).

2.2.2.2 Input ambiguity

Much of the current literature has focused on the quantity of input (i.e. length of exposure: namely age; percentage of exposure: language dominance) on CLI. But little is known about the role of the quality of input on this phenomenon. Paradis & Navarro (2003) examined the influence of contact-modified input on a Spanish-English bilingual child (ages: 1;9-2;6). The girl was exposed to her languages following the home language strategy whereby both parents spoke Spanish to her at home and she would receive input in English at the nursery. The father, a native Cuban, spoke a Cuban variety of Spanish and the mother, a British native, spoke a Panamanian variety of Spanish. The father’s variety of Spanish is known to contain a higher percentage of overt subject pronouns than other varieties of Spanish. The mother, a native speaker of an overt subject language, was also observed to produce a high proportion of overt subjects in her non-native variety of Spanish in comparison to native Iberian Spanish speakers. In the input, the bilingual child was exposed to 60% and 40% of overt and null-subjects respectively when the control Iberian Spanish monolinguals were exposed to overt and null-subjects in the opposite proportions. Despite similarities in the literature on Spanish monolinguals
across dialects, Paradis & Navarro observed higher rates of overt-subjects in the bilingual’s Spanish (about 35%) than in the monolingual data (20% and less). The authors argued that these results could be interpreted as CLI from English to Spanish. However, the parallelism in the child’s and the input’s pattern of subject-realization raised the question of whether her contact-modified input may also be responsible for the bilingual’s distinct pattern of subject realization.

Paradis & Navarro’s study called into question whether the input bilingual children receive is fundamentally different from that of monolingual children and whether this potentially different input affects the bilingual children’s production. Although it is not the case in Paradis & Navarro (2003), these questions are to a certain extent related to research on language attrition. As second language learners, parents of bilinguals present a case of language contact. Sorace (2004) has shown that native speakers who have lived in a foreign country for a long period of time exhibit grammatical variation in their first language due to influence from their L2. The minority language parent of a bilingual child is inevitably an L2 speaker of the language of the country they live in. As a consequence, language attrition is likely to affect their L1. The input bilingual children receive may therefore be qualitatively different from that of monolingual children. Future research exploring the role of input on bilingual acquisition should take into account not only its quantity but also its quality and issues of parental language attrition and/or use of their non-native language should be given due consideration.

2.2.3 Summary

CLI has motivated a great deal of research in order to determine the possible variables governing this phenomenon. Large empirical evidence has supported Hulk & Müller’s (2000) seminal hypothesis and its extensions. Nevertheless, more recently a non-negligible number of studies have also reported instances of CLI for structures that do not meet the interface and/or the overlap conditions (Nicoladis, 2006, 2012). These new findings have led to the formulation of new hypotheses that interpret CLI in terms of conceptual overlap (Nicoladis et al., 2010) and in terms of syntactic derivational overlap (Schmitz et
These two proposals do not involve the same mechanisms. On the one hand, conceptual overlap implies that the two language systems would be co-activated and competing at the lemma level. This new proposal successfully accounts for instances of CLI where there is structural ambiguity or not. It also explains bi-directional influence. On the other hand, the syntactic derivation hypothesis argues against the role of pragmatic complexity on CLI. It proposes that this phenomenon would occur when there is syntactic derivational overlap. But it also suggests that CLI would not occur for structures with strictly distinct syntactic derivation across languages. Clearly future research needs to address these issues on more language pairs.

Language external variables such as language dominance and potentially input quality are seen as possible determinants of CLI. Language dominance, specifically, would account for individual variation reported in the children’s sensitivity to produce and/or accept instances of CLI. But, researchers need to rigorously adopt a common definition of language dominance and constructively evaluate its different measures in order to refine the concept. Moreover, quantitative measures have shown to be a necessary requirement to determine dominance accurately. They are also important to evaluate the relationship between language dominance and the likelihood of producing an instance of CLI. Finally, Paradis & Navarro (2003) have questioned whether the quality of input has a role to play in the bilingual children’s distinct production. Their study emphasises the importance to tease apart the role of input from the role of children’s language internal mechanisms on CLI.

This phenomenon has mainly been examined through the prism of discourse-pragmatics. Although CLI has been observed outside of the syntax-pragmatics interface, the study of referential expressions remains central to the research that tries to determine its predictive variables.

2.3 Discourse-pragmatics

2.3.1 What is Discourse-Pragmatics?

Discourse-pragmatics is the study of language use in communicative contexts. In the bulk of previous research, this notion has been referred to as
Information Structure (Halliday, 1967), Information Packaging (Chafe, 1976) and Discourse-Pragmatics (Vallduví, 1993). In the present study, the term discourse-pragmatics will be adopted as this concept corresponds to the way discourse content is transmitted to the addressee in a specific pragmatic setting. Prince (1981: 224) defines discourse-pragmatics as “the tailoring of an utterance by a sender to meet the particular assumed needs of the intended receiver. That is, information-packaging in natural language reflects the sender’s hypothesis about the receiver’s assumptions and beliefs and strategies”. The key aspect is that the form of an utterance depends on the speaker’s presupposition of the interlocutor’s knowledge of the discourse context. The referent status is determined by the interaction between word order, intonation and morphosyntactic elements. In all languages, the linear order of utterance constituents is determined in part by what is contextually known and what is not. Discourse coherence is thus established and maintained by the informational elements that organize the constituents on the basis of whether they have been mentioned previously or whether they are new to the discourse.

In the literature, a great variety of definitions have been proposed to describe the new-old distinction (Halliday, 1967; Lambrecht, 1994; Prince, 1979, 1992). Prince (1992) defined the new-old taxonomy in relation with the speech participants’ perception (i.e. hearer old vs. hearer new) and the discourse-referent status (i.e. discourse old vs. discourse new) (see Table 2). This dichotomy forms what Lambrecht (1994) calls the Text External World of the discourse (as opposed to the Text Internal World, i.e. linguistic expressions and their meanings). Prince’s classification takes into account the speech participants’ assessment of a referent’s status as well as the referent status in the flow of conversation (i.e speech setting). The speech participants’ assessment refers to whether a specific referent is known to the addressee. The speech setting corresponds to whether the referent has already been mentioned in the discourse. This categorization takes into consideration the different degrees of referents’ accessibility both to the hearer and in the discourse.
Table 2 Prince’s (1992: 309) taxonomy of referent status.

<table>
<thead>
<tr>
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<th>Discourse New</th>
<th>Discourse Old</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hearer New</td>
<td>Brand new</td>
<td>Non-occurring</td>
</tr>
<tr>
<td></td>
<td>Indefinites</td>
<td></td>
</tr>
<tr>
<td>Hearer Old</td>
<td>Unused</td>
<td>Evoked</td>
</tr>
<tr>
<td></td>
<td>Proper Names</td>
<td>Pronouns</td>
</tr>
</tbody>
</table>

Discourse status and Hearer status are partially independent from each other. Information that is new to the hearer is obligatorily discourse new, and information that is discourse old is necessarily hearer old. However, discourse new information can be hearer new (3.a) or hearer old (3.b). In (3.a) the speaker assumes that his interlocutor does not personally know or has never heard of that particular friend. The referent *a friend* is thus hearer new and discourse new. But in (3.b), the speaker takes for granted that the hearer knows the friend that is being talked about. Therefore, the referent is newly introduced to the discourse but hearer old in that it is part of the interlocutor's shared knowledge.

(3)  

a. Every day, I work with a friend at the library.  
b. Every day, I work with *Hélène* at the library.

Prince’s (1992) distinction also corresponds to the relationship between the concepts of *identifiability* and *accessibility* (Ariel 1990; Gundel et al 1993; Lambrecht 1994; Chafe 1994, 1996). Identifiability relates to the knowledge (i.e. encyclopaedic knowledge, physical situation, immediate discourse) shared by the interlocutors (Ariel 1990: 170). The speaker's choice of referential expression is crucially connected to the addressee’s access to some kind of representation of the type of object described by the linguistic label. Hence, the speaker needs to assess the addressee's cognitive status (i.e. what he has experienced) about the referent under discussion. When a referent is physically in the focus of attention of the interlocutors, then it can be referred to deictically or anaphorically. In absence of joint attention, the referent may be identifiable to the hearer as a consequence of prior experience. In that case, an explicit form of the referent has to be used.

While referents have to be identified by the addressee for comprehension purposes, their accessibility changes throughout the flow of conversation.
Depending on whether a specific referent is newly introduced to the discourse or has already been mentioned, it does not have the same level of activation in the hearer’s memory. Specifically, Chafe (1987) argues that referents are not all processed at the same mental cost. Referents would have three degrees of activation: (i) inactive (i.e. stored in long-term memory); (ii) semi-active (i.e. accessible in the person’s consciousness) and (iii) active (i.e. stored in short-term memory). So to structure the discourse, the speaker needs to assess the knowledge of his interlocutor as well as track the status of the information to encode referents in linguistically appropriate ways. Consider (4.a), the referent *my friend Amélie* is newly introduced in the conversation. Its inactive status is marked by the choice of a full NP. In (4.b), the referent status changes to active as the speaker continues to talk about this referent as marked by the anaphoric pronoun *she*. In (4.c), a new referent is added to the discourse; however the deictic use of the demonstrative *this* informs that the referent is semi-active in that it is present in the extra-linguistic in the form of a photo for example. Finally, in cases where two referents have been activated in a short lapse of time, one of them may be lexicalised in order to prevent ambiguity in the discourse. In (4.d) *Amélie* can no longer be referred to by the pronoun *she* as the interpretation of the pronoun would be ambiguous because of the newly introduced referent *her eldest*. Therefore, the use of a proper name disambiguates the two conflicting referents.

(4)  

a. My friend Amélie had her third baby. **Inactive**  
b. She is fairly busy with her three daughters. **Active**  
c. Actually, look this is her eldest one. **Semi-active**  
d. She really looks like Amélie, doesn’t she? **Active**

As observed in examples 3-4, the choice of referring expressions depends on the different degree of identifiability and activation. In other words, the pragmatics of the addressee’s mental representation and the accessibility in the discourse govern the morphosyntactic choice of discourse-referents. A hierarchical scale predicts the different morphosyntactic forms of a same referent depending on its pragmatic accessibility.
Inactive or semi-active referents (non-salient) are encoded by low accessibility markers such as full names or noun phrases and their possible modifiers (e.g. my friend Amélie). Semi-active referents that are present in the extra-linguistic can also be marked by distal/proximal demonstratives (e.g. that/this) or stressed pronouns (e.g. SHE). In contrast, active referents are expressed by high accessibility markers such as unstressed pronouns (e.g. she), clitics and even zero markers.

The mental representation of information status and the pragmatic relation between discourse referents are also crucially linked to the linguistic notions of focus and topic. The focus is considered to be the most informative part of the utterance (Lambrecht, 1994: 55). It corresponds to the most deeply embedded constituent of the sentence, typically the complement of the verb. On the other hand, the topic of a sentence corresponds to what the sentence is about (Reinhart, 1981). While all sentences contain an overt focus, they do not necessarily have an overt topic (Erteschik-Shir, 1997; Lambrecht, 1994; Reinhart, 1981). Lambrecht (1994) argued that topics have to be identifiable and active referents. It is commonly acknowledged that there exist two types of

---

**Low Accessibility**

- Full name + modifier
- Full ('namy') name
- Long definite description
- Short definite description
- Last name
- First name
- Distal demonstrative + modifier
- Proximal demonstrative + modifier
- Distal demonstrative (+ NP)
- Proximal demonstrative (+ NP)
- Stressed pronouns + gesture
- Stressed pronouns
- Unstressed pronouns
- Cliticized pronoun
- Extremely high accessibility markers (gaps, including pro, PRO and wh traces, reflexives and agreement)

**High Accessibility**

- Unstressed pronouns
- Cliticized pronoun
- Extremely high accessibility markers (gaps, including pro, PRO and wh traces, reflexives and agreement)
topics. Sentence topics correspond to an expression within the sentence. Discourse topics correspond to larger units of the discourse. As De Cat (2002: 128) states, it is often difficult to establish whether a given topic applies to the sentence or to the discourse. Therefore, Erteschik-Shir (1997) and De Cat (2002), among others, do not make such a distinction.

Although it is complicated to establish clear correlations between the notions of focus-topic and newness-oldness, a few generalizations can be drawn (De Cat, 2007). Some topics such as she in (6.a) are continuing topics; that is, they have been mentioned to maintain reference to a previously established topic. Some topics are new to the discourse but are accessible in that they are part of the interlocutor’s shared knowledge. According to Goldberg (2005: 430), “they appear with definite determiners or can be directly related to a discourse old entity by means of a possessive or relative clause (e.g. her mother in (6.b))”. Arguments in focus position are generally new to the discourse as in (6.d) but some discourse-old arguments can be in focus position if they are accented as her in (6.c).

\[
\begin{array}{|c|c|}
\hline
\text{Discourse old (given)} & \text{Discourse New} \\
\hline
\text{Topic} & \text{Topic} \\
(a) \text{She hit a pole} & (b) \text{Her mother feared snakes} \\
\text{Focus} & \text{Focus} \\
(c) \text{George said they called her} & (d) \text{She saw a snake} \\
\hline
\end{array}
\]

In conclusion, discourse-pragmatics corresponds to the set of rules that govern the mapping of morpho-syntactic forms onto discourse functions. The degree of identifiability and accessibility of discourse referents determines the speaker’s choice of referential expression to convey his message (Gundel et al. 1993; Chafe 1996). While young monolingual children have shown difficulty at consistently associating the appropriate form-function mapping (Rozendaal & Baker, 2008; 2010), this process has proved to be even considerably more difficult for children acquiring simultaneously two languages, as they need to map the same discourse function onto eventually two distinct linguistic forms (e.g. bare nouns with mass and plural nouns in non-specific and generic contexts in English, German vs. overt determiners in these contexts in French, Italian) (Kupisch, 2003; 2007; Serratrice et al., 2009).
2.3.2  Implications for bilingual development

Since Hulk & Müller’s initial formulation of the CLI hypothesis, extensive investigations were carried out on structures that involve the syntax-pragmatics interface and a structural overlap between the two languages under study. Individual referential expressions (i.e. pronouns/clitics, null anaphors, definite and indefinite articles, bare nouns) have been the main locus of interest since their distribution is constrained by discourse-pragmatics (i.e. the new/old taxonomy, joint attention, topic maintenance/shift).

Much of the literature on CLI has focused on the realization of subject arguments in language pairs presenting a typological asymmetry in the acceptability of null-subjects and in the distribution of discourse-appropriate personal pronouns, i.e. null vs. non-null subject languages (Hacohen & Schaeffer, 2007; Hauser-Grüdl, et al., 2010; Haznedar, 2010; Juan-Garau & Pérez-Vidal, 2000; Paradis & Navarro, 2003; Schmitz, et al., 2012; Serratrice et al., 2004). These corpus-based studies reported CLI in the form of the overgeneralization of the topic maintenance discourse function of overt pronouns from the non-null subject language (i.e. English, German) to the null-subject language (i.e. Italian, Spanish, Turkish, Hebrew), which require a null anaphor in topic maintenance context. Large-scale experimental studies confirmed the occurrence of CLI at the level of subject argument realization in null and non-null subject languages (Argyri & Sorace, 2007; Sorace et al., 2009). However, the study of a new language pair suggests that other variables than the structural overlap and syntax-pragmatics interface conditions are at play on CLI, i.e. derivational overlap (Schmitz et al., 2012: Italian-French). Capitalizing on the absence of CLI at the level of subject argument realization in an Italian-French child and on the occurrence of CLI in an Italian-German bilingual, Schmitz et al. (2012) proposed to recast Hulk & Müller’s (2000) original overlap condition in terms of syntactic derivation rather than pragmatic complexity. They relied on the grammatical differences in the acceptability of subject argument realization in Italian, German and French to posit that CLI may not occur when the two languages mark a grammatical phenomenon in a strictly different way (see section 2.2.1 for a
detailed review). This new proposal is based on a single case study and clearly need to be tested on a wider range of data.

Recently, a small number of studies on argument realization discussed the role of typological distance on CLI. In a judgement acceptability task, Sorace et al. (2009) observed that 8 year-old Italian-Spanish behaved similarly to Italian-English children in exhibiting difficulties at consistently opting for the felicitous null subject in topic maintenance context. In line with the literature reporting CLI outside of the syntax-pragmatics interface (Nicoladis, 2006; 2012; Nicoladis et al. 2010), the authors proposed a processing interpretation of this phenomenon. This hypothesis rests on the possible co-activation of the bilinguals’ two language systems at the level of conceptualization. This co-activation would be responsible for children’s difficulty at consistently opting for the appropriate linguistic form (see section 2.2.1.3 for detailed overview). Studies examining object argument realization in context of bilingualism also identified CLI in presence of a weak typological distance (Pérez-Leroux et al., 2009; Pirvulescu et al., 2012; Pérez-Leroux et al., 2014). In a series of elicited production studies on object argument realization, Pérez-Leroux and colleagues examined potential delays in the acquisition of object argument realization in French and English, i.e. two languages where object arguments mainly have to be overtly realized. They observed higher rates of object omission in French in the bilingual children than in the monolingual children. Pérez-Leroux and colleagues argued that this language delay in the mastery of object argument realization reveals an effect of bilingualism. They formulated their hypothesis within the Universal Grammar framework. Pérez-Leroux et al. proposed that cross-linguistic differences would cause the retention of a default null object option for a protracted period of time in bilingual children (see section 4.3.1 for detailed overview). These two proposals have extremely different implications. Sorace et al.’s (2009) formulation could account for CLI regardless the bilinguals’ age and typological relatedness of their languages. In contrast, Pérez-Leroux and colleagues’ proposal could only successfully account for delays in the development of a grammatical structure in young bilingual children.

Research on the bilingual acquisition of determiners raised further questions regarding the language-internal mechanisms of CLI (Kupisch, 2007;
Serratrice et al., 2009). Kupisch’s (2007) longitudinal study on the development of determiners in four Italian-German bilingual children aged 1;6-3;0 provided supportive evidence to Hulk & Müller’s (2000) overlap hypothesis. In contrast, Serratrice et al.’s (2009) judgement acceptability task on 6 to 10 year-old Italian-English bilinguals’ knowledge of determiners did not (see section 4.2.1 for detailed reviews). Unlike predicted by Hulk & Müller’s (2000) hypothesis, Serratrice et al. (2009) did not observe CLI from Italian to English in the over acceptance of overt determiners in generic and non-specific contexts in English. Instead, CLI occurred from English to Italian as the bilingual children accepted higher rates of infelicitous determiner omission in generic context in Italian than monolinguals. The authors accounted for their unexpected findings in terms of Chierchia’s (1999) Nominal Mapping Parameter whereby Italian-English children would rely on the English determiner system which is more economical (see section 2.2.1.2). Methodological issues (naturalistic corpus vs. judgement acceptability task) between Kupisch (2007) and Serratrice et al. (2009) studies may have important implications on the absence/presence of cross-linguistic transfers in such closely related language pairs. It thus appears essential to reconsider potential transfers at the determiner level in a new corpus study involving another Romance-Germanic language pair.

As most of the literature on CLI, these studies also investigated the role of language dominance on the magnitude of CLI. Despite clear divergences in the conceptualization of this variable inherent to the literature on CLI (i.e. Kupisch (2007): expressive abilities vs. Serratrice et al. (2009): language of the primary environment), these two studies showed an effect of language dominance on the degree of CLI. This interesting finding corroborate with most of the literature examining the role of this language external variable on CLI (Foroodi-Nejad et al., 2009; Hauser-Grüdl & Arencibia Guerra, 2007; Yip & Matthews, 2005; Argyri & Sorace, 2007). However, the different definitions and measures of language dominance used in these studies only emphasise the need to (i) consider both language exposure and expressive abilities as part of this concept; and (ii) to rely on several quantitative measures, in order to establish the clear implications of both expressive skills and language exposure on CLI.
As shown in this brief summary, the current state of knowledge reveals an extremely complex picture of the possible determinants of CLI. The wide variety of methodologies, i.e. case studies, cross-sectional studies, elicitation and comprehension studies, make it difficult to establish direct comparison between the different findings. To-date, "the conditions on cross-linguistic influence – however they are formulated – are sufficient but not necessary" (Unsworth, 2013: 32). Much work is still needed in order to determine the real implications of variables such as language processing, frequency, language dominance, input quality (i.e. attrited speech) and typological relatedness on the direction and magnitude of CLI.

The present thesis establishes itself in the long line of research that aims at defining and refining the determinants of CLI. It relies on both corpus and experimental data to assess the relationship between the following variables and CLI in context of the simultaneous acquisition of French and English:

1- Discourse-pragmatics: the aims are (i) to supplement the current literature on individual referential expressions by examining the development of determiners and pronouns in a new language-pair, i.e. French-English; and (ii) to shift the analysis to the sentence-level in investigating potential CLI at the level of dislocations in a corpus study as well as in two experiments.

2- Typological relatedness: the role of typological distance on CLI is addressed by considering both typological similarities and differences. First, I examine potential CLI at the determiner level where there are clear typological differences between French and English (i.e. only English allows bare nouns in mass and plural contexts). Then, I investigate whether CLI occurs at the pronominal level where the two languages under study both typically require overt argument realization.

3- Language dominance: the role of language dominance on CLI is assessed by considering both children's productive abilities in their two languages as well as language exposure. With regard to production, several linguistic measures such as the MLUw, Upper Bound, lexical and verbal diversity are used to determine the children's dominant language. Individual measures of language exposure are established with Cattani, Abbot-Smith, Farag, Krott,
Arreckx, Dennis, Foccia’s (2014) parental questionnaire on bilingual children’s daily exposure to their languages.

4- Input quality: to-date, only Paradis & Navarro (2003) and Hauser-Grüdl et al. (2008) addressed the potential relationship between CLI and input quality. This question implies examining whether bilingual children are exposed to a qualitatively different input from that of monolingual children due to prolonged contact with their other language. In chapter 5, a sample of input is analysed in relation to the direction of CLI in order to assess whether the bilingual and monolingual children’s input differ qualitatively from one another.

5- Language processing: a growing body of research argues in favour of a processing account of CLI (Nicoladis, 2006; 2012; Vasilyeva et al., 2010). In chapter 5, the analysis of two French-English bilinguals’ acquisition of dislocations offers the opportunity to discuss the implications of language processing onto CLI. This work is supplemented by two priming experiments in chapter 6 that investigate the role of processing on CLI onto a larger sample of bilinguals.
3 Data and Methods

Research on BFLA is closely linked to the theories developed in the study of child language and of bilingualism. Thus, data collection and methodological issues in both fields provide some invaluable insights for bilingual acquisition (De Houwer, 1998). In this chapter, I survey some of these methodological issues (section 3.1). Then, I introduce the data that forms the basis for my study: the background of the children involved in this study (section 3.2.1), the methods of data collection (section 3.2.2) and some measures of bilingual proficiency (section 3.2.3). I also present some additional data that allows the comparison between bilingual and monolingual development as well as input (section 3.3). Finally, I detail the transcription and coding procedures.

3.1 Methodology in Bilingual Acquisition

3.1.1 Identifying the subjects

To date, bilingualism has been variously defined (Wei, 2007; Weinreich, 1953). With respect to childhood bilingualism different profiles have been identified on the basis of age, time of exposure to the two languages and psychosocial factors (De Houwer, 1990; Grosjean, 1982; McLaughlin, Schutz, & White, 1980; Romaine, 1995). Some researchers such as Genesee (2001) distinguish two types of bilingual children. The first type corresponds to children who have acquired their two languages simultaneously. These simultaneous bilinguals have been exposed to their two languages from birth on a regular basis, typically in families where one parent is a minority language speaker. The second type corresponds to successive bilinguals, where time of first exposure to the two languages is different. In the case of successive bilingualism exposure to a second language is often in connection with a move to another country. Usually, but not always, these children often speak one language at home and one language with other members of the host community.

Age of first exposure to the second language is an important variable in deciding whether acquisition can be characterized as a case of BFLA or Early
Second Language Acquisition. McLaughlin (1980) posits that a child who acquires a second language before the age of three is regarded as doing so simultaneously, whereas one who acquires a second language after three does so successively. In contrast, De Houwer (1990) establishes a much earlier cut-off point between BFLA and ESLA (Early Second Language Acquisition). The BFLA label applies to children who are in contact with two languages no later than a week after birth and who receive daily input in both languages. ESLA refers to pre-school bilingual acquisition in all other instances.

Distinguishing the different types of bilingualism on the basis of age of exposure is important to establish the specific type of bilingualism under investigation. However, some researchers such as Grosjean (1982, 2008) suggest that other factors play a more crucial role in defining bilingual profiles than age of first exposure. Grosjean (1982: 179) argues that “it is psychosocial factors, such as the use of language in the family or in the school, that will condition when, to what extent, and for how long a child will be bilingual, not the age of acquisition of the two languages”. This is in line with Lanza’s (1997) analysis of language presentation and parental discourse strategies towards code-mixing. Lanza proposes a range of parental discourse strategies that are more or less conducive to the child’s use of one or the other language. Thus, there is evidence that language presentation and the attitudes towards the languages the child speaks to his interlocutors are certainly even more crucial factors that play key roles on the bilingual development of a child. Furthermore, as Mackey (1968: 557) states “the degree of proficiency also depends on its function; that is on the uses to which the bilingual puts the language and the conditions under which he has used it”. The opportunity to hear/speak and read the language in different contexts (home, social environment, country of holidays) and through different media (book, tv, film) is probably one of the most decisive factor influencing the bilingual person’s degree of proficiency in the two languages.

3.1.2 Naturalistic corpora

The collection of adult-child interactions in naturalistic settings has provided a wealth of information in child language research. Brown’s (1973)
pioneering Harvard study started the systematic investigation of child language through the use of electronic transcripts. The success of the Child Language Data Exchange System (CHILDES) (MacWhinney, 2000) is a testament to the contribution naturalistic corpora have made to the field.

In the early years when recording equipment, electronic transcription and archival storage were not available, diaries were the first source of data collection for case studies. Generally, researchers examined and took daily notes on the language development of their own child. In BFLA, Ronjat (1913) and Leopold (1939) are among the first studies involving diaries. Ronjat took regular notes on his French-German bilingual son Louis. Some interesting issues such as the early acquisition of two distinct articulatory systems were raised in this descriptive work. About thirty years later, Leopold published four volumes from the regular notes he made on his daughter Hildegard. The main issue with his data is that he was the only one taking notes. Therefore, there is no information about how the girl spoke when her German-speaking father was absent. Overall, the advantage of this method is that it constitutes close observation on a daily basis. Nevertheless, there is an inevitable bias in selecting data. Nowadays, diary data mainly supplements audio or video recorded data as in Deuchar & Quay (2000) and Yip & Matthews (2007b).

Technological advances have led to longitudinal corpus data which is either audio or video recorded. A small sample of children is recorded at regular intervals (weekly, fortnightly, monthly) while interacting freely with their parents, carers or the researcher. This source of data provides a detailed picture of the child’s development over time. It also avoids the artificiality factor of experiments. The main advantage of this type of data over diary data is that they lend themselves to a more systematic quantitative analysis. Naturalistic corpora are widely used in bilingual studies as they permit to take into account the different variables that act on the bilingual development of the child. However, the duration of each recording and the frequency of data collection still limit the analysis. Tomasello & Stahl (2004) addressed this methodological issues on naturalistic observations. They calculated that longitudinal corpora represent approximately only 1% of the daily production of the child. Thus, longitudinal studies are appropriate to examine highly frequent phenomenon such as
referential expressions or dislocation construction in oral French, but they are less suitable for the study of low-frequency phenomena (i.e. passives).

Over the last 30 years or so, evidence about the course of bilingual acquisition and the development of theoretical models of language competence in childhood bilingualism have benefitted from a number of naturalistic corpora spanning a range of language combinations (e.g. De Houwer, 1990: French-Dutch; Deuchar & Quay, 2000: Spanish-English; Lanza, 1997: Swedish-English; Serratrice, 2002: Italian-English; Yip & Matthews, 2007b: Cantonese-English).

The current study makes a new contribution to this expanding knowledge base in the form of a longitudinal corpus consisting of data taken from two French-English bilingual children. This naturalistic data has been supplemented by an elicitation study in order to test a number of hypotheses on a more constrained type of production but also to investigate the role of language dominance on a larger sample of children (see details in chapter 6).

3.1.3 Experimental methods

Over the last decades, experimental methods have been widely developed in child language to supplement naturalistic studies. Although this approach allows focusing on particular domains of the acquisition of linguistics knowledge, its usage is only recent on bilingual children (Nicoladis et al., 2010; Pérez-Leroux, Pirvulescu, & Roberge, 2009; Serratrice et al., 2011). This relative methodological delay in comparison to research on monolingual development may be explained by several factors such as (i) the recent surge of interest for bilingual development; (ii) the greater heterogeneity within a bilingual group compared to a monolingual group (i.e. difficulty of recruiting large samples of bilinguals with similar language histories and competences); and (iii) the call for monolingual controls in each language (i.e. experiments have to include one or two groups of bilinguals, one from each country (language dominance issue) and a monolingual group per target language). The recent expansion of experimental methods is related to the necessity to test the current theoretical hypothesis on larger samples than case studies and to examine whether phenomena such as cross-linguistic influence also affect less frequent items/structures. Moreover,
the increasing number of bilingual schools makes it a little easier for researchers to recruit participants.

Research on bilingual children comprises experiments based on the production, comprehension and judgement paradigms. Production experiments include Elicited Imitation tasks (Pérez-Leroux, Cuza, & Thomas, 2011), Elicited Production tasks (Argyri & Sorace, 2007; Nicoladis et al., 2010: picture-based; Pérez-Leroux, Pirvulescu, & Roberge, 2011: story-based) and Syntactic Priming (Vasilyeva et al., 2010). Comprehension tasks comprise the Peabody Picture Vocabulary Test, a standardized test of comprehension vocabulary size (Nicoladis, 2012), Intermodal Preferential Looking (Kovács & Mehler, 2009) and Eye-Tracking (Blumenfeld & Marian, 2007). Judgement methods mainly involve Acceptability Judgement tasks (Argyri & Sorace, 2007; Serratrice et al., 2009; Sorace et al., 2009).

Among these experimental methods, the priming paradigm is particularly relevant to test the theoretical questions raised in this thesis. That is, syntactic priming has shown to be an important tool for understanding how syntactic structures are represented in our mind. This paradigm refers to the phenomenon "whereby a speaker who has recently heard or produced a particular construction is more likely to use this construction than an alternative" (Ambridge & Rowland, 2013: 153). Priming occurs when prior exposure to a stimulus facilitates its processing. For priming to occur, speakers have to understand what is primed and extract the syntactic structure to reproduce it in their own language production. Inferences can be drawn about the nature of syntactic representation by observing which expressions prime which other expressions (Branigan, 2007: 1).

Only recently have researchers started using priming with bilinguals as a tool to examine the syntactic representation of the two languages and how the languages interact. Most of these investigations have focused on adult bilingualism and the acquisition of an L2 (Bernolet, Hartsuiker, & Pickering, 2007; Cacoullos & Travis, 2011; Hartsuiker et al., 2004; Loebell & Bock, 2003; Schoonbaert, Hartsuiker, & Pickering, 2007). To our knowledge, it is only very recently that the first experimental priming study on bilingual children was conducted by Vasilyeva et al. (2010). To date, the syntactic priming studies on
bilingual individuals indicate that this methodology is a promising tool in the exploration of bilingual children's linguistic representations and the relative degree of activation of their two languages in comprehension and production.

The present work includes two elicitation studies based on syntactic priming. The aim of these experiments is to investigate the role of language processing and the role of language exposure on cross-linguistic influence. The full theoretical motivations as well as the experimental and analytical procedures are detailed in chapter 6.

3.2 The Hervé Corpus

A longitudinal corpus of two French-English bilingual children has been collected for this project. The rationale for the collection of a bilingual corpus was the need for suitable data to investigate several aspects of childhood bilingualism such as cross-linguistic effects, language dominance and input properties over a one-year period. The creation of this corpus was motivated by two main reasons. Firstly, only one French-English corpus (Paradis & Genesee, 1996) is available on the CHILDES database which contains the transcriptions of five children. This corpus lacks consistency in that seven files exist for one child, when only one file exist for two children, two for another one and four for a last one. The age of the children varies enormously from 1;10 to 3;7. Therefore, an analysis on the development of new and old information markers over a one-year period would not be feasible with this corpus. Secondly, the transcripts in this corpus are not linked to video and audio files; the lack of contextual information would make it difficult to identify ambiguous dislocation constructions and to establish their discourse functions.

3.2.1 Children for the case study

After the project received ethical approval from the University of Manchester Ethics Committee, the recruitment process started. The project was advertised to families of potentially suitable children through word of mouth, personal contacts, mailing lists, and adverts at the University of Manchester and at the local Alliance Française. A total of five families had agreed to take part in
the study. But after a few months of recordings, three of them were dropped for two main reasons: (i) lack of availability to conduct the recordings; (ii) the slow language development of a child.

The final corpus documents the language development of two French-English bilingual children growing up in Manchester and in London, England (Anne and Sophie\(^1\)). They are both the offspring of cross-cultural marriages where the mother is a native French speaker and the father is a native English speaker. The children were chosen on the basis of their age and on their daily exposure to French and English. They were both born in England and were exposed to their two languages from birth. One child is looked after by an English-speaking nanny while the other is looked after by her French mother during the week. All parents speak to each other in English, and both families visit France for their holidays about three to four weeks a year. The two families involved in the study have an active interest in the bilingual development of their children.

Anne is the second-born of a French-English speaking couple. She was born on 23\(^{rd}\) April 2009 in London where she has been growing up since. Her mother is French; she has been living in the UK for the last fifteen years or so. She has acquired English during childhood while living in an Anglophone country for a few years. Her bilingualism was then maintained as she attended a bilingual school when she moved back to France. Anne’s father is an Anglophone Canadian who moved to the UK with his parents as a child. He is an English-native speaker and speaks fluent French. Anne comes from a family of the Established Middle Class\(^2\). Both her parents hold a postgraduate degree. They talk to each other in English but use the home language presentation strategy

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\(^1\) As requested by the University of Manchester ethics committee, the children’s names are not disclosed. Real names have been changed by pseudonyms in this thesis and in each transcript line.

\(^2\) The Great British Class Survey distinguished 7 new socio-economic classes. The Established Middle Class is characterised by high economic capital, high status of mean contacts, high highbrow and emerging cultural capital (Savage, Devine, Cunningham, Taylor, Li, Hjellbrekke, Le Roux, Friedman, & Miles, 2013).
and speak French to their children. However, their elder son’s bilingualism implies some exchanges in English within the home. The parents are conscious that the two languages have to feature prominently in the everyday linguistic environment of their children. One of the measures they adopted to foster the use of French was enrolling their elder son in a bilingual school that Anne joined later.

Anne was recorded between the ages of 2;4 and 3;4. At that time she was taken care of four days a week by an English-speaking nanny. The family would visit France every three months for a long week-end and they would try to balance their holidays between French-speaking countries and Anglophone Canada. Their French family would regularly visit them.

Sophie is the first born of three children. She was born on 6th May 2009 in Manchester where she has been living since. Her mother is French and has been in the UK for about 5 years. Her father is English. Sophie comes from a family of the New Affluent Workers class. Her mother holds an undergraduate degree and her father holds a postgraduate degree. The parents have adopted the one-parent one-language strategy to speak to their daughters. However, they are not strictly using this strategy as Sophie’s mother switches from time to time between languages especially when they attend English playgroups but also in some one to one interaction within the family home. The father has an excellent command of French. He speaks mainly English to his daughters although he can also switch between languages especially while reading books. The whole family goes to France twice a year for a total of about 4 weeks. They are visited by their French family and friends a couple of weeks a year.

Sophie was recorded between the ages of 2;6 and 3;7. At the time of recording, Sophie’s mother was the main carer as she stopped working to raise her children. However at 3;4, Sophie started attending reception year in a primary school in the south west of Manchester. From then, Sophie’s exposure to English increased but surprisingly, her French did not suffer from that at first.

Savage et al. (2013) define the New Affluent Workers class as having a moderately good economic capital, a moderately poor mean score of social contacts, though high range, moderate highbrow but good emerging cultural capital.
probably because a French family friend and her French grandmother came for a couple of weeks at that time. Sophie also has a couple of French-English friends from the same age-range in her school, therefore, she is not that isolated as a French-English bilingual child despite the fact that she attends an English school.

3.2.2 Procedure

Data was collected on a monthly basis in each family during routine activities (i.e. playing, cooking, having a meal etc.). Two one hour-long sessions were organised every month. It was decided that the participants would engage in monolingual interactions to maximize the chances of recording approximately the same amount of speech in the two languages. The French sessions took place with the French-speaking parent. It had been arranged with Anne's family who employed a child-minder that the English filming session would take place with the nanny. This was decided as matter of convenience so that the recordings could take place during the week and not at week-ends when the family was more likely to be involved in social activities. Furthermore, Anne spent about forty hours a week with her nanny so these filming sessions also correspond to typical interactions on week days. During the school holidays Anne’s elder brother was present during the recordings.

In Sophie’s case, her father was the main source of English input before she started going to school. Therefore, the English-recording sessions took place with him either in the evening, after he got back from work, or straight after the French session on one of his days off. Sophie's sister was present during most recordings. She was between 0;10 and 1;10 at the time so it is only towards the end of the recordings that she started taking part in the conversations between Sophie and her parents.

The parents were offered the possibility to either conduct the filming on their own leaving a camera in the corner of the room where they were playing or eating; or to be visited by the researcher who would film the parent-child interactions. Both families decided on the second option for practical reasons. Therefore, I conducted the filming in Anne’s and in Sophie's family while they interacted with their mothers and their nanny or father respectively. During
these sessions, I naturally interacted with them in French and in English respectively. I of course acted as an observer but I felt it would be quite awkward to remain silent in the corner of the room. Neither girl had a problem with me talking French and English. Anne is used to hearing her mother, father and brother talking French and English depending on the addressee. So even though I was introduced to her as a French speaker, the child did not find it unusual that I could also speak English. With Sophie, I was also introduced as a French speaker; subsequently she went through a period where I was just like her, a bilingual French-English speaker but by the end of the recordings, she definitely associated me more with French than English.

In the two families the recordings took mainly place in the bedroom, living room and kitchen. In Anne’s case, the recordings in the two languages occurred on consecutive days while they took place on the same day in Sophie’s. There would often be a pause between the two sessions. This is due to the general timetable of the families but also in the children’s best interests, as they often felt tired after an hour of recording. In a sense, the presence of the camera probably intensifies the number of activities taking place to engage the children in conversation. So in order to avoid major differences due to tiredness, the children were generally recorded either in the morning or in the afternoon after the nap.

The recordings were videotaped. The equipment consisted of a Panasonic camcorder HDC-SD90. The videos were then transferred from the SD card to a laptop. The different files were checked and merged into a one-hour film for each language before being transcribed and coded. In French, a total of twelve recordings were made for Sophie but only eleven for Anne. In English, only eleven were made for both girls due to unexpected events in the families.

### 3.2.3 Establishing language dominance

The concept of language dominance is crucial to the study of bilingualism. It is well known that a bilingual may at some point converge to some kind of monolingual norm in his dominant language when it is not necessarily the case for his weaker language (Kupisch, 2012: 737). The notion of language dominance
has proved to be extremely vague in the current literature. A main shortfall is the lack of consistency in the definition of language dominance (i.e. comprehension, production, or both) and on its different measures (as thoroughly detailed in section 2.2.4).

Following Grosjean (1982), dominance is conceptualized here along a continuum that varies with time and experience. In light of the shortcomings of the literature, the present study evaluates dominance by considering both receptive and productive measures. Following Döpke (1992), language uses in the children’s familial and social environment are considered in order to evaluate the bilinguals' exposure to their languages before analysing the bilingual children's own use of languages in French and English contexts. The analysis is supplemented by quantitative measures of language development (i.e. MLUw, Upper Bound, increase of the noun and verb lexicon) (Genesee et al., 1995; Kupisch, 2007). Although, the use of MLU is disputable (see Yip & Matthews, 2007b for discussion), the combination of these criteria provide an interesting picture of language dominance in naturalistic production.

3.2.3.1 Language exposure

Exposure to languages varies considerably from one child to another. This variable is known as one of the influential factors affecting bilingual development (De Houwer, 2009; Grosjean, 2008; Romaine, 1995). The two bilingual children's language exposure to English was calculated by using Cattani et al.’s (2014) questionnaire documenting the use of languages within the child’s familial and social environments (reproduced in Appendix B). Based on the parents’ answers, a percentage of exposure to English was automatically generated in the electronic version of the questionnaire. Anne's parents only completed the questionnaire once since her day-care arrangements remained constant throughout the whole recording period. It was estimated that Anne was exposed 55% of the time to English. As for Sophie, her parents were asked to fill the questionnaire twice; first at the beginning of data collection and then when she started attending school. The outcomes suggest that Sophie was exposed to 58% of English between the ages of 2;6 and 3;3. From 3;4, her exposure to
English increased a little to reach 65% as Sophie started attending school in the morning.

According to these results, the two bilingual children’s exposure to languages is initially fairly balanced (40%<X<60%). Then from 3;4, Sophie’s exposure to her languages shifted a little by clearly favouring English. Overall, the two girls were exposed similarly to their languages throughout the majority of data collection despite differences in the families’ choice of language presentation (i.e. one-parent one language vs. home language presentation) and in their day-care arrangements.

3.2.3.2 Language uses

As in Döpke (1992), the bilinguals’ use of languages in French and English contexts is considered to shed light on their language dominance. Figures 1-4 report a breakdown of the girls’ use of French, English and mixed language utterances in the French and the English sessions. These percentages were calculated as a percentage of the number of French, English and code-mixing utterances in each filming session. In the English context, Anne used a few French words as examplified by the small amount of code-mixing but also by the little French observed at 2;4 and 2;5. From 2;7, the girl stopped using French utterances in the English sessions and would only use a few French words from time to time.

![Figure 1 Language use in Anne's English sessions](image)
In the French sessions, during the first recording Anne used similar proportions of French, English and code-mixing. At 2;5, the girl entered a phase in which she was reluctant to speak French. Consequently, English started taking over. This situation was maintained in the second half of the recordings. From 2;8 onwards, the proportion of French and code-mixing diminished considerably to finish up at 3;2 with an extremely low number of French utterances (i.e. French 1/161; code-mixing 23/161). In sum, the propensity to use code-mixing in the English sessions in comparison to the French sessions as well as the overall use of French and English in the different settings point out English as the language the most used by Anne independently of the context.

![Figure 2 Language use in Anne's French sessions](image)

As shown by Figure 3 and 4, Sophie spoke English over 95% of the time in nearly all the English sessions. She used very little French and produced only a few code-mixed utterances while speaking to her father. This contrasts with her use of languages in the French sessions. Sophie spoke French in French context more than 70% of the time with the exception of two sessions at 3;0 and 3;1 where she showed some preference for speaking English and only used French about 50% of the time. Overall, Sophie’s propensity to use code-mixing is higher in the French sessions than in the English sessions. A clear asymmetry is observed in that Sophie spoke English much more in the French sessions up to the age of 3;2 than she spoke French in the English sessions. The girl’s use of languages indicates that English is her strongest language in terms of speaking abilities.
3.2.3.3 Measures of linguistic development

This section discusses the results from the different measures of language development. For analysis purposes, the bilingual data was grouped into two different periods for each child (see Table 4). The rationale for doing so was to make the data denser all in preserving its longitudinal aspect and taking into account the children’s individual linguistic development. Therefore, the cut-off point was established by considering the MLUw development of each child (see Sophie’s and Anne’s MLUw in each session in Appendix A). Anne and Sophie have extremely distinct linguistic development. They constitute two individual case studies. Consequently, the time periods do not correspond to the same age frames.
Table 4 Overview of the bilingual corpus.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>No. of recordings</th>
<th>MLUw (mean)</th>
<th>No. of clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>5</td>
<td>3.52</td>
<td>881</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>6</td>
<td>4.15</td>
<td>1023</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>3</td>
<td>1.75</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>8</td>
<td>3.35</td>
<td>1248</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>4</td>
<td>3.11</td>
<td>570</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>8</td>
<td>3.80</td>
<td>1052</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>4</td>
<td>1.81</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>7</td>
<td>2.52</td>
<td>95</td>
</tr>
</tbody>
</table>

As indicated above, three indicators of language development were measured: (i) Mean Length of Utterance (MLUw); (ii) Upper-Bound (UB), i.e. longest utterance in a recording; (iii) increase in the number of noun and verb in the lexicon. The results are reported in Table 5. MLUw and UB values correspond to means calculated from the results observed in each individual file. MLUw was automatically generated in CLAN. Consequently, it includes all the utterances produced by the children in each filming session. UB corresponds to the longest utterance produced by the child in the language of the filming session. Regarding, the number of noun and verb types, I followed Kupisch (2007) and counted the types incrementally throughout the recording session of each time period (i.e. adding the ‘new’ types which did not occur in previous sessions). Moreover, I only included the nouns and verbs in the language of the filming contexts. Finally, I compared the results of each analytical category for English and French to each other in order to establish the magnitude of inter-language contrast (Kupisch, 2007: 66). As in Kupisch’s study, I determined the magnitude of contrast for each category by indexing the language with the smallest value (e.g. X\textsubscript{en} or Y\textsubscript{fre}). If the deviation between the lowest value and the highest value was less than 10%, the index was deleted; if the lowest value deviated from the highest value from 11% to 20% an index of 1 was assigned (e.g. 1\textsubscript{en} or 1\textsubscript{fre}); between 21% and 30%, an index of 2 was assigned (e.g. 2\textsubscript{en} or 2\textsubscript{fre}); between 31% and 40%, an index of 3 was assigned (e.g. 3\textsubscript{en} or 3\textsubscript{fre}); between 41% and 50%, an index of 4 was assigned (e.g. 4\textsubscript{en} or 4\textsubscript{fre}). Finally, the index of 5 was
assigned when there was more than 50% deviation (e.g. 5\textsubscript{en} or 5\textsubscript{fr}). A general index was calculated by taking a mean of the indices of each analytical category (see Kupisch, 2007: 66-67 for details).

Table 5 summarises the results for Anne and Sophie respectively. Overall, higher values are observed for English than French. Sophie shows a fairly high index (3\textsubscript{en}) in the first period, but this value decreases (1.3\textsubscript{en}) in the second period. In contrast, Anne’s data displays the opposite pattern. Initially, the index is low (1\textsubscript{en}) but it is extremely high (3.8\textsubscript{en}) in the second period. These results indicate that for the majority of data collection (i.e. second time period), Sophie appears to be fairly balanced in her command of English and French whereas Anne seems to be unbalanced, with English as her stronger language.

In sum, the measures of both receptive and productive skills provide a complementary picture of language dominance. The different analyses indicate that Sophie is a fairly balanced child with a slight dominance in English. In contrast, Anne who receives similar exposure to English and French shows a stronger command of English when it comes to evaluating her productive skills.

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>MLUw Eng</th>
<th>MLUw Fren</th>
<th>UB Eng</th>
<th>UB Fren</th>
<th>Nou Eng</th>
<th>Nou Fren</th>
<th>Verb Eng</th>
<th>Verb Fren</th>
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<td>1.81</td>
<td>11</td>
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<td>122</td>
<td>47</td>
<td>45</td>
<td>1.0\textsubscript{en}</td>
</tr>
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<td></td>
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<td>3.35</td>
<td>2.52\textsubscript{en}</td>
<td>11</td>
<td>5\textsubscript{en}</td>
<td>263</td>
<td>151\textsubscript{en}</td>
<td>136</td>
<td>40\textsubscript{en}</td>
<td>3.8\textsubscript{en}</td>
</tr>
</tbody>
</table>

MLUw: Mean Length of Utterance; UB: Upper Bound; Nou: increase in the number of nouns; Verb: increase in the number of verbs.

3.3 Additional data

Research on bilingual development calls for systematic comparison with monolingual development in the same languages. Similarly, investigations on language development (mainly usage-based) also incorporate input analysis in order to examine the positive evidence children are exposed to.
3.3.1 Monolingual data

The current research involves the comparison of the bilingual corpus with English and French monolingual corpora in order to examine the similarities and differences between bilingual and monolingual acquisition. The two bilingual children’s corpora are compared with those of French and English monolinguals at three time points at the beginning, middle and end of recordings (first, sixth and last recording). Two French and two English monolingual children were identified in corpora available on the CHILDES database (MacWhinney, 2000). They were selected on the basis of four criteria: (i) same variety of French and English (i.e. French spoken in France; British English); (ii) sex (i.e. female); (iii) age; (iv) equivalent MLUw to Anne’s and Sophie’s.

The bilingual children’s production is compared to those of two French children from the Lyon corpus (Demuth & Tremblay, 2008) as well as an English child from the Manchester corpus (Theakston, Lieven, Pine, & Rowland, 2001) and Ella from the Forrester corpus (Forrester, 2002). In French, the bilinguals are matched to Anaïs and Marie who took part in the longitudinal sampling compiled in Lyon by Harriet Jisa and her team. The Lyon corpus contains the transcripts and videos of four children (two girls and two boys) filmed every two weeks between the ages of 1;0 and 3;0. The data was video-recorded in the children’s home during spontaneous interactions with their mothers. Anaïs and Marie present similar MLUw development profiles to Anne’s and Sophie’s (see Figure 5). Marie and Sophie both acquired French relatively quickly as they already produced three-word-utterances regularly by 2;7. It is not the case for Anaïs and Anne, especially for the latter who did not develop much productive skills in French. Despite this, Anne’s speech is compared to Anaïs’ as the two girls share similar MLUw in the French sessions.
In English, the bilinguals are compared to Liz and Ella. Liz’s data is part of the Manchester corpus collected by Elena Lieven’s research team. It contains the transcripts from a longitudinal study on 12 monolingual English children aged approximately between 2;0 and 3;0. The audio-recordings took place for an hour every three weeks over a year. During the first 30 minutes, typically the children would interact freely with their mothers while playing with their own toys. In the second half of the recording, they would play with toys brought by the experimenter. Out of the twelve children, only one child had a similar language development as one of the two bilinguals. Liz’s productions are compared to Anne’s as they have similar MLUw at comparable ages (see Figure 6). At first, they both have a relatively slow emergence of multi-word utterances before a sudden growth in their speaking abilities at 2;7 for Liz and 2;8 for Anne.

Figure 5 Sophie and Anne’s MLUw in the French sessions compared to the French monolinguals Marie and Anais

Figure 6 Anne’s and Liz’s MLUw (English)
Sophie’s English is compared to Ella’s who took part in Michael Forrester’s (her father) study. She was filmed between 1;0 and 3;6. The girl mainly interacts with her father during the recordings but sometimes her mother and sister are also present. Ella’s language development is slightly faster than Sophie’s if we compare the overall MLUw at the different ages. However, Ella’s data is the one that resembles Sophie’s data the most from all the corpora publicly available. There is about 2 months difference in the MLUw development in the first half of the recordings but not towards the end. Therefore, Sophie’s productions at 2;6 were compared to Ella’s at 2;4. But, the girls’ productions are directly comparable at 3;0 and 3;7 (see Figure 7).

Figure 7 Sophie and Ella’s MLUw (English)

3.3.2 Bilinguals’ and Monolinguals’ Input

In this study, the children’s output is compared to their caregivers’ input. Such comparison is carried out to examine possible correlations between the children’s use of dislocation constructions and their parents’ own production. Moreover, such an analysis also permits the investigation of possible differences between the input bilingual and monolingual children receive. Indeed, Paradis & Navarro (2003) indicate that parents of bilingual children speak a contact-modified form of their first language, i.e. cross-linguistic influence can affect the parental input of bilingual children due to prolonged contact between the minority language and the language of immediate environment. They suggest
that differences between bilinguals and monolinguals may be the result of this
contact-modified input. It is probable that the French of the bilingual mothers in
the present study will have been affected by language attrition and therefore it
might be somewhat different from the French of monolingual mothers living in
France. Similarly, the English of the fathers in our study may be affected by
regular contact with their wives’ French and their non-native English. Therefore,
it is important to study whether the input that bilinguals and monolinguals
receive in each language is significantly different from the comparable input
addressed to monolingual children, and whether any such differences may be, at
least partly, responsible for possible differences in the speech of the bilingual
children.

Three samples of 100 utterances each were selected from the bilingual
children’s carers’ output. The first two hundred utterances were deleted from
the first, second, fifth, sixth, and last two transcripts. Then, all the carers’
utterances were extracted from these files. The transcripts were merged in pairs
and a hundred utterances per merged files were randomly sampled with
replacement using the R software (http://www.R-project.org/). Sampling with
replacement infers that each item is chosen randomly and entirely at chance.
Each item has the same probability of being chosen as it is replaced in the pool
before sampling the second item. The advantage is that the shape of the pool is
not biased by the extraction of utterances or examples. The sample remains the
same sample throughout. For the monolinguals’ input, the same procedure was
carried on but only on the three files that were analysed for each monolingual
child.

Examples from the input are annotated with special pseudonyms.
Sophie’s parents correspond to Emilie (mother) and Thomas (father). Anne’s
carers are called Claire (mother) and Kiera (Nanny). Finally, the only parent of a
monolingual child cited in this work is Liz’s mother and she is referred to as
Lizzy. These pseudonyms are always followed by the initial of the child’s own
name as in (Thomas, S.) to remind the reader that Thomas is Sophie’s father.
3.4 Transcription and analysis

3.4.1 Transcription

The data was transcribed in CHAT format using a combination of the CHAT conventions as described in the CHAT manual (MacWhinney, 2000) and some amendments specific to dislocation transcription as detailed in De Cat (2002). Only a broad review of the CHAT conventions is summarised here. Readers are referred to Appendix A.2-4 and to the CHAT manual on the CHILDES website for further details.

Utterances were only transcribed orthographically. Unintelligible utterances or words were transcribed with xxx and xx symbols in order to prevent over interpretations of the children’s productions.

The language indicated in the @Language tier corresponds to the main language of the session (previously agreed on with the parents). Nevertheless, it frequently happened that either the adult or the child switched to the child’s other language. Such individual utterances in the other language are marked with precodes as in (7).

(7) a. *CHI: [-fra] Cassé.   (Anne 2;4)  broken
    b. *CHI: [-eng] I’m just doing painting Mum. (Sophie 3;0)

Code-switches are noted as in (8) where [-mix] corresponds to the matrix language. Individual words are identified with the @f (for French) or @e (for English) terminator to indicate the status of the other language.

(8) a. *CHI: [-mix] Maman je veux this@e one@e pour moi. (Sophie 2;8) Mum I want this one for me
    'Mum I want this one for me’.

    b. *CHI: [-mix] On@f peut@f mettre@f des@f feet Papa@f.
        we can put some feet Daddy
    'We can put some feet (on Mister Potato Head)’.
    (Sophie 3;3)

The form carrot@s:eng&fra indicates that it is not clear whether the word carrot was pronounced as in English or as in French as in (9.a). The combination
of a stem from one language with an inflection from another is marked using the plus sign as in jumper@s:eng+fra composed of the English stem ‘jump’ and the French ‘-er’ marking to form the verb ‘jumper’ as in (9.b).

(9)  
\begin{align*}
a. & \quad \text{C’ est les carrot@s:eng&fra.} \quad (\text{Anne 2;6}) \\
& \quad \text{it is the carrots} \\
& \quad \ ‘\text{These are the carrots.’} \\

b. & \quad \text{Je vais jumper@s:eng+fra Maman.} \quad (\text{Sophie 3;2}) \\
& \quad \text{I will jump Mummy} \\
& \quad \ ‘\text{I’m going to jump Mum.’}
\end{align*}

Finally, child-invented forms are transcribed as follow. That is, the sign @c is attached to the form and the meaning of this child-invented word is written between square brackets as in (10.a). Words which are consistently used inappropriately by the child were coded with the @co sign followed by the meaning explained in square brackets as in (10.b).

(10)  
\begin{align*}
a. & \quad \text{*CHI: fafa@c [=! dog]} \quad (\text{Anne 2;4-2;8}) \\
& \quad \text{the short} \\
& \quad \ ‘\text{fafa [=! dog]’}

b. & \quad \text{*CHI: le short@co [=! t-shirt].} \quad (\text{Anne 2;5-2;6}) \\
& \quad \ ‘\text{the short [=! t-shirt]’}
\end{align*}

Dislocation constructions cannot always be identified on a word-order basis. Thus, commas are used to separate dislocated elements from the rest of the sentence (De Cat 2002). This convention enables to search differently for dislocations. The use of commas is especially useful when there is no resumptive element in the main clause and that nothing else indicates its presence.

(11)  
\begin{align*}
a. & \quad \text{*MOT: Et le bébé, qu’est ce que tu en, fais?} \quad (\text{Claire, A}) \\
& \quad \text{and the baby what is it that you of-it do?} \\
& \quad \ ‘\text{And what are you gonna do with the baby?’}

b. & \quad \text{*MOT: Celui+là aussi, il faut qu’il, prenne un bain?} \quad (\text{Claire, A}) \\
& \quad \text{this-one too it needs that he takes a bath} \\
& \quad \ ‘\text{Does this one need to take a bath as well?’}

c. & \quad \text{*CHI: Because (he is) so tired, my baby.} \quad (\text{Anne 2;9}) \\

\text{d. & \quad \text{*CHI : Moi, (j’) éteins.}} \quad (\text{Anne 2;10}) \\
& \quad \text{me (I) switch off} \\
& \quad \ ‘\text{I switch off.’}
\end{align*}
This use of commas is different from the double commas to mark question-tags in English.

(12)  
a. *FAT: that’s probably what you would choose,, wouldn’t you?  
b. *NAN: it was more fun when you were smaller,, wasn’t it?

3.4.2 CODING

The transcripts of the bilingual corpus were searched for utterances that were (i) in the target language of the filming session, and that (ii) contained a verb or an easily recoverable verb (e.g. Grace (is) at school). Utterances were excluded from the data if they contained partially unintelligible production or direct repetitions of the input, if they were unfinished utterances or if they occurred in singing or reading. With regard to instances of code-switching, the protocol followed Kupisch (2003) and included instances of code-switching in which the referential element in argument position had been uttered in the target-language of the filming session (e.g. le ballon est purple ‘the ball is purple’ in a French session). Moreover, occurrences such as le car roule vite ‘the car goes fast’ in which the determiner and the noun had not been produced in the same language were excluded alongside utterances containing a referential expression in the non-target language (e.g. l’@e veux this house, in a French session). All the remaining utterances were coded in Excel charts. At the construction and argument level, this coding system was based on a scheme used in Serratrice (2005). At the dislocation construction level, the coding is the result of a modified scheme based on De Cat (2002). The full list of variables is reported in Appendix A.5. Only the key elements of this system are detailed below.

Each utterance was coded for:

- **sentence type** (i.e. declarative, interrogative, imperative)
- **clause type** (i.e. main clause, subordinate),
- **verb finiteness** (i.e. finite, Root Infinitive, past, progressive etc.),
- **transitivity** (i.e. intransitive, transitive, ditransitive, copula, other).

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4 Personal communication with the author.
Referential expressions in argument position were coded for:

- **morpho-syntax** (i.e. pronouns/clitics, NPs preceded by a definite articles, an indefinite articles, or other types of determiners). The category 'other' includes possessives (e.g. mon chien; my dog), numerals and other quantifiers (e.g. deux/beaucoup de chiens; two/many dogs); partitives (e.g. du lait; milk) and demonstrative determiners (e.g. ce chien; this dog). Target-deviant instances and determiner omissions were coded specifically.

- **hearer-status** (i.e. new, given, old)

- **discourse-status** (i.e. introduction, shift, maintenance).

In the early stages of language development, children go through phases where they omit and/or make errors in the encoding of referent status. Therefore, the coding involved a large number of variables within each category in order to describe the acquisition of referential expressions. Missing subjects or errors in the use of determiners were coded with specific individual coding (i.e. target-deviant definite; target-deviant indefinite; target-deviant bare noun etc.). In an utterance such as (13), the coding would mark that the child omitted the subject (i.e. we) of her utterance in a context where the referent is known (i.e. Anne, her nanny and the boys).

(13)  
*NAN: Anne tell Coralie where did we go with Thomas Tim and Rob?  
*CHI: I don't know.  
*NAN: we went to the allotment.  
*OBS: ah.  
*CHI: and (we) made a fire.

Similarly in (14), the context indicates that the child erroneously marked the noun *morceaux* ('bits') as discourse given when in fact the referent is discourse-new. Therefore, the noun should have been encoded with an indefinite plural *des* instead of the definite article *les*.

(14)  
*OBS: Sophie elle fait du très bon sticky toffee pudding.  
Sophie she makes some very good sticky toffee pudding  
‘Sophie she makes a really good sticky toffee pudding’.  

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*GUE: C'est vrai?
   "It is true"
   "Is that true?"

*GUE: tu sais faire du sticky toffee pudding.
   "You know how to do some sticky toffee pudding"
   "You can make some sticky toffee pudding."

*GUE: Oh comment tu fais?
   "Oh how do you make it?" (Sophie 2;8)

*CHI: on coupe *les morceaux et on fait du sticky toffee pudding.
   "We cut some bits and we make some sticky toffee pudding."

As for dislocations, they were coded following a specific scheme based on De Cat (2002). In English, utterances containing a preposed element co-indexed with a null-object (i.e. topicalization) were included in the dislocation analyses since they are parallel to French LDs (Pérez-Leroux et al., 2011). In French, utterances containing a left-dislocated element co-indexed with a null object were categorised as a dislocation since topicalizations do not exist in French (personal communication with Knud Lambrecht). Dislocations were coded for (see appendix A.5 for details):

- **their direction** (i.e. left, right, both, etc.),
- **the nature of the dislocated element** (i.e. DP, demonstrative, etc.)
- **discourse status of the dislocated element** (new, given, old)
- **its discourse function** (i.e. contrast, emphasis, pointer role etc.)
- **the nature of the resumptive element** (i.e. clitic, lexical, no resumptive etc.)
- **its function** (i.e. subject, object, attribute etc.)

Transcription and coding were conducted single-handedly by the author. In order to establish some reliability despite the lack of fund to conduct this research, the author’s supervisors coded a small sample of the French and English data respectively. Agreement was reached on all analytical categories with the exception of the pragmatic functions of dislocations. While most of the analytical categories are easily interpretable, coding for discourse functions can be extremely subjective. Therefore, definitions and criteria were established for
consistency and reliabilities purposes. A total of eight discourse functions were identified from the data: (1) establishing a referent; (2) marking a topical contrast; (3) maintaining a referent; (4) switching referents; (6) pointing the attention to an object present in the extra-linguistic; (7) adding information about the referent; (8) emphasising the referent. These discourse functions differ from one another on several criteria such as the number of referents and their discourse status (new vs. given) as well as on the existence or absence of a gaze/gesture accompanying their productions but also on the ambiguity of the utterance if we omit the dislocated element. Establishing these criteria and definitions have enabled us to overcome the initial lack of agreement on the discourse function category of dislocations as verified after coding independently a second sample of the data. All the definitions and criteria of the eight discourse functions of dislocations are given in appendix A.6. A DVD attached to this thesis contains video extracts corresponding to the different contexts in which the examples presented in this appendix were produced.
4  Local markers of old and new information

The present chapter focuses on the simultaneous acquisition of the local markers of discourse-pragmatics in French and English: determiners (section 4.2) and pronouns (section 4.3). One crucial issue discussed here concerns possible CLI (i.e. delay, acceleration, transfers) in presence of structural overlap across French and English (i.e. determiners) and in presence of structural similarities (i.e. pronouns).

First, I examine the development of determiners in the longitudinal corpus of two French-English bilingual children. Determiners are particularly relevant to consider in context of French-English bilingualism as the two languages differ in the distribution of the definite article to mark specificity and genericity. To date, only Serratrice et al. (2009) have shown that this semantic difference in the encoding of nominals between a Romance language (i.e. Italian) and a Germanic language (i.e. English) affects bilingual children’s linguistic judgement in the form of cross-linguistic transfers from their Germanic language to their Romance language. Investigations on other Romance-Germanic language pairs reported a delay in the development of determiners in the Romance language but did not observe any systematic transfer (Hulk, 2004; Kupisch, 2003, 2007). The aims of this first study are the following: (i) to document French-English bilingual children’s acquisition of determiners in light of the development observed in other Romance-Germanic bilinguals and in their monolingual peers (i.e. rate of acquisition, omission type, non-target uses of determiners); and (ii) to assess the vulnerability to CLI of the determiner system in context of the simultaneous acquisition of French and English.

In the second half of this chapter, I examine the acquisition of the pronominal system. It is of particular interest in the context studied here because the two languages both require the overt-realization of arguments despite some positive evidence of null subjects and objects in specific contexts (i.e. French: 3rd person reference; non-human reference; English: contrasted verbs, generic context, narrow focus). Recent experimental studies have reported a delay in the development of subject and object realization in context
of the simultaneous acquisition of typologically related languages. This phenomenon has been interpreted as being a *bilingual effect*\(^5\) (Pirvulescu et al., 2012; Sorace et al., 2009). The longitudinal study of French-English bilingualism provides a unique opportunity to test whether such a bilingual effect is confirmed in naturalistic data. A second objective is to examine the grammatical and discourse-pragmatic constraints that may play a role on argument realization.

4.1 Overview of the French and English adult systems

4.1.1 Determiners

Determiners are grammatical elements that occur with nouns to form noun phrases. Their role is to determine the discourse-status of noun phrases. In English and French, they are divided into three classes: (i) *pre-determiners*: indefinite pronouns (15.a); (ii) *regular determiners*: the definite (15.b) and indefinite (15.c) articles, and the zero article (in English, but not in French) (15.d); demonstrative (15.e) and possessives (15.f); (iii) *post-determiners*: quantifiers (15.g), superlatives (15.h) and comparatives (15.i) (Thomas, 1989).

Articles are the only obligatory determiners. All the others are optional.

\[(15)\]
\[
\begin{array}{ll}
\text{a. plusieurs/toutes les robes} & \text{several/all the dresses} \\
\text{b. la robe} & \text{the dress} \\
\text{c. une robe} & \text{a dress} \\
\text{d. des robes} & \text{Ø Dresses} \\
\text{e. cette robe} & \text{this/that dress} \\
\text{f. ma robe} & \text{my dress} \\
\text{g. deux/beaucoup de robes} & \text{two/a lot of dresses} \\
\text{h. la plus petite robe} & \text{the smallest dress} \\
\text{i. la même robe} & \text{the same dress}
\end{array}
\]

Languages differ substantially in the realization of overt determiners. French is the most restrictive language among Indo-European languages since

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\(^5\) Pirvulescu et al. (2009) distinguished the *bilingual effect* from CLI. The former would correspond to a general effect of the simultaneous acquisition of two languages when the latter would be due to grammatical differences. By contrast, Sorace et al. (2009) interpret this bilingual effect in terms of processing limitations and treat it as a special case of CLI. I follow Sorace et al. (2009) and treat the bilingual effect as a particular case of CLI.
overt determiners are obligatory in argument position in French (Longobardi, 2001: 581). Only proper nouns are not preceded by a determiner as they are self-determinative (Karmiloff-Smith, 1979). In contrast, English allows bare mass nouns (16.a) and bare plural nouns (16.c) in all argument positions. These bare nouns mark indefinite referents, generics and kind-referring names (i.e. referential or definite generics). In French, mass nouns are realized by a partitive (16.b) and plural nouns by an indefinite plural determiner (16.d).

(16)  
a. I bought milk yesterday.  
b. J’ai acheté du lait hier.  
c. Kate receives presents every day.  
d. Kate reçoit des cadeaux quotidiennement.

Bare nouns can only appear in predicates in French where the noun is co-referential with the subject as in a member of class (17.a), idioms (17.b), vocatives (17.c) and complements of certain prepositions (17.d) (Longobardi, 2001: 582).

(17)  
a. Aurore est médecin généraliste  
b. Avoir soif  
c. Chéri  
d. Avec plaisir  
Aurore is GP  
Be thirsty  
Love  
With pleasure.

At the discourse-pragmatic level, a common distinction is made between definite and indefinite referring expressions (Karmiloff-Smith, 1979). On the one hand, definite referring expressions include definite articles, possessives and demonstratives. These three morpho-syntactic forms denote known entities. Possessives encode a known/given referent’s possessor (e.g. Emilie’s coat -> her coat). In the same way, demonstratives denote known referents that are present in the extra-linguistic context and are often singled out by eye gaze or gesture. Despite this essential similarity, definite articles crucially differ from anaphoric demonstratives in that they (i) are limited to text-internal referents; (ii) are often used in anaphoric-associative contexts (e.g. There was a house. The door was open); (iii) are used with singletons (Diessel, 2006: 477). So, recent evidence indicates that it is not unproblematic to treat definite referring expressions as a single category.
Indefinite referring expressions, on the other hand, include indefinite articles, quantifiers and indefinite pronouns. In terms of pragmatics, quantifiers and indefinite pronouns lack specificity in the encoding of referent information.

4.1.2 Pronouns

Romance languages such as French have a specific pronominal system divided into two paradigms: strong/tonic pronouns and weak/clitic pronouns. In contrast, Germanic languages such as English only have strong pronouns which are either accented or non-accented (see Table 6). In French, clitics are used in subject and object position while strong pronouns are used for all other functions. The distribution of strong pronouns patterns with lexical NP, whereas the distribution of clitics does not (Prévost, 2009: 116).

<table>
<thead>
<tr>
<th>Language</th>
<th>Subject clitics/pronouns</th>
<th>Object clitics/pronouns</th>
<th>Strong/Tonic pronouns</th>
<th>Possessive pronouns</th>
<th>Reflexive pronouns</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>je, tu, il, elle, on, nous, vous, ils, elles</td>
<td>me, te, le, la, lui, nous, vous, les, leur, en, y</td>
<td>moi, toi, lui, elle, nous, vous, eux, elles</td>
<td>mon, son, ton, ta, notre, votre, leur</td>
<td>me, te, se, nous, vous</td>
</tr>
<tr>
<td>English</td>
<td>I, you, he, she, it, we, they</td>
<td>me, you, him, her, it, us, them</td>
<td></td>
<td>mine, yours, his, her, hers, its, our, your, their theirs</td>
<td></td>
</tr>
</tbody>
</table>

Clitics differ from personal pronouns in that they are restricted by a certain number of morpho-syntactic properties: (i) they cannot be isolated as in (18); (ii) they cannot be conjoined as in (19); (iii) they cannot be modified as in (20); (iv) they cannot receive focal stress as in (21); (v) they cannot be isolated from the verb as in (22); (vi) they cannot be the complement of a preposition as in (23), in all the positions, either a full DP or a strong pronoun is required (Grüter, 2006; Kayne, 1975; Zesiger et al., 2010). Object clitics require proclitics (24) as
they are pre-verbal in all type of utterances with the no exception of imperatives; the only environment to require enclical as illustrated in (25).

Examples from Zasiger et al. (2010: 572)

(18) a. Qui est venu? *Il.
   Who has come  He
   ‘Who came? He’
   b. Qui as tu vu? *Le.
   Who have you seen  Him.
   ‘Who have you seen? Him’

(19) a. *Il et elle viendront.
   He and  she will-come
   ‘He and she will come.’
   b. *Je le et la connais.
   I  him and her  know
   ‘I know him and her.’

(20) a. *Ils deux viendront.
   They both  will-come
   ‘They will both come.’
   b. *Je les deux connais.
   I  them both  know
   ‘I know them both.’

(21) a. *IL viendra (pas Marie).
   He  will-come (not Marie)
   ‘He will come’.
   b. Je LE connais (pas Marie).
   I  HIM know (not Marie)
   ‘I know HIM.’

(22) a. *Il peut-être viendra.

   He maybe  will-come
   ‘He may come.’
   b. Pierre le peut-être connaît.
   Pierre  him maybe  knows
   ‘Pierre may know him.’

(23) *Je pars en vacances avec le.
   I  leave on holidays  with him.
   ‘I’m going on holidays with him’.
(24) *Je connais le.
    I know him
    ‘I know him.’

(25) a. *La conduis!
    It drive
    ‘Drive it.’

b. Conduis la!
    Drive it
    ‘Drive it.’

The two pronominal systems are in complementary distribution with definite phrases. That is, pronouns are semantically equivalent to definite expressions. Differences lie at the pragmatic and morpho-syntactic level. Pronouns denote specific entities which are available in short-term memory (Ariel, 1990). They encode referents that have either been mentioned in the immediate prior discourse or which are in the focus of the interlocutors’ attention (i.e. in the extra-linguistic). So, non-salient referents are marked by low accessibility markers such as the proper name Jules and the NP sa voiture in (26.a); whereas salient and recent referents are expressed by highly accessible markers such as the personal pronouns il and la in (26.b).

    Jules drives his car
    ‘Jules is driving his car.’

b. Il la conduit.
    He it drives
    ‘He’s driving it.’

4.1.3 Cross-linguistic differences and similarities

4.1.3.1 Specificity vs. non-specificity

Despite the existence of universal pragmatic principles, speakers need to map these principles onto their language-specific structures and select the appropriate morpho-syntactic marker. Building on the theoretical framework developed by influential researchers in the field of discourse-pragmatics (Ariel, 1990; Chafe, 1996; Gundel, Hedberg, & Zacharski, 1993; Prince, 1992),
Rozendaal & Baker (2008) summarized the discourse-pragmatics constraints on nominal reference in a binary tree (Figure 8).

Following this hierarchy, the distinction between specificity and non-specificity is the first distinction to apply to nominal reference. The specificity status of referents is speaker-dependent only. So, a specific referent corresponds to a unique instance or an individual member of a set expressed by a noun. “An entry becomes specific as soon as it includes any properties which make it distinctive or unique” (Brown, 1973: 390). A non-specific referent is a non-identifiable element of a set.

(27) a. I just bought a blue summer dress.  
   SPECIFIC reading  
   b. I may buy a new summer dress next month.  NON-SPECIFIC reading

For instance in (27.a), the speaker precisely knows which dress she is talking about whereas in (27.b) she is mentioning the idea of buying a new dress but has not set her mind on a particular one. Non-specific referents are usually encoded with an indefinite article but some nouns allow demonstratives and bare mass nouns (e.g. this type of house, furniture). Then in specific interpretation, the speaker needs to take the interlocutor’s cognitive status into account and decide whether the referent is identified as discourse-new or discourse-old information. Newly introduced information, which does not imply any mutual knowledge between the interlocutors, is typically encoded by an indefinite referring expression (27.a). However, discourse-new entities that are
part of the interlocutors’ shared-knowledge (hear-old or present in the immediate extra linguistic context) can be introduced either by an indefinite article (28.a) or by a definite referring expression (28.b-d).

(28)  
   a. Un mec devant nous vient de trébucher.  
      A guy in front of us has-just stumbled
      'A guy in front of us has just stumbled'.
   b. Le mec devant nous vient de trébucher.  
      The guy in front of us has-just stumbled
      'The guy in front of us has just stumbled'.
   c. Ce type vient de trébucher.  
      This guy has-just stumbled
      'This guy has just stumbled'.
   d. Mon ami vient de trébucher.  
      My friend has-just stumbled
      'My friend has just stumbled'.

Definites also encode universal unique specific referents such as the sun, the ground etc. even on first mention. Referents which are unique in one social context (29.a), in a specific setting (29.b) or specified by entailment (29.c) also follow this uniqueness rule (Abbott, 2004). Uniqueness can be expressed through physical rather than linguistic expression. Pointing or gaze towards an object can establish first mention in context of joint-attention between the speaker and hearer (Gundel & Fretheim, 2008). Thus, the object has been first mentioned non-linguistically and will be introduced to the discourse with a definite article as in (29.d).

(29)  
   a. He met the President (F. Hollande in France).
   b. She swam in the pond (Hampstead heath ponds in London).
   c. Do I need to change the tyres? (on my bike).
   d. I like the blue bag (while pointing at it in a shop window).

Although French and English definites often refer to specific entities, they can also receive a non-specific interpretation. In English, definite (30.a) and indefinite (30.b) articles in front of singular nouns as well as definite articles in front of adjectives (30.c) in non-specific context can encode genericity. But in this context, mass nouns and plural nouns are encoded with a null article as in (31). In French, generics are marked by a definite article. In both languages, generic expressions are not only marked by a simple determiner, other means
such as number, tense and aspect are also decisive in the encoding of generics (Gelman & Raman, 2003).

(30) a. The bus is a common mean of transportation.  
b. A castle is something difficult to maintain.  
c. The French are pessimistic.

(31) Les filles aiment souvent le chocolat.  
The girls like often the chocolate  
‘Girls often like chocolate.’

Finally, discourse-old information has by definition already been mentioned in the discourse and is a hearer-old element. It is therefore automatically part of the interlocutors’ shared-knowledge. In this case, definite referential expressions maintain the discourse-old hearer-old referent status. The most felicitous way to maintain old referents in argument positions throughout the discourse is to use pronouns (32.b-c). In non-topic shift context, the use of NP can appear as completely redundant. In conjoined clause, null elements are used to encode the most presupposed element (32.b). In French, null subjects in conjoined clause are only acceptable with third person pronouns in subject position (33). Cabredo-Hofherr (2009) argues that 1st or 2nd person omissions are only possible in subject position when the verbs of the conjoined clauses have the same prefix. In object position, object clitics have to be repeated even in conjoined clauses (34).

(32) a. A French guy/Sébastien came to London to learn English.  
b. He found a house to live in and Ø applied for different jobs.  
c. A burrito restaurant hired him.

(33) a. *Je bois et mange.  
I drink and eat  
‘I drink and eat’.

b. Je bois et je mange.  
I drink and I eat  
‘I drink and eat’.

c. Il boit et mange.  
He drinks and eats  
‘He drinks and eats’.

d. Il boit et il mange.  
He drinks and he eats  
‘He drinks and eats’.
4.1.3.2 Constraints on argument omission

Although French and English are both non-null-argument languages, a substantial number of studies have pointed out some regular instances of argument omission occurring specifically in informal registers (Cummins & Roberge, 2005; Haegeman, 1997). Typically, subject omission is observed in the form of a truncated clause-structure in which the left-most constituent (i.e. subject) is not overtly expressed as in (35.a-e).

(35)  
a. (I) don't really fancy that.  
b. (We) went to the library, didn't we?  
c. (I am) definitely keen on joining your trip.  
d. (Il) faut partir tout de suite.  
   (It) needs to leave immediately  
   'We need to go now'  
e. (Il) y a beaucoup de monde sur la route.  
   (It) there has a lot of people on the road  
   'There is a lot of people on the road.'

(36)  
a. Open (it)!  
b. T'as pas goûté (le chocolat)?  
   You have not tasted (the chocolate).  
   'You didn’t try (the chocolate)’

A growing body of research reports instances of null objects in French and in English as in (36.a-b) (Cummins & Roberge, 2004, 2005; Goldberg, 2001; Grüter, 2006; Rizzi, 1986). For French, Cummins & Roberge (2006) argued that parameters such as third-person reference, non-human reference, the co-occurrence of a pronominalized dative argument and reference to a proposition or process would favour object omission. Larjavaara (2000) observed two semantic subclasses of null objects: latent (i.e. pertaining to an identifiable referent); or generic. Furthermore, Lambrecht & Lemoine (1996) observed that null objects appear in cases where an object clitic could not be substituted to a
NP as in (23). In English, the lexical characteristics of the verb (i.e. imperative, contrastive, infinitive) also help identify the referent of a null object. In Goldberg's (2001) study on the unexpressed objects of causative verbs, she reported that null objects are neither topical nor focal and that the verb is emphasised (i.e. either contrasted, iterative, generic or in narrow focus). While the study of subject omission in French and English seems to be based on consistent and undisputable occurrences of this phenomenon; the study of null objects in French is more problematic as disagreements among French native speakers exists with regard to the acceptability of certain object omissions. For instance, Lambrecht & Lemoine (2005: 40) argued that the presence of an object clitic “les” in the interlocutor’s response in (37) would be inappropriate as it would give a specific reading to the indefinite quantified antecedent NP “trente ans”. In contrast, I believe that the absence of object clitic in (37) lends to an ungrammatical utterance even when uttered in informal conversation. The same applies to examples (38) and (39).

(37)  A: Je vais avoir trente ans.
     I will have thirty years
     ‘I’m about to turn thirty.’  (Lambrecht & Lemoine 2005: 40)

     B: Je (les) ai déjà eu, moi.
     I (them) have already had me
     ‘I’ve already turned thirty.’

(38)  Avant j’ avais mon dossier à Jester, mais j’ai enlevé Ø.
     Before I had my file at Jester but I have removed
     ‘Before, I had my file at Jester, but I removed it’.  
     (Lambrecht & Lemoine 1996: 295)

(39)  A: Tu veux ce livre?
     you want this book?
     ‘Do you want this book?’  (Cummins & Roberge, 2005: 62)

     B: Oh. Mais j(e) (l’) ai déjà lu.
     Oh. But I (it) have already read
     ‘Oh but I have already read it.’

Nevertheless, other examples of null object appear to be perfectly acceptable as illustrated in (40) and (41).

(40)  A: Maîtrisez-vous vos interviews? C’est capital, les interviews.
     Master you your interviews? It is capital the interviews
     ‘Are you good in interviews? It’s crucial interviews.’
As a consequence, it is undisputable that null objects exist in French; however their use and acceptability may vary extensively from one variety of French to another, or even from a class of speaker to another (e.g. young vs. elderly). Therefore, it seems essential that researchers take into consideration the variety of French they are examining as well as other demographic parameters as it would reinforce the credibility of their examples and arguments. These additional factors may also help explain why the distribution of this phenomenon is still to date so poorly understood.

To conclude, this section has shown that French and English have extremely distinct determiner systems but fairly similar pronominal systems. At the level of determiners, the crucial difference lies in that mass nouns and indefinite plural nouns appear without determiner in English when determiners are obligatory in specific and non-specific contexts in French. At the pronominal level, French relies on subject and object clitics while English has subject and object pronouns. Despite a number of essential distinctive morpho-syntactic properties (section 4.1.2), these two pronominal systems share a common set of attributes. French clitics and English pronouns are (i) in complementary distribution with definite noun phrases; and they (ii) have to be overtly realized despite the existence of a few language-specific contexts in which subject or object omissions are acceptable (see section 4.1.3.2). Finally, English has a considerably more limited number of morpho-syntactic markers than French. As a consequence, English local markers are used in different pragmatic settings when it is less the case in French (see Table 7 for summary).
Table 7 English and French local markers of referential expressions based on Thomas’ (1989) classification of the English system of articles.

<table>
<thead>
<tr>
<th>Specificity / Hearer Status</th>
<th>NP type</th>
<th>English system</th>
<th>French system</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>[- Specific Referent]</td>
<td>Generics</td>
<td>Ø, a, the</td>
<td>le, la, les</td>
<td>I like chocolate / j’aime le chocolat.</td>
</tr>
<tr>
<td>[+ Hearer Known]</td>
<td></td>
<td></td>
<td></td>
<td>A horse is a mammal / Le cheval est un mammifère.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Paul studies the coffee bean / Paul étudie la graine de café.</td>
</tr>
<tr>
<td>[- Specific Referent]</td>
<td>Non-referential nouns</td>
<td>Ø, a</td>
<td>un, une, du, de la, des</td>
<td>Vince does fencing / Vince fait de l’escrime.</td>
</tr>
<tr>
<td>[- Hearer Known]</td>
<td></td>
<td></td>
<td></td>
<td>Alice should buy a new top / Alice devrait acheter un nouveau haut.</td>
</tr>
<tr>
<td>[+ Specific Referent]</td>
<td>Referential indefinites</td>
<td>a, Ø</td>
<td>un, une, du, de la, des</td>
<td>Clara bought me a bunch of flowers / Clara m’a offert un bouquet de fleurs</td>
</tr>
<tr>
<td>[+ Hearer Known]</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>[+ Specific Referent]</td>
<td>Referential definites (previously mentioned, unique referents); Pronouns (maintenance)</td>
<td>the</td>
<td>le, la, les</td>
<td>The flowers were beautiful / Les fleurs étaient magnifiques.</td>
</tr>
<tr>
<td>[+ Hearer Known]</td>
<td></td>
<td></td>
<td></td>
<td>They were beautiful / Elles étaient magnifiques.</td>
</tr>
</tbody>
</table>
4.2 The acquisition of determiners

4.2.1 Literature review

4.2.1.1 Monolingual acquisition

A vast body of research focusing on the acquisition of determiners was mainly carried within the Universal Grammar framework (De Cat, 2013; Granfeldt, 2003; Gualmini, Crain, Meroni, Chierchia, & Guasti, 2001; Guasti, Gavarró, De Lange, & Caprin, 2008; Van der Linden, 2009). The main argument in this line of research is that the early production of determiners is evidence of abstract knowledge of grammatical categories. The few “immature” performances are explained in terms of memory and processing limitations. Considerably fewer studies on the acquisition of determiners were conducted from a functionalist/usage-based perspective (Bassano, 2000; Rozendaal & Baker, 2008; Veneziano & Sinclair, 2000). These studies argued in favour of a gradual acquisition of determiners driven by the frequency and distribution of forms in the input. Pine and colleagues (Lieven, Pine, & Baldwin, 1997; Pine & Martindale, 1996) posited that the limited productivity of children’s early determiner use in different pragmatic contexts and the use of determiners with semantically heterogeneous noun types account for a constructivist development.

Despite theoretical divergences, these studies observed similar development paths. For instance, in the late single word period (about 1;7), the first proto-morphological markers emerge in the form of a schwa. These fillers represent the emergence of grammatical morphemes such as determiners (Peters, 2001; Veneziano & Sinclair, 2000). Subsequently, the emergence of determiners follows a three-stage development (Chierchia, Guasti, & Gualmini, 1999). First, children go through the bare noun stage in which nouns appear exclusively without determiner. Then, there is the free variation stage in which children’s use determiners inconsistently, i.e. a determiner may be used or omitted with the same construction within the same time frame. Finally, they reach the target-stage as they realize 90% of obligatory determiners. These three stages indicate that the development of determiners is a long-term process.
Children take time at integrating the discourse-pragmatics constraints that govern the use of determiners.

Cross-linguistic studies contrasting the acquisition of determiners in Romance and Germanic languages have shown that determiners emerge at different rates depending on the typological characteristics of the children’s first language (Chierchia et al., 1999; Guasti, De Lange, Gavarró, & Caprin, 2003; Van Der Velde, 2004). For instance, Germanic languages children acquire determiners more slowly than Romance languages children do. Naturalistic studies on English and French development have reported that the first occurrences of definite and indefinite articles emerge from around 1;6 (Abu-Akel, Bailey, & Thum, 2004; Bassano, 1998; Brown, 1973). French-speaking children settle in the free variation stage between 2;0 and 2;5. Finally they reach the target-stage between 2;5 and 2;6. This process takes longer for English-speaking children who only reach the target-stage by 3;6. In French, the definite article emerges first. The indefinite article only appears later on. In addition, masculine articles emerge before feminine forms and plural forms are developed even later. In contrast, the indefinite and definite articles appear at the same time in English (Brown, 1973: 361). These cross-linguistic differences in the development of determiners has been explained by prosody as well as syntax and semantics (Chierchia et al., 1999; Lleó & Demuth, 1999). The prosodic account is far beyond the scope of this thesis. But the syntax and semantic proposal posits that the use of bare mass nouns and bare plural nouns for referents in argument position in non-specific contexts in Germanic languages would delay the acquisition of determiners in comparison to Romance languages that typically require the use of a determiner in argument position.

Considerably more empirical evidence confirms that children largely encode referent status as adults do. Nonetheless, persistent errors in the over-use of the definite article are observed up to at least the age of 7 in certain contexts (i.e. picture description-tasks/picture based-narratives) in French, English and other languages (Hickmann, Hendriks, Roland, & Liang, 1996; Karmiloff-Smith, 1979; Narasimhan & Dimroth, 2008; Warden, 1976). A large body of research has specifically focussed on determining some possible factors responsible for children’s target-deviant production of definite articles (Kail &
Hickmann, 1992; Maratsos, 1976; Warden, 1981). This error is frequently referred to as the *egocentric* error. The two recurrent arguments accounting for this type of infelicitous production are the possible gradual acquisition of the adult-system and children’s cognitive limitations at taking into account their interlocutor’s perspective (De Cat, 2011; Schafer & De Villiers, 2000; Van Hout, Harrigan, & de Villiers, 2010).

In conclusion, the acquisition of the determiner system is a three-stage process. Depending on the typological properties of their language, children may take more time to fully acquire this system (Chierchia et al., 1999). For instance, children learning a Romance language typically reach the target-stage much earlier than children acquiring a Germanic language. A large body of research has reported children’s marginal difficulty at consistently using the definite article in appropriate contexts even though children’s knowledge of the rules governing the choice of definiteness markers is in place before they fully develop Theory of Mind (De Cat 2013: 23). To-date, this problematic domain of development – the so-called egocentric error – is accounted for in terms of (i) children’s inability to consistently monitor the level of the referent’s activation in the mind of their listener; (ii) children’s tendency to assume that salient referents from their standpoint will also be salient for their addressee, especially in story-telling contexts which rely on pictures (De Cat, 2013; Hickmann, 2003; Serratrice, 2008). This argument is supported by cognitive development research which demonstrates young children’s growing sensibility at assessing the variety of accessibility cues available to them to encode discourse referents appropriately (Matthews & Theakston, 2006; O’Neill, 1996; Salomo, Lieven, & Tomasello, 2010).
<table>
<thead>
<tr>
<th>Study</th>
<th>Child</th>
<th>Other language</th>
<th>Age</th>
<th>First emergence</th>
<th>50% incidence rate</th>
<th>90% incidence rate</th>
<th>Dev. path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hulk (2004)</td>
<td>Anouk</td>
<td>Dutch</td>
<td>2;3.13-3;10.7</td>
<td>2;4.17 (MLU 2)</td>
<td>2;4.17 (MLU 2)</td>
<td>2;8.22 (MLU 3)</td>
<td>2;7.28 (MLU 3)</td>
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<tr>
<td>Kupisch</td>
<td>Céline</td>
<td>German</td>
<td>1;1.14-4;0.19</td>
<td>2;0.9 (MLU 2.1)</td>
<td>2;0.9 (MLU 2.1)</td>
<td>3;4.9 (MLU 3.57)</td>
<td>2;7 (MLU 2)</td>
</tr>
<tr>
<td></td>
<td>Alexander</td>
<td>German</td>
<td>2;2.6-2;11.20</td>
<td>before 2.2.6</td>
<td>before 2.2.6</td>
<td>-</td>
<td>2;4.6</td>
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<tr>
<td>Müller (1994)</td>
<td>Caroline</td>
<td>German</td>
<td>1;6-5;0</td>
<td>around 1;10/2;0</td>
<td>around 1;10/2;0</td>
<td>around 1;10/2;0</td>
<td>-</td>
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<tr>
<td></td>
<td>Ivar</td>
<td>German</td>
<td>1;5-5;10</td>
<td>2;4 (MLU 2)</td>
<td>2;4 (MLU 2)</td>
<td>-</td>
<td>2;4 (MLU 2)</td>
</tr>
<tr>
<td>Granfeldt (2000)</td>
<td>Anne</td>
<td>Swedish</td>
<td>2;3-4;0</td>
<td>before 2;3</td>
<td>before 2;3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Jean</td>
<td>Swedish</td>
<td>1;10-3;9</td>
<td>around 1;10</td>
<td>around 1;10</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Mimi</td>
<td>Swedish</td>
<td>2;0-4;2</td>
<td>before 2;0</td>
<td>before 2;0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Paradis &amp; Genesee (1997)</td>
<td>Yann</td>
<td>English</td>
<td>1.11-3.0</td>
<td>1.11</td>
<td>1.11</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Mathieu</td>
<td>English</td>
<td>1;9-2;11</td>
<td>1.11</td>
<td>1.11</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
4.2.1.2 Bilingual Acquisition

In contrast to monolingual development, research conducted on the bilingual acquisition of determiners has mainly focused on two issues: (i) whether the simultaneous acquisition of two languages affects the acquisition of determiners (i.e. comparing the age and order of emergence of determiners between bilinguals and monolinguals); and (ii) whether bilinguals’ two languages interact at the determiner level (i.e. instances of CLI).

Research on French-Germanic language pairs has shown that determiners emerge in the same order in the bilingual and monolingual acquisition of French (Granfeldt, 2000, 2003; Hulk, 2004; Kupisch, 2003; Müller, 1994; Paradis & Genesee, 1997). As detailed in Table 8, Anouk (Dutch-French), Caroline, Ivar, Céline and Alexander (German-French) start producing definite and indefinite articles at about the same age (about 2;0 – MLU 2) (Müller, 1994; Kupisch, 2003; Hulk, 2004). All produce masculine definites and indefinites before producing feminine articles just as singular forms appear before plural forms in their speech. Moreover, these bilingual children also acquire determiners in a three-stage development as monolinguals do. They first exhibit a high percentage of determiner omission (MLU < 2); then from 2 year-old (MLU= 2), they start producing definite and indefinite articles but continue omitting articles when nouns are preceded by an adjective; finally they produce about 90% of target-like determiners (MLU > 2-3). The main difference lies in the length of time to reach the target-stage. These bilinguals display a slight delay in the development of determiners in French. For instance, Hulk (2004) reports that Anouk, a Dutch-French bilingual, produces a high number of bare nouns that gradually decreases from 90% to 50% in a first stage (MLU: 2 – 2;3.13-2;7.5) and from 53% to 16% in a second stage (MLU: 3 - 2;7.28-3;1.4) with a sharp drop between 2;8.22 and 2;11.27. Anouk reaches the target-stage at 3;3.17 (MLU>3.5). Overall, Anouk’s development path is twice as long as those of French monolinguals. Anouk’s late development corroborates with Granfeldt’s (2000) findings on French-Swedish bilingual children’s acquisition of determiners. These bilinguals also exhibit a delay in the emergence of determiners in French, which can also be accounted by the complexity of the Swedish system. As other Germanic languages, Swedish allows bare mass nouns in generic and French partitive contexts. Moreover, the definite article is expressed as a suffix but also appears preverbally with attributive adjectives or demonstratives (e.g. lingvist-en the linguist vs. den gamla lingvist-en the old
linguist) (Granfeldt, 2000: 266). As shown in Table 8, the bare noun phase lasts even longer in the case of the Swedish-French bilinguals than for Anouk. This pattern is also reported in Paradis & Genesee’s (1997) study on two French-English bilinguals, Yann (balanced) and Mathieu (English dominant). At 3;0, the boys have not reached the 90% target-phase in French and they also produce some infelicitous bare nouns in English. As the other Germanic-French bilingual children, these French-English bilinguals stay in the free variation stage in French for a longer period of time than their monolingual peers.

In sum, French-Germanic bilinguals stay twice as long in the bare noun phase as French monolinguals do (Hulk, 2004). This infers that these bilingual children reach the target-stage later than monolinguals. Overall, the development of determiners takes about a year for these bilingual children when it takes six months for French children (Prévost, 2009; Van der Linden, 2009). Unfortunately, most of these studies on French-Germanic language pairs examined the development of determiners without considering the issue of CLI.

Since then, three studies have investigated CLI at the determiner level. Kupisch (2003) studied the vulnerability of the determiner domain in two French-German bilinguals aged between 1;1-4;0 (Céline) and 2;2-2;11 (Alexander). While Alexander’s development mirrored perfectly the development of a French child (Grégoire), Céline showed a peculiar acquisition path. Céline went through a phase where she barely spoke French but developed German at a regular pace. Céline differed from other children in that she produced a very low number of bare nouns before producing target-like determiners. Moreover, she seemed to converge to adult grammar without passing through the other stages. Kupisch claimed that Céline’s late development in French probably accounts for the less pronounced bare noun phase and free variation stage in comparison to other children. From 2;4, the girl mastered the German determiner system and still spoke little French. The author predicted that Céline’s acquisition of determiners in French should be accelerated due to her mastery of the determiner system in German. The child should produce determiners from the moment she uses French more. Contra to this prediction, earlier convergence to the target-stage was not observed in Céline’s French. Determiner omission was reported with mass nouns (e.g. et (du) sucre ‘and sugar’; mais il va (le) café d’dans ‘but it goes coffee in it – Coffee goes inside this’). These occurrences could be interpreted as cross-linguistic transfers from German. But the author argued that the error-rate is too low (26.9% error-rate for mass
nouns) to be the consequence of systematic influence from German and that transfer for plural nouns should also be observed if the latter occurrences were evidence of CLI. Kupisch also reinterpreted the delay observed in the previous literature on French-Germanic language pairs and claimed that these bilingual children only exhibit a delay in comparison to same age monolinguals, but have a comparable development to that of monolingual children with similar MLU. She concluded that the determiner system is not vulnerable to CLI.

Subsequently, Kupisch (2007) re-considered the possible occurrence of CLI at the determiner level. She examined the role of structural overlap and language dominance on this phenomenon in a study on determiner omission in four Italian-German bilinguals aged between 1;6 and 3;0. In Italian, determiners are obligatory with nouns in specific and generic contexts in argument position. However, partitive and indefinite plural articles are optional in non-specific contexts (e.g. Hai comprato (dei) pomodori e (del) formaggio?/Did you buy tomatoes and cheese?). In contrast, German requires the use of articles with nouns in argument position in specific contexts and requires the use of bare mass nouns and bare plural nouns in non-specific and generic contexts. Another difference between the two languages involves the use of articles in front of possessives in Italian when possessives in German are in complementary distribution with articles. These cross-linguistic differences as well as prosodic and phonological characteristics suggest that the Italian determiner system is less complex to acquire than the German system. With regard to CLI, Kupisch predicted that (i) influence should occur from Italian to German if this phenomenon is governed by language complexity; or (ii) that the stronger language should influence the weaker language if this phenomenon is determined by language dominance. In fact, a bi-directional CLI was observed. In Italian, three of the bilinguals exhibited a slight delay in the determiner development compared to monolinguals. In German, all the children showed an acceleration of the development in comparison to German children. Kupisch pointed out that the effect in Italian was not as strong as the acceleration in German. With regard to transfer, the author did not observe any transfer. Moreover, she convincingly argued that transfers from Italian to German should not be observed since there does not exist any equivalent for the partitive and indefinite plural determiners in German. As for generics, these typically appear scarcely and fairly late in longitudinal corpora to be able to observe transfers. Kupisch (2007) discussed the implications of both structural overlap and language
dominance as variables affecting CLI. She proposed the language-internal factors and
language dominance hypothesis which predicts that CLI would only occur if the
dominant language is beneficial to the acquisition of a specific grammatical form.

Serratrice et al. (2009) tested on 167 children between the ages of 6;2 and 10;10
whether structural complexity, typological relatedness, language dominance and age
affect CLI at the determiner level. Two groups of Italian-English bilinguals (N= 20 UK;
N=39 Italy), a group of Italian-Spanish (N=31), Italian (N=38) and English (N=39)
children as well as Italian and English adults took part in a judgement acceptability task.
In English, performance was fairly poor for all children. Overall, responses were more
accurate in specific than generic contexts. In Italian, responses were at ceiling for the
adults, monolinguals and Italian-Spanish bilinguals. The younger Spanish-Italians’
performance was less accurate but well above chance. In contrast, the English-Italian
bilinguals, especially those living in the UK, accepted significantly more ungrammatical
bare nouns in generic contexts than all other groups. CLI did not occur at the determiner
level for two typologically related languages. Only Italian-English bilinguals exhibited
cross-linguistic transfers from English to Italian. The authors discussed this unexpected
direction of CLI with reference to Chierchia’s (1998) Nominal Mapping Parameter
hypothesis. As detailed in chapter 2, this hypothesis divides languages according to the
way they refer to kinds. Nouns appear in predicates (e.g. Aurore is a doctor) and in
arguments (e.g. A doctor works in a GP practise). Romance languages are characterised
by the [-arg, +pred] setting as all nouns are by default predicates. Despite cross-
linguistic differences, the projection of a determiner is typically required for a noun to
appear in argument position. Germanic languages correspond to the [+arg, +pred]
setting since nouns either denote a predicate or an argument. On the one hand, nouns
that denote a predicate are countable and need a determiner in argument position (e.g. I
moved the chairs into the room/*Chair is not to the table). On the other hand, nouns that
denote kinds (e.g. Advice is available online/*Advises are always welcomed) have a
mass denotation and appear without determiner in any syntactic position (see
Serratrice et al., 2009: 241 for a detailed account). The direction of influence suggests
that the children relied on the English most economical system. But the results also
indicate that language exposure affects this phenomenon since the bilingual exposed the
most to English were considerably more likely to accept ungrammatical bare nouns in
Italian.
To sum up, previous research has clearly shown that French-Germanic bilingual children go through the same stages of development than monolinguals in French. However, they stay in the bare noun stage for a much longer period of time than their monolingual peers. Consequently, these bilinguals use determiners productively at a later age. This delay can be interpreted in terms of CLI. However, Kupisch (2003) claimed that the bilinguals showed a slower development than same-age monolinguals but had actually a determiner development in line with comparable MLU development. Only few investigations have really examined the issue of CLI at the determiner level. While Kupisch (2003) did not observe any language influence in two French-German bilinguals, she observed a bi-directional influence (i.e. a developmental delay in Italian and an acceleration in German) in four Italian-German children (Kupisch, 2007). These latter findings have been accounted for in terms of both Hulk & Müller’s (2000) structural overlap and language dominance (i.e. in the sense of language proficiency). Serratrice et al. (2009) is the only study to-date that reports cross-linguistic transfers at the determiner level. Contra to Hulk & Müller’s (2000) overlap hypothesis, CLI was reported in Italian-English bilinguals from English to Italian. The authors interpreted these unexpected results in light of Chierchia’s (1998) NMP hypothesis. The Italian-English children would occasionally rely in Italian on the English economical setting that allows bare nouns in specific contexts. This study also sheds light on the role of language dominance as a variable affecting CLI.

4.2.2 The present study

Aims

In this study, I document the acquisition of determiners in context of French-English bilingualism and I explore the role of language internal constraints and language dominance on CLI. The current literature has shown that the determiner system is prone to CLI in context of the simultaneous acquisition of Romance-Germanic language pairs. As detailed above, Germanic languages have a more complex determiner system (i.e. allowing bare mass and bare plural nouns in non-specific and generic contexts in argument position) than Romance languages (i.e. using overt determiners in argument position). Differences in the bilinguals’ rate of determiner development in comparison to monolinguals have indicated that CLI manifests itself in the form of a delay in the Romance language and an acceleration in the Germanic language as a function of
language dominance (Kupisch, 2007). These findings imply that both structural overlap and language dominance (i.e. in the sense of expressive skills) may be variables affecting this phenomenon. Kupisch (2007: 75) proposed that CLI would only occur “if the stronger language is beneficial to the acquisition of the respective grammatical domain”. With regard to cross-linguistic transfers, Serratrice et al. (2009) reported their occurrence from English to Italian in Italian-English bilinguals. This direction of influence was explained in light of Chierchia’s (1998) NMP hypothesis. In essence, this hypothesis suggests that English is the most economical language since it gives bare plural NPs kind reference through type shifting. In contrast, Italian requires the projection of a determiner. The additional fact that Italian-English bilinguals living in the UK significantly performed less accurately than the ones living in Italy makes a strong case for the role of language dominance (i.e. in the sense of language exposure) on CLI.

The picture that emerges from these studies is ambiguous with regard to the role of language-internal factors. On the one hand, evidence supporting the structural overlap hypothesis comes from studies focusing on the development of determiners in the Romance language, i.e. French (Granfeldt, 2000; Hulk, 2004). Apart from Kupisch (2007), they do not provide any insight on the Germanic languages and possible bi-directional influence. Kupisch’s (2007) hypothesis explains the bi-directionality of CLI as the result of both structural overlap and language proficiency. On the other hand, Serratrice et al. (2009) posit that cross-linguistic transfers from the Germanic language (i.e. English) to the Romance language (i.e. Italian) are constrained by the children’s adoption of the Germanic economical setting of the NMP in Italian and by the language of the community. These contrastive hypotheses clearly call for additional investigations to test the role of internal factors on potential CLI for determiners in a new Romance-Germanic language pair such as French and English. French is particularly interesting to study, as it is the most restrictive Romance language in its use of overt determiners in argument position. Contra to Italian that allows bare nouns in lexically governed position, determiners are obligatory in argument position in French. Schmitz et al.’s (2012) recent study suggests that this additional variable may also impact the possibility of CLI at the determiner level in a language pair such as French and English. Schmitz et al.’s (2012: 229) syntactic derivation hypothesis proposes that influence may not occur “when the complexity of two derivations differs but the grammatical phenomenon in both languages is expressed in a rather different way”. Since French and
English exhibit clear differences in the use of determiners with nouns in argument position, CLI may not be observed in children acquiring these two languages. Finally, the present analysis also assesses the role of language dominance in CLI by considering both language proficiency and language exposure as potential variables affecting this phenomenon.

This study is based on the longitudinal corpus of two French-English bilingual children who both receive comparable exposure to their languages. However one child, Sophie, shows fairly balanced speaking abilities when the other child, Anne, demonstrates stronger expressive skills in English.

Predictions

Both language internal and language dominance variables are taken into account in the following predictions. Several contrastive predictions can be drawn from previous work.

1) Kupisch's (2007) language-internal factors and language dominance hypothesis predicts that (i) a balanced bilingual child (i.e. with regard to speaking proficiency) should exhibit CLI in presence of structural overlap in his two languages from the less complex language to the more complex language; (ii) a bilingual child whose strongest language is the more complex will not show evidence of delay or acceleration in his weaker language. By this rationale, this hypothesis infers that:

a- Sophie’s (i.e balanced) determiner development may be accelerated in English due to the early acquisition of determiners in French.

b- Anne’s acquisition of determiners in French cannot be affected by the late determiner development in English, i.e. language in which she has the strongest productive abilities.

c- Transfers should occur from French to English in the form of target-deviant definite articles in generic context in English. In contrast, they should not occur from English to French since the more complex language should not influence the less complex one.

2) The alternative prediction based on Serratrice et al. (2009) is that:

a- French-English bilinguals will occasionally favour the most economical English setting of the NMP in intermittently omitting determiners in French in context in
which bare nouns are acceptable in English, i.e. mass nouns and indefinite plurals in non-specific and generic contexts, hence possible delay and transfer in French.

b- Differences in the degree of CLI should not be observed across the two girls since language exposure is similar across the two bilinguals.

3) Finally, Schmitz et al.’s (2012) syntactic derivation hypothesis infers that determiners should not be vulnerable to CLI in French and English since the two linguistic systems are strictly different contra to Italian and English. Therefore, none of the two bilinguals children should show evidence of CLI at the determiner level.

Data & Procedure

This section presents an empirical analysis of the emergence and use of determiners in argument position in the speech of two French-English bilingual children. This analysis is based on the Hervé corpus collected for this study. The corpus varies with respect to the number of recordings during the twelve-month period and with respect to the age span covered. For each child, the French and the English data was divided into 2 periods on the basis of the children's MLUw in each session (see Table 9 reproduced from section 3.2.3). This distribution provides a better overview of the development of referential expressions as a function of MLUw development as well as offers a more accurate picture of the rates of emergence and omission of determiners. The reader is referred to sections 3.2 and 3.4 for details on the participants, procedure and coding system.

Table 9 Overview of the bilingual corpus (reproduced from section 3.2.3).

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>No. of recordings</th>
<th>MLUw (mean)</th>
<th>No. of clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>5</td>
<td>3.52</td>
<td>881</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>6</td>
<td>4.15</td>
<td>1023</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>3</td>
<td>1.75</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>8</td>
<td>3.35</td>
<td>1248</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>4</td>
<td>3.11</td>
<td>570</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>8</td>
<td>3.80</td>
<td>1052</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>4</td>
<td>1.81</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>7</td>
<td>2.52</td>
<td>95</td>
</tr>
</tbody>
</table>
Analysis

The analysis focuses on the development of determiners in context of French-English bilingualism. For comparison purposes, I decided to analyse the acquisition of articles since the literature on the acquisition of determiners has mainly considered the development of articles (see section 4.2.1). In addition, I chose to include in the analysis the development of bare nouns in English as well as that of partitives and indefinite plurals in French as they correspond to contexts that may be particularly prone to CLI. Finally, I also reported the emergence of other definite referring expressions such as demonstratives and possessives and other indefinite referring expressions such as quantifiers since these additional contexts are important to be able to determine the proportion of determiner omission in the data. So, determiners were classified into six categories: (i) indefinite articles; (ii) definite articles; and (iii) bare nouns/partitives, (iv) demonstratives; (v) possessives; and (vi) quantifiers. Subsequently, I calculated the rate of determiner omission by considering the total number of determiner omission over the total number of contexts requiring a determiner. With regard to potential cross-linguistic transfers from French to English, I considered the number of definite and indefinite articles appearing in target-deviant contexts. For example, the production of the dogs instead of dogs in generic context was counted as an infelicitous use of a definite article. Due to the trivial number of possessives, demonstratives and quantifiers types of determiners appearing in target-deviant contexts, I grouped them in the ‘other’ category which includes all other types of determiners than articles. Finally, I also examined potential CLI from English to French in analysing the proportion of determiner omission in plural, generic and singular contexts. I supplemented the analysis by examining the type/token ratio of the nouns and verbs which appear with a null determiner in plural and generic contexts.

4.2.3 Results

4.2.3.1 CLI: acceleration/delays

The next two sections present the results of the analysis of the emergence of target-like determiners and of determiner omission in Sophie’s and Anne’s data. The findings for French and English are compared to what has been reported in the
monolingual and bilingual literature in order to observe a possible acceleration or delay in the bilinguals’ acquisition of determiners.

Emergence of target-like determiners

Table 10 reports the bilingual children’s production of target-like determiners in argument position in English and French. Sophie was 2;6 when the observation period started; she was already producing an average of 3 to 4 words per utterances in her two languages. As a consequence, her acquisition of determiners is fairly advanced. In English, she uses a variety of determiners from 2;6. Her data displays comparable proportions of definite and indefinite articles. It also contains a non-negligible number of bare nouns and other determiners such as demonstratives, possessives and quantifiers. In French, a comparable picture emerges from the results. Sophie’s data exhibits similar rates of definite and indefinite articles. Partitives, indefinite plurals, possessives and quantifiers are also used appropriately. However, the data does not contain any occurrence of demonstratives as determiners. Overall, the consistency of Sophie’s use of determiners indicates that the child has a good command of the determiner system in French and English before the first recording took place.

Anne has a slower linguistic development than Sophie. Despite a relatively small production of determiners in English, Anne produces a variety of determiners between the ages of 2;4 and 2;7. Considerably more definite than indefinite articles are observed in her data. In fact, the first definite articles are observed at the age 2;5 when the first indefinite article is observed at the age of 2;7. In addition, Anne’s first productions of demonstratives, possessives and quantifiers and bare nouns occur within this period. Her first target use of bare nouns is observed at the age of 2;7 in the form of a mass noun as illustrated in (42).

(42) I want water. (Anne 2;7)

Between the ages of 2;8 and 3;4, Anne’s production of definite and indefinite articles rises sharply. Indefinites become prevalent over definites. Bare mass nouns and bare plurals are equally distributed. Finally, she uses a considerable number of possessives and quantifiers as well as a smaller amount of demonstratives.

Crucially, Anne’s English data differs in two ways from English-speaking children. Contra to Brown’s (1973) findings, Anne does not start producing the definite and
indefinite article at the same time. In fact, the initial emergence of the definite article, followed by the later development of the indefinite article, resembles what is commonly observed in French children (Prévost, 2009). Moreover, Anne’s acquisition of determiners also contrasts with Abu-Akel et al.’s (2004) observations in that her production definite and indefinite articles is not equally distributed by the age 2;6.

Table 10 Total number of target-like determiners produced in argument position in the bilingual data.

<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>MLUw (mean)</th>
<th>Indef. (%)</th>
<th>Def. (%)</th>
<th>BN / Part-IP (%)</th>
<th>Dem (%)</th>
<th>Poss (%)</th>
<th>Quant (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>3.52</td>
<td>45 (23)</td>
<td>42 (21)</td>
<td>16 (8)</td>
<td>4 (2)</td>
<td>19 (10)</td>
<td>70 (36)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>4.15</td>
<td>35 (17)</td>
<td>51 (25)</td>
<td>15 (7)</td>
<td>12 (6)</td>
<td>50 (25)</td>
<td>41 (20)</td>
</tr>
<tr>
<td>Anne</td>
<td></td>
<td>2;4-2;7</td>
<td>1.75</td>
<td>1 (6)</td>
<td>11 (65)</td>
<td>1 (6)</td>
<td>1 (6)</td>
<td>1 (6)</td>
<td>2 (11)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>3.35</td>
<td>52 (18)</td>
<td>29 (10)</td>
<td>33 (11)</td>
<td>19 (7)</td>
<td>97 (34)</td>
<td>57 (20)</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>3.11</td>
<td>23 (38)</td>
<td>17 (28)</td>
<td>11 (18)</td>
<td>- (7)</td>
<td>4 (7)</td>
<td>5 (8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>3.80</td>
<td>43 (31)</td>
<td>37 (27)</td>
<td>26 (19)</td>
<td>- (10)</td>
<td>- (10)</td>
<td>- (13)</td>
</tr>
<tr>
<td>Anne</td>
<td></td>
<td>2;4-2;7</td>
<td>1.81</td>
<td>6 (33)</td>
<td>7 (39)</td>
<td>2 (11)</td>
<td>- (11)</td>
<td>- (11)</td>
<td>1 (6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>2.52</td>
<td>3 (30)</td>
<td>2 (20)</td>
<td>1 (10)</td>
<td>1 (10)</td>
<td>2 (20)</td>
<td>1 (10)</td>
</tr>
</tbody>
</table>

Lang.: language; Indef.: indefinite articles; Def.: definite articles; BN: Bare Nouns; Part.: partitives; IP: Indefinite plurals; Dem: demonstratives; Poss: Quant.: quantifiers.

In French, Anne’s data displays a different pattern of acquisition from that observed in English. Between the ages of 2;4 and 2;7, she uses productively definite and indefinite articles. The first occurrences of other determiners such as possessives, partitives, indefinite plurals and quantifiers are also observed during that period. These findings are in line with previous research on monolinguals and on other French-Germanic bilingual children (Bassano, 1998; Müller, 1994; Kupisch, 2003). A similar pattern in Anne’s use of determiners is observed between the ages of 2;8 and 3;4. The number of determiners does not increase. This is directly related to her declining
speaking abilities in French in the second period of the investigation. It is worth pointing out that despite the small number of French utterances and her dominance in English, Anne seems to have started the acquisition process of determiners somewhat slightly earlier in French than in English. Between 2;4 and 2;7, she uses productively definite and indefinite articles as well as a few occurrences of other determiners in French when this is less the case in English.

Determiner omission

Figure 9 compares the rate of determiner omission in obligatory context in the English and French of the two bilingual children. In English, Sophie’s rate of determiner omission oscillates between 6.7% and 11.3% across ages. These results indicate that Sophie has largely settled in the target-production phase. In comparison to monolingual development, Sophie settles in the target-production phase 12 months before her English peers (Brown, 1973).

In French, Sophie’s development is rather unexpected. As shown in Figure 9, there is a short rise from 10.4% to 18.9% in the overall percentage of determiner omission across the two periods. In fact, a closer examination of the data reveals that determiner omission is fairly constant across data. It constitutes at most from one to three occurrences for about 20 nominal references (5% to 15%). The short rise of determiner omission is the result of two peaks. The first peak occurs at 2;10 where the
The proportion of omission rises from 5% to 17%. The second peak takes place between 3;3 and 3;4, ages at which omission reaches 23% and 40% out of 43 and 20 nominal references respectively. But from 3;5 onwards, Sophie settles back in the target-production stage as she suddenly overtly realises all the determiners in French. These results point out that Sophie enters the target-production stage from 2;6 as French monolinguals do. However, she differs from her peers in that she omits a higher proportion of determiners at two distinct time points. This difference is directly related to her simultaneous acquisition of English since these two peaks correspond to periods during which English is particularly prevalent in her speech.

In English, Anne appears to be in the free variation stage from the age of 2;4 as she omits less than 50% of determiners in obligatory contexts. The percentage of omissions decreases from 26.1% in the first period to 20.1% in the second period. In fact, the number of determiner omission decreases sharply to about 15% from the age of 2;10. Anne omits less than 10% of determiners at 3;4. Overall, Anne displays an extremely short, if any, acceleration in the development of determiners as she converges on the target-production stage about two months ahead of English-speaking monolinguals who typically reach the 10% cut-off point of determiner omission at 3;6. In contrast, the total number of omission increases in French. Anne omits 45.5% of determiners in the first period and 61.5% of determiners in the second period. These high rates indicate that she is in the free variation stage throughout data collection. Anne’s acquisition is thus delayed compared to French children who usually reach the target-production stage by 2;6 (Bassano 1998). The rise of determiner omission mirrors Anne’s decreasing use of French. The number of omission doubles between 2;8 and 2;9 although the sharp drop in the total number of utterances produced per French sessions occurs a month later when Anne is 2;10 (31 vs. 14 utterances). The rise of determiner omission may be considered as a precursor sign of Anne’s declining productive competencies in French.

Discussion

The picture that emerges from the above results suggests the existence of a bidirectional CLI in the development of determiners in the two French-English bilingual children. Moreover, the data displays some variation in the degree of CLI. In English, the
two bilinguals seem to display an accelerated determiner development in comparison to monolinguals. While Anne’s use of target determiners contrasts in two main ways with that of monolinguals (i.e. definite before indefinite articles; not reached equal distribution of both articles at 2;6), the analysis of determiner omission shows that she seems to converge to the target-production stage about two months ahead of what has been typically reported for English monolinguals (Brown, 1973; Abu-Akel et al., 2004). Although this short acceleration in the development of determiners could be due to individual variation across children acquiring English, Anne’s relatively slow linguistic development in her two languages in comparison to Sophie, i.e. MLUw, upper bound and lexical diversity, suggests that she may actually have acquired determiners slightly earlier than English monolinguals. As for Sophie, she has indisputably an accelerated determiner development as she converges on the target-stage 12 months before English children. In French, the data offers a mixed picture of the bilinguals’ acquisition of determiners. On the one hand, Anne’s data undoubtedly points to a delay. Although she uses a variety of determiners from 2;4, Anne remains in the free variation stage throughout the observation period. This delay is to be ascribed to Anne’s slow acquisition of French and to her decreasing expressive abilities in the language. On the other hand, Sophie’s data does not initially exhibit a delay in comparison to French children. Her determiner omission rates correspond to about 10% of obligatory contexts between 2;6 and 2;9. However, the two increases in the number of determiner omission are suggestive that the two languages interfere at these two time points. Since Sophie produces low rates of determiner omission from 2;6, it seems difficult to argue that the two peaks correspond to a delay in the usual sense. However, they certainly correspond to periods during which the two languages interact due to one language (i.e. English) temporarily taking over the other (i.e. French).

4.2.3.2 Cross-linguistic transfer

The following sections report the results of the analysis of the target-deviant use of determiners and of the context in which they occur. In context of French-English bilingualism, transfer can occur in two forms (i) from French to English in the use of non-target definite article with mass and plural nouns in generic contexts; and/or (ii) from English to French in the omission of determiners with mass and plural nouns in
non-specific and generic contexts. First, I examine the use of target-deviant determiners in order to identify possible over use of definite articles in English. Then, I investigate determiner omissions and the contexts in which they appear in French.

**Cross-linguistic transfers in English: target-deviant determiners**

Table 11 provides a summary of the target-deviant determiners observed in the bilingual children. Sophie’s data displays a mixed pattern. The only two occurrences of a target-deviant definite article in English occurs with a mass noun as illustrated in (43). More non-target indefinites (3/80) as in (44) are observed than non-target definites (2/92) and ‘other’ (2/196) determiners as in (45). In French, definite articles are by large the most used in inappropriate contexts.

(43) Sophie is eating some raclette cheese with mashed potatoes.
*CHI: Dad you have it.
*FAT: you have that bit Sophie.
*CHI: **no that stinks **the pooh.  
(Sophie 2;9)

(44) While playing at the shopkeeper, Sophie asks whether dinner is ready.
*FAT: what’s ready?
*CHI: food [/] food.
*CHI: is it ready Mum?
*CHI: my mum said <it’s not work> [/] it’s not ready.
*FAT: what’s not ready?
*FAT: tea?
*CHI: **where’s **a racket to play with the ball?  
(Sophie 3;2)

(45) Sophie is playing at the shopkeeper with her father.
*FAT: who wants a piece of bread?
*CHI: me.
*FAT: who wants a cookie?
*CHI: **I want **some piece of cookie.  
(Sophie 3;2)

Anne’s data displays a clear asymmetry with respect to the use of target-deviant determiners. While in English, target-deviant determiners largely correspond to definite articles; the only target-deviant determiners are indefinite articles in French as in (46).

(46) *OBS: et toi, tu te brosses les cheveux?
and you, you you brush the hair?
‘and you, you brush your hair?’

*MOT: comment je vais faire, moi?
how I am going to do me
‘how am I going to do?’
*CHI: *un doudou a mal.
a teddy has pain
’it hurts the teddy’

*MOT: il a mal, le doudou?
he has pain the teddy
’it hurts the teddy?’

Table 11 Target-deviant determiners in argument position in the bilingual data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>MLUw (mean)</th>
<th>Indef. (%)</th>
<th>Def. (%)</th>
<th>Other (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>3.52</td>
<td>0/45 (0)</td>
<td>1/42 (2)</td>
<td>0/93 (0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>4.15</td>
<td>3/35 (8)</td>
<td>1/50 (2)</td>
<td>2/103 (2)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1.75</td>
<td>0/1 (0)</td>
<td>1/11 (9)</td>
<td>0/4 (0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>3.35</td>
<td>1/52 (2)</td>
<td>7/29 (24)</td>
<td>0/173 (0)</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>3.11</td>
<td>1/23 (4)</td>
<td>1/17 (6)</td>
<td>0/20 (0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>3.80</td>
<td>1/43 (2)</td>
<td>8/37 (22)</td>
<td>0/52 (0)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1.81</td>
<td>1/6 (17)</td>
<td>0/7 (0)</td>
<td>0/3 (0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>2.52</td>
<td>1/3 (33)</td>
<td>0/2 (0)</td>
<td>0/5 (0)</td>
</tr>
</tbody>
</table>

Indef.: indefinite articles; Def.: definite articles; Other: possessives, demonstratives, quantifiers and for French only partitives and indefinite plurals.

A close observation of the data indicates that the bilingual children do not use non-target definite articles in English in contexts in which French uses them (i.e. mass and plural nouns in generic contexts). Sophie uses target-deviant definite articles with mass nouns in non-specific context (2/2) as in (47). Anne uses non-target the in indefinite contexts (4/8) as in (48) and (49), in non-specific contexts (1/8 mass noun; 2/8 plural nouns) as in (50) and (51) as well as in specific context (1/8 possessive) (52).

(47) *CHI: I’m on the beach on the sand.
   *FAT: +< you’re playing on the beach with the beach ball?
   *CHI: [-mix] **I’m playing *le@f football@f.** (Sophie 3;1)

(48) *OBS: do you ever do some bicycle?
   *CHI: yeah I did.
   *CHI: **I got *the blue bicycle.** (Anne 2;8)

(49) Anne is reading a book about a whale with her nanny and suddenly she sees a boy on the back of the whale.
   *CHI : there, I saw the boy. (Anne 2;10)

(50) *CHI: look I fixed (it).
   *NAN: oh brilliant well+done.
   *CHI: **like that *the people can go in.** (Anne 2;10)
*NAN: I’ll jump with Clara and then I’ll jump with you.

*OBS: you want to wait with me?

*CHI: no I don’t want.

*OBS: you want to but it’s because they are gonna jump.

*CHI: \textit{I don’t care about the big jumps.} \textit{(Anne 3;0)}

*CHI: maybe wants some milk.

*CHI: \textit{where is the mouth (of the dog).} \textit{(Anne 2;11)}

*NAN: let’s have a look.

(51)

In sum, these results are in line with the vast empirical evidence that posit the late acquisition of the definite article in comparison to other determiners \citep{Kail1992, DeCat2011, DeCat2012, Schafer2000}. The contrastive pattern displayed in Anne’s French is probably the consequence of the little amount of contexts available in her French. Moreover, the data does not provide any evidence that target-deviant definite articles in English appear in generic contexts. This should be put in perspective with the late emergence/observation of generics in naturalistic corpora.

\textit{Cross-linguistic transfers in French: contexts of determiner omission}

Table 12 reports the number and proportion of determiner omission in singular, plural and generic contexts in Sophie’s and Anne’s French. Although the two bilinguals omit determiners in French partitive and indefinite plural contexts, they also omit definite articles and to a smaller extent some indefinite articles.

A close examination of Sophie’s data reveals that the proportion of definite article omissions declines with age, while it increases in partitive and indefinite plural contexts between the ages of 2;10 and 3;7. In fact, 9/19 bare nouns in plural and generic contexts (i.e. 5 in partitive contexts as in (53), 3 in indefinite plural contexts as in (54), 1 in generic context as in (55)) occur at the age 3;4. The few other omissions in plural contexts appear when Sophie is 3;5. These ages have already been pointed out as being problematic for Sophie’s use of determiners. They correspond to a period during which her English was taking over her French.

(52)

(53) \textit{Tu as (de l’) argent dans mon sac.} (Sophie 2;10)

\textit{‘You’ve got money in my bag’.}

(54) \textit{Et toi aussi, tu veux (des) rice-crispies, toi, Maman?} (Sophie 3;4)

\textit{‘Do you also want some rice-crispies Mummy?’}
Il aime (le) thé. (Sophie 3;4)
he likes tea
‘He likes tea’.

Overall, Sophie’s French data displays higher rates of determiner omission in plural and generic contexts, which are contexts for transfer of bare nouns from English to French, than in singular contexts. Determiner omissions are significantly more associated with plural/generic contexts than with singular contexts ($X^2(1, N = 201) = 15.75, p < .000$). These results indicate that Sophie is more likely to omit determiners in plural and generic contexts than in singular contexts in French. Sophie’s high rates of determiner omission in plural and generic contexts may thus be interpreted as instances of transfer from English to French in the use of bare nouns in these contexts.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Contexts</th>
<th>Determiner type</th>
<th>Omitted</th>
<th>Realized</th>
<th>Total</th>
<th>% omission</th>
</tr>
</thead>
<tbody>
<tr>
<td>French</td>
<td>Sophie</td>
<td>Plural</td>
<td>Partitive</td>
<td>13</td>
<td>19</td>
<td>32</td>
<td>41%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indef Plur.</td>
<td>4</td>
<td>14</td>
<td>18</td>
<td>22%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Generics</td>
<td>Definite</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>67%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Singular</td>
<td>Indefinite</td>
<td>6</td>
<td>68</td>
<td>74</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Definite</td>
<td>11</td>
<td>63</td>
<td>74</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>Plural</td>
<td>Partitive</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>50%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Indef Plur.</td>
<td>8</td>
<td>0</td>
<td>8</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Generics</td>
<td>Definite</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Singular</td>
<td>Indefinite</td>
<td>1</td>
<td>11</td>
<td>12</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Definite</td>
<td>18</td>
<td>9</td>
<td>27</td>
<td>67%</td>
</tr>
</tbody>
</table>

Anne’s French data contains a considerable amount of determiner omission in definite contexts as in (56). A non-negligible number of bare nouns is also observed in partitive (57) and indefinite plural (58) contexts. Finally, the only generic occurs without determiner.

(56) [-mix] Baby@e brosse (la) tête. (Anne 2;5)
baby brushes head
‘The baby brushes his head’.
(57)    Je veux mange(r) (du) chocolat.  
I want to-eat chocolate  (Anne 2;8)  
‘I want to eat chocolate’.

(58)    [-mix] Why@e monsieur put@e (des) piques in@e the@e floor@e?  
why man put sharp things in the floor  
‘Why does the man drop sharp things on the floor?’  
(Anne 2;10)

Anne does not seem to have developed an independent grammatical system for partitives and indefinite plurals since she consistently produces bare nouns for indefinite plurals (8/8) and only uses the partitive determiner in half (3/6) of the obligatory contexts. The limited available data prevents us from drawing firmer conclusions about generic contexts. Overall, Anne omits significantly higher rates of determiner in plural and generic contexts than in singular contexts ($X^2(1, N = 54) = 4.34$, $p < .04$). These results corroborate with Sophie’s French data and suggest that Anne’s French also displays evidence of CLI from English to French in the use of bare nouns in plural and generic contexts.

**Bare Noun type/token ratio in these contexts**

Table 13 displays the number of type/token bare nouns occurring in indefinite plural, partitive and generic contexts in the children’s French. Sophie’s and Anne’s data exhibits fairly similar findings. The type/token ratio of bare nouns in such contexts varies around 0.5. That is the number of noun types that occur without determiner in context in which English requires the use of a bare noun and French requires a determiner is fairly limited.

<table>
<thead>
<tr>
<th>Child</th>
<th>Indef. Plur.</th>
<th>Partitive/MN</th>
<th>Generics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophie</td>
<td>3/4</td>
<td>7/13</td>
<td>2/2</td>
</tr>
<tr>
<td>Anne</td>
<td>4/8</td>
<td>2/3</td>
<td>1/1</td>
</tr>
</tbody>
</table>

Indef Plur.: indefinite plural contexts; Partitive/MN: partitive/mass noun contexts; Generics: generic contexts.

**Verb type/token ration in these contexts**

Tables 14 summarises the number of verb types/token appearing with target-deviant bare nouns in argument position in French.
Table 14  Number of verb (type/token) occurring with target-deviant BNs in French.

<table>
<thead>
<tr>
<th>Child</th>
<th>Verbs</th>
<th>Indef. Plur.</th>
<th>Partitive</th>
<th>Generic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophie</td>
<td>vouloir</td>
<td>3/4</td>
<td>12/13</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>avoir</td>
<td>_</td>
<td>1/13</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>mettre</td>
<td>1/4</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>aimer</td>
<td>_</td>
<td>_</td>
<td>2/2</td>
</tr>
<tr>
<td>Anne</td>
<td>avoir</td>
<td>7/8</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>put</td>
<td>1/8</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>like</td>
<td>_</td>
<td>_</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>eat</td>
<td>_</td>
<td>1/3</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>want</td>
<td>_</td>
<td>1/3</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>do</td>
<td>_</td>
<td>1/3</td>
<td>1/1</td>
</tr>
</tbody>
</table>

Indef. Plurals.: Indefinite plural contexts; Partitive: partitive contexts; Generic: generic contexts.

Sophie predominantly omits determiners in partitive and indefinite plural contexts with the verb vouloir (‘want’). The two BNs in generic contexts appear with the verb aimer (‘like’). As for Anne, the three BNs in partitive contexts occur with three different verbs. But 7/8 BNs in indefinite plural contexts appear with the verb avoir (‘have’). Overall, target-deviant BNs in French occur with a small class of verb types in these three problematic contexts.

Discussion

The present analysis examined the possible occurrence of two types of transfers: (i) from French to English in the use of target-deviant definite articles in generic contexts in English; (ii) from English to French in the use of zero determiner with mass and plural nouns in non-specific and generic contexts in French. The bilinguals’ English data does not provide any evidence of infelicitous use of definite articles in generic contexts in English. This absence of cross-linguistic transfer from French to English may be accounted by the small number of generic contexts available in the overall data. In French, however, the bilinguals’ data contains a considerable number of determiner omissions. Four contexts appear to be particularly prone to determiner omissions: definite contexts as well as partitive, definite plural and generic contexts. Crucially, determiner omissions in both Sophie’s and Anne’s French are significantly more associated with plural contexts, i.e. partitive, indefinite plural, and generic contexts, which correspond to contexts in which BNs are used in English, than with singular contexts, i.e. definite and indefinite articles. These results lend support to a CLI
interpretation of the bilinguals’ infelicitous determiner omissions in French. The analysis on the number of noun and verb types appearing with these BNs suggest that cross-linguistic transfer from English to French is constrained and occurs with a small class of noun and verb types. Moreover, this phenomenon is mainly present in Sophie’s French at two periods during which English has been shown to take over French in terms of speaking proficiency. In contrast, transfers are fairly constant in Anne’s French.

4.2.4 General Discussion

The main aim of the present study was to document French-English bilingual children’s acquisition of determiners and to investigate the role of language internal constraints and language dominance on CLI. Based on the current literature, I formulated three contrastive predictions.

If CLI is driven by Kupisch’s (2007) structural overlap and language dominance hypothesis, Sophie, who is a relatively balanced child, should have an accelerated determiner development in English since determiners emerge earlier in French than in English. Her development of determiners in French should not differ from that of comparable monolinguals. In contrast, Anne’s acquisition of determiners should not be affected in either French or English due to her dominance in English. Transfers should only occur from French to English. Conversely, I predicted that CLI should occur from English to French in the form of transfers if this phenomenon is governed by economical considerations in Chierchia’s (1998) Nominal Mapping Parameter sense. Following Serratrice et al. (2009), Sophie and Anne should exhibit the same degree of language influence if language exposure governs this phenomenon. Finally, I considered the cross-linguistic differences that oppose French and English at the determiner level. I posited that if CLI is driven by Schmitz et al.’s (2012) syntactic derivation hypothesis, French-English bilingual children should not show any evidence of cross-linguistic transfers since the two languages have strictly different determiner systems.

The present analysis demonstrates that the two French-English bilingual children’s acquisition of determiners does contain evidence for CLI. The data confirms the asymmetry in the rate of determiner development between Romance and Germanic languages (2004). But it also indicates that CLI reduces the incidence of this contrast. Sophie shows a considerable acceleration in the acquisition of determiners in English
when Anne’s accelerated development is far less important. Her convergence to the target-stage two months ahead English monolinguals is interpreted as an instance of acceleration rather than being the mere result of individual variation since her linguistic development in her two languages, i.e. MLUw, upper bound and lexical diversity, is overall fairly slow and specifically much slower than Sophie’s (see section 3.2.3.3). In French, the two children do not initially exhibit a delay in the development of determiners. Nonetheless, Sophie demonstrates intermittent inconsistencies in the realisation of determiners at two time points. Anne presents a strong delay in the second observation period that largely corresponds to her decreasing expressive proficiency in French. What is important for the present study is that these delays can be ascribed to language dominance. They occur at times during which English becomes particularly preponderant in French contexts. As for cross-linguistic transfers, Sophie’s and Anne’s data present evidence of CLI from English to French but not the reverse. Crucially, these occurrences appear to be constrained by language dominance but also by the lexicon. In particular, these transfers occur with a small class of nouns and verbs that are specific to each child.

Language internal constraints

The findings do not provide a clear-cut picture of the role of language internal constraints. While the data clearly challenges Schmitz et al. (2012) syntactic derivation hypothesis, the role of structural overlap and economical considerations is more problematic. Contra to the predictions, I observed a bi-directional influence that is not predicted by the structural overlap hypothesis, or by the choice of the most economical setting. Kupisch’s (2007) language internal and language dominance hypothesis accounts for the accelerated determiner development in Sophie’s English, but it cannot explain Sophie’s episodic delays in French. Similarly, this hypothesis cannot predict the delay observed in Anne’s French that mirrors her declining expressive abilities in that language. In addition, Chierchia’s (1998) NMP predicts cross-linguistic transfers from English to French in the use of bare nouns in partitive (i.e. mass nouns) and indefinite plural contexts; hence possible delays in the acquisition of the determiner system in French. But it cannot account for the acceleration in the development of determiners in English.
With regard to cross-linguistic transfers, the extremely limited number of generic contexts available in the bilinguals’ data cannot rule out the possibility of influence from French to English as predicted by the structural overlap hypothesis. However, this hypothesis cannot account for the small number of transfers from English to French. The crucial absence of instances of CLI at times during which Sophie’s productive skills are balanced across languages indicate that they may be mediated by a combination of language dominance and other language internal constraints such as economical considerations. In fact, these results imply that both structural overlap and economical considerations affect CLI (Serratrice et al., 2009; Foroodi-Nejad & Paradis, 2007). These two language internal variables may play different roles on this phenomenon as a function of language dominance.

Language dominance

The present investigation considers language dominance in terms of both language exposure and expressive abilities as measured by a parental questionnaire, language uses in French and English contexts and measures of linguistic development (UB, MLUw, lexical diversity). The two French-English children have comparable levels of exposure to their languages, but they have rather different expressive skills. These differences make it possible to assess the role of these two variables on the degree and direction of language influence. Both Sophie and Anne show a delay in the acquisition of determiners in French and an acceleration in English. Moreover, cross-linguistic transfers are observed from English to French but not the reverse in their data. These findings point out that influence occurs in the same direction for the two children regardless of their expressive abilities. Their comparable exposure to French and English may account for this direction of influence.

However, two crucial distinctions contrast Sophie’s and Anne’s data. First, different degrees of influence affect the children’s development of determiners across languages. French (i.e. the less complex language) has a stronger impact on English (i.e. the more complex language) than the reverse for Sophie who is fairly balanced. In contrast, English has a stronger incidence on French for Anne who is dominant in English. Moreover, transfers occur at different periods for the two children. Evidence of CLI from English to French is reported across the observation period for Anne but mainly at two time points for Sophie. These two important differences in the children’s
sensitivity to CLI suggest that dominance expressed in terms of productive skills plays a role on the degree of influence. The current findings cannot categorically rule out the role of language exposure on the degree of influence since language exposure was not calculated every month but rather for the whole observation period or whenever there was an important change of caring arrangements.

Summary and conclusion

The present analysis has shown that French-English bilingual children acquire determiners at a different pace than their monolingual peers. The bilinguals’ acquisition of determiners supports the different rate of development reported in Romance and Germanic languages. Nonetheless, this asymmetry is less prominent than in monolingual acquisition. The differences between bilingual and monolingual development can be attributed to CLI.

The findings confirm that CLI is governed by language internal and language dominance constraints. The bi-directional influence suggests structural overlap and economical considerations may have distinctive role as a function of language dominance. Moreover, the present study indicates that (i) the direction of CLI may be mediated by language exposure as well as language internal constraints; and that (ii) the degree of influence is at least mediated by the children’s expressive skills in each language. In particular, I can formulate two sets of conclusions with regard to language dominance:

1. If a child has fairly balanced speaking abilities in his two languages, the less complex language should affect the more complex language to a larger extent than the more complex language influences the less complex language.

2. If a child is dominant in the more complex language, then this language affects the less complex language to a larger extent than the reverse. So, CLI can occur from the more complex language to the less complex language when the child shows a strong dominance in the more complex language.
4.3 Acquisition of the pronominal system

4.3.1 Literature review

4.3.1.1 Monolingual Acquisition

A large body of research has investigated the acquisition of the pronominal system in null and non-null argument languages (Allen, 2000; Grinstead, 2000; Hyams, 1986; Serratrice, 2002, 2005, 2008; Valian, 1991). In non-null subject languages such as French and English, null subjects represent about 50% of the total number of subjects at about 2 years of age, but it can reach up to 70% omission. The first pronominal forms emerge between 1;8-1;10 (Rasetti, 2003; Rozendaal, 2007; Rozendaal & Baker, 2010; Van Der Velde, Jakubowicz, & Rigaut, 2002). Third person singular pronouns are the first subject pronouns to develop (Hamman, Rizzi, & Frauenfelder, 1996; Van Der Velde et al., 2002). The first person and second person pronouns appear later due to their extremely presupposed discourse status (i.e. referring to speaker and hearer). Much later, plural pronouns emerge. Subject pronouns appear a few months before object pronouns emerge (Jakubowicz & Rigaut, 2000). Children use demonstratives (i.e. ça, this/that), full NPs or strong pronouns in object position before the emergence of object clitics between the age of 1;9-2;4 (Heinen & Kadow, 1990).

A central interest in this domain of research was to evaluate the grammatical constraints that regulate the distribution of null and overt arguments. Various syntactic analysis have been developed: (i) parameter missetting accounts (Hyams, 1986); (ii) optional infinitives (Wexler, 1994); (iii) topic-drop (Haegeman, 1997); (iv) underspecification of number (Hoekstra, Hyams, & Becker, 1996); (v) performance limitations (Bloom, 1990; Valian, 1991). Their common assumption is that children have some competence or some performance limitations (Serratrice, 2002). A vast body of literature has argued in favour of a relationship between the realization of subjects and the emergence of verbal morphology (Pierce, 1992; Plunkett & De Cat, 2001; Valian, 1994; Valian & Eisenberg, 1996; Van Der Velde et al., 2002). Hoekstra & Hyams (1998) pointed out that Root Infinitives (RIs) occur predominantly with null subjects in child French (between 73% and 93%). In contrast, overt subjects appear at similar rates with RIs and finite verbs in child English (between 69% and 90% with finite verbs and
between 80% and 89% with RIs). This discrepancy could be accounted by the extremely poor English morphological system. The small number of verbal inflections leads to ambiguous interpretations (i.e. infinitive vs. finite) of verbal stems with a wide range of subject types. Cross-linguistic research has also shown that children are sensitive to the statistical distribution of overt subject in their language and their production of subject realization tend to match that of the adult input (Serratrice, 2002; Valian, 1991; Valian & Eisenberg, 1996).

In the last two decades, a growing body of research has posited a new interpretation of the null argument phenomenon by examining the role of discourse-pragmatics. The core issue is to investigate whether the informativeness status of a referent can predict its realization in early child language (Allen, 2000; Clancy, 1993; Skarabela & Allen, 2010). This account rests on Chafe’s (1994) notion of activation (as detailed in 1.2.2). The degree of activation, i.e. how accessible a referent is in the mental state of a hearer, governs the morpho-syntactic form that linguistically expresses that referent (e.g. that guy; Vincent; he). This approach suggests that non-salient referents will be more likely overtly realised in child language than highly salient referents. Children acquiring a null-argument language (i.e. Korean, Inuktitut, Italian) have been shown to be sensitive to the variety of complex factors (i.e. newness; contrast; query; absence person; animacy) that affect the recoverability of referents (Allen, 2000; Clancy, 1993; Serratrice, 2002). Allen’s (2000) study on four Inuktitut-speaking children (aged 2;0-2;10) revealed that 70% of the arguments that had only one informative feature (e.g. differentiation in context) were omitted whereas those that had two informative features (e.g. newness and query) were overtly realised 60% of the time. Finally, arguments featuring all of Allen’s eight informative factors were realised 80% of the time. In addition, Allen & Schröder (2003) showed that Inuit children followed Du Bois’s (1987) Preferred Argument Structure. That is, these children introduced maximally one new referent (i.e. lexical) per clause and they tended to place this new referent in object position. Subjects of transitive predicates were largely encoded with high accessible markers (i.e. zero forms) and objects were marked by low accessibility markers (i.e. lexical). Overall, the discourse-pragmatic account suggests that discourse-pragmatics predict argument omission in child language.
Object realization in early child language has motivated fewer investigations than subject realization (Hamman et al., 1996; Hulk, 2000; Pérez-Leroux, Pirvulescu, & Roberge, 2006, 2008; Pérez-Leroux et al., 2009; Van Der Velde et al., 2002). Object realization is governed by syntactic (i.e. the mechanisms governing the licensing and recoverability of null objects) and semantic constraints (i.e. verb types allowing optional object realization) (Pérez-Leroux et al., 2008: 371). Although naturalistic and experimental studies have reported extremely different rates of object omission; overall empirical evidence suggests that objects are initially omitted in Romance languages as well as in Germanic languages (Jakubowicz & Rigaut, 2000; Pérez-Leroux et al., 2006). Pirvulescu (2006) argued that the asymmetric results between spontaneous and elicited productions would be the consequence of methodological differences in the way object omission is determined.

On the one hand, naturalistic observations are based on the total number of contexts in which objects have to be overtly realized (i.e. DPs, reflexives, clitics/pronouns). These studies reported low object omission rates. English-speaking children would scarcely go through a null-object initial phase (Bloom, 1990; Wang, Lillo-Martin, Best, & Levitt, 1992). Specifically, Bloom (1990) observed less than 9% object omission occurring with strictly transitive predicates when Wang et al. (1992) reported 8% infelicitous object omission at 2 years of age. French-speaking children would omit between 11% and 20% objects (Hulk, 2000; Jakubowicz & Rigaut, 2000; Van Der Velde et al., 2002).

On the other hand, experimental studies are based on elicited production tasks involving individuated (i.e. what did X do with Y?) and non-individuated (i.e. what did X do?) objects. They only include clitic/pronoun contexts (i.e. active referents that have been previously introduced to the discourse). These studies reported high rates of object omission (Pérez-Leroux et al., 2006, 2008). For instance, Pérez-Leroux et al. (2008) examined object realization in 29 French-speaking pre-schoolers aged between 3;0 and 5;5 as well as 31 English-speaking children aged between 2;9 and 5;1. At 3;0, English-speaking children omitted objects 35% of the time while this rate declined drastically to 2% at 4;0. In contrast, French-speaking children omitted objects 30% of the time at 3;0. This rate only dropped to 12% between 4 and 5. These experimental results confirmed that all children (including English) go through a null-object initial phase. However, the findings also indicated that English-speaking children stay for a
shorter period of time in the null-object phase than French children. This implies that children acquire object realization at different rates depending on their language. The authors claimed that the availability of optional object realization in French as well as the complex grammar of object clitics (i.e. preverbal) plays an essential role on the protracted null object period in French children in comparison to English children. So, cross-linguistic typological differences account for the different rates of development.

4.3.1.2 Bilingual Acquisition

Research on the simultaneous acquisition of two pronominal systems has provided new insights on (i) the possible variables affecting CLI and (ii) on the hypotheses proposed to account for the development of argument realization.

At the level of subject realization, numerous investigations on null and non-null subject language pairs reported that bilingual children tend to use infelicitous overt-subjects in [-focus] contexts in their null-subject language (Paradis & Navarro, 2003: Spanish-English; Serratrice et al., 2004: Italian-English; Hacohen & Schaffer, 2007: Hebrew-English; Schmitz et al., 2012: Italian-German). These infelicitous overt-subjects were interpreted in terms of CLI from the non-null subject language (i.e. English, German) to the null-subject language (i.e. Spanish, Italian, Hebrew).

Recently, two additional studies involving new language pairs reported conflicting results (Schmitz et al., 2012; Sorace et al., 2009). In an acceptability judgement task, Sorace et al. (2009) compared Italian-English and Italian-Spanish bilinguals’ as well as their monolingual peers’ acceptability of felicitous and infelicitous overt-subjects in topic shift and topic maintenance contexts in English and Italian. While in English, the Italian-English children did not significantly differ from the English children and adults; a mixed pattern emerged from the results on Italian. Between the ages of 6 and 7, Italian-English children accepted significantly more pragmatically infelicitous overt pronouns than all the other groups. But both the Italian-Spanish group and the Italian-English group performed less accurately than the monolinguals between the ages of 8 and 10. This indicates that the bilingual children aged between 8 and 10 accepted infelicitous overt subjects regardless of their language pair. Sorace et al. (2009) argued that CLI could not account for the bilinguals’ over acceptance of overt subject in topic maintenance contexts in Italian. The authors posited the existence of a bilingual effect that would be the result of bilingual children’s difficulty at processing two
languages on a daily basis. This bilingual effect would particularly affect the acquisition of grammatical forms such as referential expressions that are known to be demanding even for monolingual children.

Schmitz et al. (2012) examined subject realization in the longitudinal corpus of German-French, German-Italian and French-Italian children. As in comparable studies, the German-French child patterned like a French monolingual. But the crucial finding is that German-Italian children used overt-subjects in pragmatically inappropriate contexts in Italian when the French-Italian child did not. Contra the predictions, Schmitz et al.’s (2012) did not observe any CLI in the over use of infelicitous overt subjects in the Italian of a French-Italian child. This result shows that the simultaneous acquisition of two languages that display a structural overlap does not necessarily imply the existence of language interaction at the syntax-pragmatics interface. In fact, it raises the question as to why the German-Italian and the French-Italian children, who all acquire a null and non-null subject language pair, did not behave in a similar fashion with regard to subject realization in Italian. As detailed in the previous chapters, the authors accounted for this difference in terms of syntactic derivation. That is, when two languages mark a grammatical phenomena differently (e.g. null- and overt-subjects in Italian and overt-subject in French), bilingual children do not overgeneralise the less complex analysis in the language having the more complex one.

Aside from the issue of CLI, research on bilingual development has challenged the syntactic theories that account for the acquisition of subject realization. Empirical evidence supporting the association between the development of subject realization and the acquisition of verbal morphology has been reported in studies involving a Germanic-French language pair. Specifically, Kaiser (1994) and Meisel (1990) observed that a strong relation between the development of clitics and verbal inflection in the French of German-French bilinguals. In contrast, Paradis & Genesee (1996) only provided a mixed picture of this possible relationship. In the French, two of the children (Gene and Olivier) produced from the onset 96% and 71% of their finite utterances with subject clitics. The third child, William, did not produce any finite utterances with subject clitics at first but 67% of his finite utterances contained a clitic at 2;6 (Paradis & Genesee, 1996: 19). In English pronouns occurred in similar proportions with inflected verbs and root infinitives (about 20%).
Strong evidence against the association between the development of subject realization and verbal morphology has been reported in null-subject and English language pairs (Juan-Garau & Perez-Vidal, 2000; Serratrice, 2002). These studies have observed that the pronominal system develops earlier than inflectional morphology in English. Juan-Garau & Pérez-Vidal (2000) have shown that a Catalan-English bilingual consistently realized subjects in obligatory context in English from 3;2 despite the absence of verbal inflections. The development of inflectional morphology took place a few months after the first occurrences of pronominal subjects. Serratrice (2002) reported that an Italian-English child produced overt subjects with finite verbs (between 83%-94%) alike RIs (92%) as reported for two English monolingual children. Serratrice argued that the need to mark person might account for subject realization with RIs and finite forms. In addition, the boy realized subjects in a language-specific manner in English (93.2%) and in Italian (24.7%). This asymmetry confirmed the child’s sensitivity to the relative distribution of subjects in his two languages. In a subsequent study, Serratrice et al. (2004) showed that subject and object omission is particularly related to the informative status of the argument. Their analysis indicated that subjects of intransitive predicates were more likely to be overtly realized than subjects of transitive verbs. Following Du Bois (1987) and Allen (1997), they proposed a discourse-pragmatic account of the null-subject phenomenon as an alternative to the syntactic theories that cannot predict the role of discourse-pragmatics and transitivity on argument omission.

At the level of object realization, cross-linguistic typological differences have led to different implications for CLI (Müller & Hulk, 2001; Paradis, Crago, & Genesee, 2005; Pirvulescu et al., 2012; Pérez-Leroux et al., 2009; Serratrice, Sorace, Filiaci, & Baldo, 2011; Serratrice et al., 2004; Yip & Matthews, 2000, 2005). In a naturalistic study on Dutch-French and German-Italian children, Müller & Hulk (2001) observed higher rates of infelicitous object omissions in the bilinguals’ French and Italian than in comparable monolingual data. They interpreted these differences in terms of CLI from the Germanic language (i.e. topic drop) to the Romance language (non-topic drop). In contrast, studies on the acquisition of object pronouns in language pairs that both require the overt-realization of objects (i.e. Italian-English, French-English), did not report any differences between bilingual and matching monolingual children (Serratrice et al. 2004; Paradis &
These latter results contrast with Pérez-Leroux's recent experimental results. In an elicitation production task, Pérez-Leroux et al. (2009) tested French-English bilingual children's (mainly passive knowledge of English) and their French monolingual peers' acquisition of object realization. They reported that 3 year-olds growing up in a bilingual context omitted twice as many direct objects than French-speaking monolinguals. This suggests that exposure to English would delay the bilinguals' acquisition of object realization. Pérez-Leroux et al. accounted for this protracted omission period as a difficulty for the bilingual children to integrate syntactic and semantic information. English and French typically require the realization of an overt object, however French allows null objects in specific semantic contexts (discussed in 3.2.1). These cross-linguistic differences would cause the retention of a default null object option for longer in the bilingual children. Pérez-Leroux et al. called this phenomenon the bilingual effect as it would be the direct consequence of the simultaneous acquisition of two languages. In a follow up study, Pirvulescu et al. (2012) examined to what extent the simultaneous acquisition of object realization in French and English may induce such a bilingual effect. Three groups of bilingual children (I: aged 3;0-4;0 N=9; II: aged 4;2-4;11 N=12; III: aged 5;0-5;7 N=9) and aged-match French-speaking monolinguals took part in a picture elicitation task. The experimenter prompted a question (i.e. 'What is the mean boy doing to the dog?') to elicit the children's descriptions. In both French and English, the bilinguals omitted high rates of direct objects. Omission declined with age. In French, the bilinguals omitted significantly more objects than their monolingual peers. This protracted development in comparison to monolinguals supports the existence of a bilingual effect. Contra to Sorace et al. (2009) who conceptualised the bilingual effect observed in Spanish-Italian bilinguals' acquisition of subject realization in terms of processing difficulty at mapping syntactic forms onto meaning in two languages; Pirvulescu et al.'s (2012) proposal rests on bilingual children's retention of a default null object representation. They assume that null objects are part of the initial and universal representation of grammar. In presence of dual input, it would be more difficult and it would take more time for a child to acquire the language-specific morpho-syntactic forms. So, bilingual children would exhibit protracted development of a particular grammatical form regardless of the cross-linguistic structural similarities and differences of the languages.
In sum, the acquisition of argument realization in context of bilingualism has shown to be particularly vulnerable to CLI. However, the absence of CLI in a new language pair (i.e. Italian-French) has raised new questions on the constraints that regulate this phenomenon (Schmitz et al., 2012). Recent studies on structurally similar languages have reported the existence of a bilingual effect in the form of a protracted argument omission period (Sorace et al., 2009; Pirvulescu et al., 2012). Sorace and colleagues interpreted this effect in terms of processing difficulties that arise from the presence of dual input. In contrast, Pirvulescu et al. (2012) argued that bilingual children would keep a default null object representation for a longer period of time than monolingual children due to the simultaneous acquisition of two languages.

Aside from the issue of CLI, studies on BFLA have contributed to the debate on the constraints that govern the development of subject realization. While research on German-French and German-Italian children argued in favour of a relationship between the development of subject realization and of verbal inflections, investigations on Catalan-English and Italian-English language pairs have provided strong evidence against this association (Serratrice, 2002; Juan-Pérez & Vidal, 2000). Moreover, Serratrice et al.’s (2004) subsequent study lends support to Allen’s (1997) and Du Bois’s (1987) hypotheses according to which the informativeness value of discourse referents and verbal transitivity largely predict argument realization.

4.3.2 The present study

Aims

In this study, I explore the existence of a bilingual effect in the simultaneous acquisition of two languages by analysing the emergence of argument realization in the longitudinal corpus of two French-English bilingual children (i.e. two non-null argument languages). My complementary objective is to examine the role of the grammatical and discourse-pragmatics constraints (i.e. verbal morphology, verb’s transitivity and identifiability of a referent) on the development of subject realization and analyse to what extent the degree of referent activation also predicts early object omission.

Reminder, I follow Sorace et al. (2009) and treat the bilingual effect as a particular case of CLI resulting from bilinguals’ difficulty at processing their two languages.
A wealth of studies has reported the vulnerability of the pronominal system to CLI in context of the simultaneous acquisition of null and non-null argument language pairs (Hacohen & Schaeffer, 2007; Paradis & Navarro, 2003; Schmitz et al., 2012; Serratrice et al., 2011; Yip & Matthews, 2000). The presence of grammatical differences and structural overlap in the way arguments are realized in these languages have in part been held responsible for the numerous examples of CLI reported in the literature (Hulk & Müller, 2000; Müller & Hulk, 2001). Recent work indicates that a delay in the development of argument realization can also be observed in language pairs that share some structural properties (Pirvulescu et al., 2012: French-English; Sorace et al., 2009: Spanish-Italian). Two contrasting proposals account for this bilingual effect. On the one hand, Sorace et al.’s (2009) line of argumentation rests on processing limitations that would particularly affect the syntax-pragmatics interface. Regardless of their age, bilingual children would have fewer processing resources and may be less efficient than monolinguals at coordinating syntactic and contextual information. On the other hand, Pirvulescu et al.’s (2012) proposal rests on the existence of a default null-argument representation. Bilingual children would stay for a protracted period of time in this phase due to exposure to two languages. This implies that only young bilingual children could be affected by an effect of bilingualism. Finally, counter evidence to this bilingual effect can be observed in Schmitz et al. (2012). The absence of CLI in the shape of a possible delay in the mastery of subject realization in a French-Italian bilingual child indicates that the simultaneous acquisition of two languages does not necessarily imply the existence of a bilingual effect. The evidence reviewed here offers a mixed picture of this phenomenon. While large-scale experimental studies on typologically related languages suggest that the bilingual acquisition of structures at the syntax-pragmatics interface may be affected by a bilingual effect, corpus analyses do not confirm this phenomenon. This contrasting evidence emphasises the need to carry further investigations on this phenomenon relying especially on naturalistic data.

With regard to the second aim of this analysis, much of the current evidence against the association between the emergence of verbal morphology and subject realization comes from studies on null-subject languages paired with English (Juan-Garau & Perez-Vidal, 2000; Serratrice, 2002). Apart from Serratrice et al.’s (2004) study on Italian and English, the pragmatic approach to the distribution of arguments has mainly been tested on null-subject languages (i.e. Korean, Inuktitut, Italian) (Allen, 2000;
Clancy, 1993; Serratrice, 2002). Therefore, the study of subject realization in context of French-English bilingualism seems particularly relevant to examine to what extent argument realization is governed by grammatical constraints or discourse-pragmatics in non-null argument languages.

Predictions

The current literature makes several predictions regarding the existence of a bilingual effect as well as on the grammatical and discourse-pragmatics constraints that govern argument realization.

1) Bilingual effect:
   a- Experimental evidence indicates that bilingual children acquiring structurally related languages exhibit a delay in the development of argument realization in comparison to monolingual peers (Sorace et al., 2009; Pirvulescu et al., 2012). If such a bilingual effect exists, then French-English children who acquire two non-null argument languages should exhibit a slight delay in argument realization.
   b- Hulk & Müller’s (2000) seminal hypothesis predicts that only languages with partially overlapping structures would interact. Hence, French and English should not interact at the level of argument realization since the two languages both require the overt realization of arguments. Consequently, the development of argument realization should not be affected in context of French-English bilingualism in comparison to that of monolingual children. In this language pair, CLI could only occur with regard to the placement of object pronouns/clitics since in French clitics are preverbal and in English object pronouns are postverbal.

2) Grammatical and discourse-pragmatics constraints on argument realization:
   a- The literature on non-null argument languages has reported an association between the acquisition of subject realization and verbal morphology (Pierce, 1989; Hoekstra et al., 1996; Hoekstra & Hyams, 1998; Meisel, 1990, 1994). This infers that the present French-English bilingual data should contain evidence that the number of null-subjects decreases significantly as a function of children’s increasing use of verbal morphology.
Evidence against this association has been reported in recent studies on null-subject languages and English (Serratrice, 2002; Serratrice et al., 2004; Juan-Garau & Perez-Vidal, 2000; Allen, 2000; Skarabela, 2007). These authors have proposed a discourse-pragmatics account of argument realization. An analysis of the degree of activation of discourse referents in French and English may provide further evidence supporting the role of discourse-pragmatics on argument realization.

**Data & Procedure**

The following sections present an empirical analysis of the emergence of argument realization in the speech of two French-English bilingual children. As in section 4.2, this analysis is based on the Hervé corpus collected for this study (Table 15).

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>No. of recordings</th>
<th>MLUw (mean)</th>
<th>No. of clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>5</td>
<td>3.52</td>
<td>881</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>6</td>
<td>4.15</td>
<td>1023</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>3</td>
<td>1.75</td>
<td>158</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>8</td>
<td>3.35</td>
<td>1248</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>4</td>
<td>3.11</td>
<td>570</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>8</td>
<td>3.80</td>
<td>1052</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>4</td>
<td>1.81</td>
<td>117</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>7</td>
<td>2.52</td>
<td>95</td>
</tr>
</tbody>
</table>

In order to examine the existence of a bilingual effect, the bilingual data is compared to a sample of comparable French and English data (see Table 16). This allows an accurate comparison between the bilingual children’s development of argument realization and that of monolingual children. The reader is referred to sections 3.2 and 3.3 for details on the participants and procedure.
Table 16 Overview of the monolingual data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>No. of recordings</th>
<th>MLU (mean)</th>
<th>No. of clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Ella</td>
<td>2;4</td>
<td>1</td>
<td>3.83</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>2</td>
<td>4.46</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>Liz</td>
<td>2;1-2;6</td>
<td>2</td>
<td>2.15</td>
<td>246</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;11</td>
<td>1</td>
<td>3.55</td>
<td>191</td>
</tr>
<tr>
<td>French</td>
<td>Marie</td>
<td>2;6</td>
<td>1</td>
<td>2.65</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>2</td>
<td>3.42</td>
<td>416</td>
</tr>
<tr>
<td>Anaïs</td>
<td>2;4</td>
<td></td>
<td>1</td>
<td>1.72</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>2;7-3;0</td>
<td></td>
<td>2</td>
<td>2.51</td>
<td>388</td>
</tr>
</tbody>
</table>

Analysis

Referential subject and object arguments in the bilingual and monolingual data were coded for their morphosyntactic forms, i.e. clitics/pronouns, definite NPs, indefinite NPs, proper name, demonstrative pronouns etc. (see details in section 3.4). Argument omissions were coded specifically. Despite being two non-null argument languages, both French and English accept a small number of object omissions (see section 4.1.3.2 for detailed discussion). While coding for subject omission is fairly straightforward as omissions correspond to non-referential subjects in French as in “(il) faut pas ouvrir la porte/one shouldn’t open the door” and they occur in informal settings in English as in “(I) hope you get soon better”; coding for object omission is a more complex and subjective task. The author relied on her own judgement as a native speaker of French and an advanced speaker of English to distinguish acceptable null objects from infelicitous object omissions. For example, utterances such as “je veux (les) compter/I want to count (them)” were categorised as acceptable object omission. In contrast utterances such as “Maman, on fait (celui-là) avec Arc-en-ciel/Mum, we do (this one) with Rainbow” where the missing object is identifiable from the context, i.e. a puzzle, but should be expressed fully as the prepositional phrase is attached to this missing element, were considered as infelicitous omissions. The analytical category ‘null’ only refers to non-target argument omissions. Felicitous null instances have not been included in the analysis. In addition, non-referential arguments were excluded from the analysis.
Arguments were also coded for discourse-pragmatics, i.e. hearer and discourse status. Four categories were identified: (i) [+ Hear New] [+ Discourse New] – introduction, (ii) [-HN] [+DN] – introduction, (iii) [-HN] [-DN] – shift; and (iv) [-HN] [-DN] – maintenance contexts.

With respect to verbal morphology, French has a richer system than English. Both languages have specific issues regarding the identifiability of finite verb forms. Therefore, language-specific coding systems were used. In English, I followed Serratrice (2002) and analysed the proportion of overt subjects for seven different categories: RIs, third person singular simple present forms, present progressive forms, simple past tense forms, modals, copula, and others. RIs correspond to all non-finite forms of lexical verbs (e.g. he drive instead of he drives), omissions of the copula (e.g. I big girl instead of I'm a big girl) and omissions of the auxiliary be (e.g. you eating apple instead of you are eating an apple). The `other' category corresponds to verbs that do not bear a verbal inflection and for which it is ambiguous to know whether they are finite or non-finite verb forms (e.g. I draw). French marks tense, number, and aspect. But, the past participle, infinitive and imperative forms of -ER ending verbs sound alike (travaillé, travailler, travaillez). In these cases, distinguishing finite from non-finite verb forms can be problematic. The present data contains verb forms for which it was difficult to establish whether the child used a past participle or an infinitive (two non-finite forms). However, it does not contain any imperative in the second person plural. Therefore, finite forms and RIs were easily identifiable from RIs. While root infinitives correspond to non-finite verb forms (i.e. infinitives, past-participles, present participle), finite verb forms correspond to all conjugated verbs.

Finally, predicates were coded for transitivity and were grouped into five categories: (i) transitive; (ii) intransitive; (iii) ditransitive; (iv) copula; and (v) other (i.e. missing copula).

4.3.3 Results

4.3.3.1 The bilingual effect

The next two sections assess the existence of a bilingual effect in the longitudinal corpus of two French-English bilingual children. I compare the rates of subject realization in the bilingual and monolingual data before examining object realization.
Subject realization

Table 17 summarises the proportion of omitted, pronominal and lexical subjects present in the English and French monolingual data. A similar pattern of subject realization is observed in child English and child French. Overall, there is an extremely low number of lexical subjects across languages and children. Initially, the two English children and the French child, Marie, produce high rates of pronominal subjects. They also omit a non-negligible number of subjects. Between the ages of 2;4 and 2;6, the English children omit about 30% of the total number of subjects (Ella: 5/17 – 29%; Liz: 61/167 – 37%). Marie, the advanced French child, omits less than 15% of subjects (6/66). In contrast, Anaïs, the other French child, omits about 85% of her subjects (28/33) at 2;4. Finally, the number of pronominal subjects in all four children increases drastically with age and reaches about 80% of the total number of subjects (Ella: 108/131 – 82%; Liz: 134/150 – 89%; Marie: 229/249 – 92%; Anaïs: 193/251 – 77%) in the second period under investigation.

Table 17 Distribution of subjects in the monolingual data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>MLU (mean)</th>
<th>Null (%)</th>
<th>Pro (%)</th>
<th>NPs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Ella</td>
<td>2;4</td>
<td>3.83</td>
<td>5 (29)</td>
<td>11 (65)</td>
<td>1 (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>4.46</td>
<td>19 (15)</td>
<td>108 (82)</td>
<td>4 (3)</td>
</tr>
<tr>
<td></td>
<td>Liz</td>
<td>2;1-2;6</td>
<td>2.15</td>
<td>61 (37)</td>
<td>94 (56)</td>
<td>12 (7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;11</td>
<td>3.55</td>
<td>8 (5)</td>
<td>134 (89)</td>
<td>8 (5)</td>
</tr>
<tr>
<td>French</td>
<td>Marie</td>
<td>2;6</td>
<td>2.65</td>
<td>9 (14)</td>
<td>57 (86)</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>3.42</td>
<td>20 (8)</td>
<td>229 (92)</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td>Anaïs</td>
<td>2;4</td>
<td>1.72</td>
<td>28 (85)</td>
<td>5 (15)</td>
<td>_</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;7-3;0</td>
<td>2.51</td>
<td>57 (23)</td>
<td>193 (77)</td>
<td>1 (0)</td>
</tr>
</tbody>
</table>

Null: infelicitous subject omissions; Pro. Pronominal subjects; NPs: lexical subjects.

Table 18 summarises the bilingual children’s use of subjects. The bilingual data shows a slightly different pattern of development as the one observed in the monolingual data. Sophie has reached a more advanced stage with regard to argument realization than her comparable monolingual peers. In English and French, Sophie produces high rates of pronominal subjects and a low number of lexical subjects. She
also omits extremely few subjects (English: 24/718 – 3%; 2/786– 0.25%; French: 5/378 – 1%; 7/665 – 1%). Anne’s acquisition of subject realization is largely in line with that of her monolingual counterparts. Between 2;4 and 2;6, Anne omits a high number of subjects (English: 36/107 – 34%; French: 45/87 – 52%). She also produces more pronominal than lexical subjects. While subject omission decreases from 34% (36/107) to 13% (124/958) with age in English, this is less the case in French where about 30% of subjects are still omitted in the second period under investigation. This development pattern in French is undoubtedly related to Anne’s decreasing expressive abilities in that language.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>MLUw (mean)</th>
<th>Null (%)</th>
<th>Pro (%)</th>
<th>NPs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>3.52</td>
<td>24 (3)</td>
<td>679 (95)</td>
<td>15 (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>4.15</td>
<td>2 (0)</td>
<td>760 (97)</td>
<td>24 (3)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1.75</td>
<td>36 (34)</td>
<td>62 (58)</td>
<td>9 (8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>3.35</td>
<td>124 (13)</td>
<td>729 (76)</td>
<td>105 (11)</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>3.11</td>
<td>5 (1)</td>
<td>369 (98)</td>
<td>4 (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>3.80</td>
<td>7 (1)</td>
<td>647 (97)</td>
<td>11 (2)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1.81</td>
<td>45 (52)</td>
<td>33 (38)</td>
<td>9 (10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>2.52</td>
<td>19 (28)</td>
<td>41 (60)</td>
<td>9 (12)</td>
</tr>
</tbody>
</table>

Null: infelicitous subject omissions; Pro. Pronominal subjects; NPs: lexical subjects.

Object realization

Table 19 reports the proportion of omitted, pronominal and lexical objects in the monolingual data. At all ages, extremely few infelicitous object omissions are observed in the English and French children. Overall, the English data contains slightly higher rates of lexical than pronominal objects. A similar pattern is observed in French.
### Table 19 Distribution of objects in the monolingual data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>MLU (mean)</th>
<th>Null (%)</th>
<th>Pro (%)</th>
<th>NPs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Ella</td>
<td>2;4</td>
<td>3.83</td>
<td></td>
<td>6 (55)</td>
<td>5 (45)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>4.46</td>
<td></td>
<td>15 (33)</td>
<td>30 (66)</td>
</tr>
<tr>
<td></td>
<td>Liz</td>
<td>2;1-2;6</td>
<td>2.15</td>
<td>1 (1)</td>
<td>35 (37)</td>
<td>59 (62)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;11</td>
<td>3.55</td>
<td></td>
<td>11 (17)</td>
<td>54 (83)</td>
</tr>
<tr>
<td>French</td>
<td>Marie</td>
<td>2;6</td>
<td>2.65</td>
<td>1 (7)</td>
<td>4 (26)</td>
<td>10 (67)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>3.42</td>
<td></td>
<td>21 (26)</td>
<td>59 (74)</td>
</tr>
<tr>
<td></td>
<td>Anaïs</td>
<td>2;4</td>
<td>1.72</td>
<td></td>
<td></td>
<td>5 (100)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;7-3;0</td>
<td>2.51</td>
<td>1 (1)</td>
<td>76 (66)</td>
<td>38 (33)</td>
</tr>
</tbody>
</table>

Null: infelicitous object omissions; Pro. Pronominal objects; NPs: lexical objects.

Table 20 summarises the results from the bilingual data. With regard to object omission, the bilingual children do not exhibit higher rates of omission than the monolinguals. Omission rates are low across ages and languages. In English, Sophie’s and Anne’s use of pronominal and lexical objects are in line with that of their monolingual peers. They use more lexical objects than pronominal objects. In French, the same pattern is observed. The bilinguals only differ from their French peers in that they use even fewer pronominal objects than lexical objects.

### Table 20 Distribution of objects in the bilingual data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>MLUw (mean)</th>
<th>Null (%)</th>
<th>Pro (%)</th>
<th>NPs (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>3.52</td>
<td>1 (1)</td>
<td>117 (37)</td>
<td>200 (63)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>4.15</td>
<td></td>
<td>76 (26)</td>
<td>217 (74)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1.75</td>
<td></td>
<td></td>
<td>22 (56)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>3.35</td>
<td>5 (1)</td>
<td>101 (27)</td>
<td>266 (72)</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>3.11</td>
<td></td>
<td>8 (11)</td>
<td>66 (89)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>3.80</td>
<td>2 (1)</td>
<td>29 (14)</td>
<td>172 (85)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1.81</td>
<td></td>
<td>5 (14)</td>
<td>25 (83)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>2.52</td>
<td></td>
<td>2 (9)</td>
<td>21 (91)</td>
</tr>
</tbody>
</table>

Null: infelicitous object omissions; Pro. Pronominal objects; NPs: lexical objects.
Discussion

The picture that emerges from these results is that the development of argument realization in context of French-English bilingualism largely mirrors that of comparable monolingual children. The results confirm a number of well-known facts on the development of argument realization and provide some new insights on the existence of a bilingual effect. As reported in the literature, the data displays a clear asymmetry between the realization of subjects and objects (Jakubowicz & Rigaut, 2000). While subject omission is fairly high and declines with age, object omission remains sparse across ages. Moreover, the data also exhibits a clear asymmetry in the use of pronouns and NPs in argument position. Pronouns are largely prevalent in subject position. In contrast, NPs are essentially present in object position. These two sets of asymmetry show children's sensitivity to Greenfield and Smith’s (1976) principle of informativeness whereby subjects typically correspond to highly identifiable referents and objects encode inactive referents.

The crucial piece of information concerns the rates of argument omission. The bilingual children omit subjects and objects to the same extent than their monolingual peers. This key result speaks against the existence of a bilingual effect. The present analysis contrasts with Pirvulescu et al.’s (2012) experimental results on 3 to 5 year-olds French-English bilingual children's object omission. The two bilingual children in the present study do not omit object arguments at higher rates than their French peers. These contrastive findings echo the asymmetric results on the proportion of object omission reported in monolingual data in naturalistic and experimental studies (Bloom, 1990; Hulk, 1997; Pirvulescu, 2006; Pérez-Leroux et al., 2008). Although Pirvulescu (2006) successfully accounted for this discrepancy by discussing the methodological differences in the way object omission is counted in naturalistic (i.e. object omission in contexts in which object realization is obligatory) and experimental studies (i.e. object omission in clitic contexts); the same argument cannot be applied here. Despite this methodological difference, it would still be possible to observe whether bilingual children omit more objects than their monolingual peers. In fact, the discrepancy between my results and Pirvulescu et al.’s findings may be the consequence of other methodological differences. The high object omission rates in Pirvulescu et al.’s experimental data may reflect the relative artificiality of elicited production. The bilingual children who took part in the same task in their two languages may have been
more sensitive to this artificiality than monolinguals who only did the task once. Moreover, the presence of pictures in the elicitation task may have triggered higher rates of object omission due to the high accessibility of the referents (i.e. present on the picture).

**4.3.3.2 Constraints affecting early argument omission**

The following sections report several analyses that try to disentangle the extent to which grammatical and discourse-pragmatics constraints govern the development of argument realization in two non-null argument languages. First, I examine the relationship between subject realization and the emergence of verbal morphology in French and English. Then, I test Du Bois’ (1987) predictions on the role of transitivity on subject realization. Finally, I assess the role of referent accessibility on both subject and object omission.

**Subject realization and verbal morphology**

Table 21 reports the distribution of subjects in RIs and finite contexts in English. Sophie’s data contains a very high number of overt subjects in obligatory contexts. However in RIs, she uses fewer overt subjects than in finite contexts (RIs: 6/17 – 35%; 3p.s: 15/15 – 100%; Prog: 96/97 – 99%; Past: 30/32 – 94%; Modals: 311/316 – 98%; Copula: 85/85 – 100%; Other: 151/156 – 97%). The number of overt subjects increases drastically with age in RI contexts. However, there is still a slight difference in the overall number of overt subjects in RIs (91%) and finite contexts (96-100%). Sophie uses fewer overt subjects in RIs between the ages of 2;6 and 2;10 than an English-speaking child (Adam, 2;3-3;0: 80% overt subjects in non-finite contexts in Phillips 1995). As for Anne, her data contains initially comparable proportion of overt subjects with RIs (5/11 – 45%) and verbs in the ‘other’ category (22/48 – 54%). To a lesser extent, subject realization also appears to be problematic with past verb forms (3/5 – 60%) and modals (12/18 – 67%). In the second period, the proportion of overt subjects increases with modals and past verb forms but remains slightly less important in RIs (96/120 – 80%) and ‘other’ (218/293 – 74%) contexts.

Overall, the bilingual data indicates that overt subjects occur with both RIs and with finite verb forms although the proportion of overt subject is lower in RIs than with
finite verb forms in the early developmental stages. These results contrast with Hoekstra et al.'s (1996) review of studies on subject omission and RIs in French, German and Dutch in that the association between overt subjects and RIs is well above the 17% residual. The present results echo Serratrice’s (2002) findings on an Italian-English child’s use of overt subjects in RIs in English. As argued by Serratrice (2002: 339), subjects are person markers in English. Therefore, children may use overt subjects in RIs in order to mark person. Recent experimental studies on children’s use of pronouns also suggest that overt subjects specifically mark the animate character of the agent of the predicate (Serratrice, 2013b). Therefore, the use of overt subjects with both finite forms and RIs may be triggered by the children’s need to mark the subject’s animacy.

Table 21 Verbal distribution of subjects in the bilinguals’ English (N corresponds to the total number of subjects).

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>RIs</th>
<th>3 p.s.</th>
<th>Prog.</th>
<th>Past</th>
<th>Modals</th>
<th>Copula</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophie</td>
<td>Null</td>
<td>11</td>
<td>_</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>_</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Pro</td>
<td>5</td>
<td>13</td>
<td>93</td>
<td>29</td>
<td>310</td>
<td>79</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>2;6-</td>
<td>Lexical</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>2;10</td>
<td>N</td>
<td>17</td>
<td>15</td>
<td>97</td>
<td>32</td>
<td>316</td>
<td>85</td>
</tr>
<tr>
<td>% Overt Subjects</td>
<td>35</td>
<td>100</td>
<td>99</td>
<td>94</td>
<td>98</td>
<td>100</td>
<td>97</td>
<td></td>
</tr>
<tr>
<td>Anne</td>
<td>Null</td>
<td>6</td>
<td>_</td>
<td>_</td>
<td>2</td>
<td>6</td>
<td>_</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Pro</td>
<td>2</td>
<td>_</td>
<td>12</td>
<td>3</td>
<td>12</td>
<td>9</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>2;4-</td>
<td>Lexical</td>
<td>3</td>
<td>2</td>
<td>_</td>
<td>_</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>2;7</td>
<td>N</td>
<td>11</td>
<td>2</td>
<td>12</td>
<td>5</td>
<td>18</td>
<td>11</td>
</tr>
<tr>
<td>% Overt Subjects</td>
<td>45</td>
<td>100</td>
<td>100</td>
<td>60</td>
<td>67</td>
<td>100</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Null</td>
<td>24</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>12</td>
<td>6</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>Pro</td>
<td>60</td>
<td>14</td>
<td>72</td>
<td>65</td>
<td>182</td>
<td>123</td>
<td>213</td>
</tr>
<tr>
<td></td>
<td>2;8-</td>
<td>Lexical</td>
<td>36</td>
<td>4</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>3;4</td>
<td>N</td>
<td>120</td>
<td>19</td>
<td>76</td>
<td>76</td>
<td>199</td>
<td>175</td>
</tr>
<tr>
<td>% Overt Subjects</td>
<td>80</td>
<td>95</td>
<td>99</td>
<td>93</td>
<td>94</td>
<td>97</td>
<td>74</td>
<td></td>
</tr>
</tbody>
</table>

RIs: root infinitives; 3 p.s: 3 person singular – present tense; Prog: progressive forms, Past: past tense; Modals: modals; Copula: copula; Other: verbs without verbal inflections.
Table 22 summarises the distribution of subjects that appear with RIs and finite verb forms in obligatory contexts in French. The bilingual data contains a small amount of RIs in French. As indicated in Table 22, the large majority of RIs appear with overt subjects (Sophie 6/6 – 100%; Anne 9/11 – 82%, 6/10– 60%). Sophie’s use of overt subjects is at ceiling (about 99%) with both RIs and finite verb forms. In contrast, Anne omits a substantial amount of subjects with finite verb forms (2;4-2;7: 43/76 – 57%; 2;8-3;2: 15/59 – 24%).

Table 22 Verbal distribution of subjects in the bilinguals’ French.

<table>
<thead>
<tr>
<th>Child</th>
<th>Age</th>
<th>RIs</th>
<th>Finite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>Null_</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pro_</td>
<td>369</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lexical</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N_</td>
<td>378</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% Overt Subjects</td>
<td>99</td>
</tr>
<tr>
<td>Anne</td>
<td>2;4-2;7</td>
<td>Null_</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pro_</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lexical</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N_</td>
<td>76</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% Overt Subjects</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>2;8-3;2</td>
<td>Null_</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pro_</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lexical</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>N_</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td></td>
<td>% Overt Subjects</td>
<td>60</td>
</tr>
</tbody>
</table>

RIs: root infinitives; finite: inflected verb forms.
Anne’s development differs from Krämer’s (1993) observation on a same age French child who omitted 93% subjects in RIs and only 26% subjects in finite contexts. In fact, both Anne’s and Sophie’s use of overt subjects with RIs in French are also well above the 17% residual reviewed by Hoekstra et al. (1996). The bilingual data indicates that overt subjects are realised in more than 60% of RIs. Sophie has a tendency to omit more subjects in RIs than with finite verb forms. Initially Anne displays the opposite pattern before following the same pattern as Sophie in the second period under investigation.

The incidence of transitivity on subject realization

Allen & Schröder (2003) showed that Inuit children followed Du Bois’s (1987) Preferred Argument Structure in that they maximally introduced one new referent and tended not to place it in subject position. So, subjects of transitive predicates corresponded to salient referents that were encoded with high accessibility markers. In addition, Serratrice al. (2004) observed young children’s tendency to omit subjects of transitive verbs in Italian and English as predicted by the Preferred Argument Structure. Therefore, the present analysis assesses the potential role of transitivity on early subject omission in French and English.

<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>Transitive (%)</th>
<th>Intransitive (%)</th>
<th>Ditran. (%)</th>
<th>Copula (%)</th>
<th>Other (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>19/24 (79)</td>
<td>4/24 (17)</td>
<td>–</td>
<td>–</td>
<td>1/24 (4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>2/2 (100)</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>17/36 (47)</td>
<td>19/36 (53)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>74/124 (60)</td>
<td>42/124 (34)</td>
<td>–</td>
<td>4/124 (3)</td>
<td>4/124 (3)</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>3/5 (60)</td>
<td>1/5 (20)</td>
<td>–</td>
<td>1/5 (20)</td>
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<td></td>
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<td>2;10-3;7</td>
<td>5/7 (71)</td>
<td>–</td>
<td>–</td>
<td>2/7 (29)</td>
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<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>27/45 (60)</td>
<td>13/45 (29)</td>
<td>–</td>
<td>4/45 (9)</td>
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<td></td>
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<td>2;8-3;2</td>
<td>4/19 (21)</td>
<td>10/19 (53)</td>
<td>–</td>
<td>5/19 (26)</td>
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</table>

Table 23 reports the transitivity of predicates occurring with omitted subjects. As observed in Serratrice et al. (2004), subject omission predominantly takes place with
transitive predicates in both French and English. Sophie and Anne omit in English significantly more subjects of transitive predicates than subjects of intransitive, other predicates and copulas (Sophie: $X^2(1, N = 1801) = 6.02, p = .014$; Anne: $X^2(1, N = 1301) = 10.88, p = .001$). In French, Sophie’s subject omission is overall fairly low across all predicates and is not significantly prevalent with any type of predicates, i.e. transitive, intransitive, other predicates and copulas ($X^2(1, N = 1505) = 2.211, p = .137$). In contrast, Anne omits subjects significantly more with transitive predicates than with intransitive, other predicates and copulas throughout data collection ($X^2(1, N = 197) = 4.779, p = .029$). Moreover, Anne’s subject omission with intransitive predicates and copulas increases with age while it decreases with transitive predicates. This phenomenon is directly related to Anne’s decreasing expressive abilities in French. Between 2;8 and 3;2, Anne uses mainly simple sentences that only include a subject and a predicate in this language. Her data contains extremely few transitive predicates at this period.

In sum, the bilingual data displays a clear set of results: (i) argument realization is acquired gradually; and (ii) children, aged 2-3 year-old, tend to omit predominantly subjects of transitive predicates across languages. This second finding is not verified in Sophie’s French where the child omits considerably fewer subjects than in her English and than Anne. The data suggests that the small amount of subject omission in Sophie’s French may account for this discrepancy. Consequently, I posit that transitivity affects subject omission in the early stages of development, i.e. when subject omissions are fairly frequent. However, it may not be the case in later developmental stages. Overall, children show a sensitivity to the accessibility of discourse referents from the early stages of language development as they predominantly choose to overtly realize the least accessible argument, i.e. object, over the most accessible argument, i.e. subject, with transitive predicates.

*The role of argument accessibility*

The following analysis assesses whether children rely on discourse-pragmatics during their acquisition of argument realization. As detailed in section 3.5, discourse referents were coded in terms of hearer and discourse accessibility. Table 24 reports the number of omitted, pronominal and lexical subjects that appear in [+ Hear New] [+

In Sophie’s French and English, omitted subjects correspond to discourse-old referents in maintenance position (English: 24/24 – 100%; 2/2 – 100%; French: 5/5 – 100%; 7/7 – 100%). They typically correspond to first and second singular person pronouns as in (59) and (60).

(59) Sophie and her father are making a gingerman with playdough
   *FAT:  oh it is a bit of a vital piece,, isn't it?
   *FAT:  here you go.
   *CHI:  good.
   *FAT:  we put off when it's down there like that.
   *CHI:  why (you) put on the lid? (Sophie 2;7)
   *FAT:  coz then you can get the man out.
   *CHI:  yeah it’s finish.

(60) Sophie and her father are putting some icing on the cupcakes they made
   *CHI:  look Daddy.
   *CHI:  it’s a little like creamy.
   *FAT:  yeah Soph’ you know what happened last time you did that?
   *CHI:  (I) sprinkled it all over. (Sophie 2;10)

Anne’s subject omission also includes referents that have not been introduced to the discourse and that are not necessarily in the interlocutor's focus of attention. Nonetheless, these referents are identifiable in that they change of state as in (61) in which the object falls. They are thus classified as introduced in [+HN] [+DN] or [-HN] [+DN] contexts depending on the situation.

(61) Anne and her nanny are talking about a bogey the child has on her nose
   *CHI:  look.
   *NAN:  yes I can see it's on the top of your nose.
   *CHI:  oh (it) fall down. (Anne 2;5)

In both French and English, Anne also omits a small number of non-accessible referents (English: 1/36 – 3%; 5/124 – 4%; French: 3/45 – 7%; 0/19 – 0%). This typically results in a break down in the conversation and triggers a request for clarification. In (62), the interlocutor cannot identify from the prior discourse or from the extra-linguistic the referent the child is talking about.
<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>Null [+HN] Intro. (%)</th>
<th>Pronominal [-HN] Intro. (%)</th>
<th>Lexical [-HN] Intro. (%)</th>
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<tr>
<td></td>
<td>Sophie</td>
<td>2;6-</td>
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<tr>
<td></td>
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<td>2;10</td>
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<td>65 (100)</td>
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<td>11 (55)</td>
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<td>2</td>
<td>11 (55)</td>
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<td></td>
<td>Sophie</td>
<td>2;7</td>
<td>32</td>
<td>62 (100)</td>
<td>7 (78)</td>
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<td>2;8</td>
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<td>113</td>
<td>708 (100)</td>
<td>27 (78)</td>
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<td></td>
<td>Sophie</td>
<td>2;9</td>
<td>5</td>
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<td>3 (75)</td>
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<td>Sophie</td>
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<td></td>
<td>Sophie</td>
<td>2;7</td>
<td>42</td>
<td>33 (100)</td>
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<td>41 (100)</td>
<td>9 (56)</td>
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<td>Anne</td>
<td>2;8</td>
<td>19</td>
<td>41 (100)</td>
<td>9 (56)</td>
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<td></td>
<td>Anne</td>
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In (63), the child says that something goes away. The interlocutor repeats what the child said in order to verify that she understood it properly. There is a break down in the conversation as the interlocutor is not sure of which of two elements the child referred to. So she clarifies the situation with a final assertion.

(62)  
Anne is playing with her dolls

*CHI:  wearing a dress.  (Anne 2;7)

*OBS:  wearing a dress?

*CHI:  xxx wearing a dress.

*OBS:  who’s wearing a dress <let me show> [/] let me see.

(63)  
*CHI:  0 go.  (Anne 2;6)

*NAN:  go.

*CHI:  +< what?

*NAN:  that’s there and this goes there.

In the second observation period, Anne also omits four referential subjects that are not accessible as in (64). In these cases, several referents (i.e. babies) have been introduced to the discourse and are therefore competing against each other. This leads to non-comprehensible utterances where the interlocutors are not sure of the baby being discussed.

(64)  
Anne, her nanny and the observer are playing with Anne's babies

   a. *CHI: need to sleep and finished baby.  (Anne 2;9)
   b. *CHI: (be)cause so tired, my baby.  (Anne 2;9)

Overtly realized subjects have different levels of accessibility. For both children, pronominal subjects largely correspond to referents that are known to the hearer and that have already been mentioned in previous discourse. They are maintained in the discourse by means of an uninformative referent. In shifting contexts, personal pronouns allow to identify a specific referent based on its genre and number. As for lexical subjects, they largely encode inaccessible referents that need to be introduced to the discourse. They are also used in shifting contexts in order to disambiguate referents. Finally the few occurrences of lexical subjects in maintenance contexts either correspond to the child’s need to mark some emphasis or can also be redundant.
Table 25 Discourse status of object omission in the bilingual data.

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<td>Anne</td>
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<tr>
<td>French</td>
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<td>2;6-2;9</td>
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Table 25 summarises the discourse functions of omitted, pronominal and lexical objects in the bilinguals’ English and French. As discussed previously, the children omit extremely few direct objects. In Sophie's English, object omission corresponds to pronominal objects referring to active referents. In (65), Sophie’s father is talking to her about a referent. In her reply, she omits this active referent.

(65) Sophie is playing playdough with her father
*CHI: Daddy I want to take this bit please.
*FAT: oh you want to put the gingerbread man <on it> // on here?
*CHI: okay.
*CHI: I put (it) under gingerman. (Sophie 2;7)

The same applies to Anne’s object omissions. As shown in examples (66-68), these omissions correspond to active referents that are part of the discourse.

(66) Anne is playing with her dolls
*CHI: please can I have that one because for other baby thank+you.
*CHI: other baby need it.
*CHI: that('s) for you Nanny.
*NAN: thank+you.
*CHI: make (one) for Coralie too. (Anne 2;9)

(67) Anne is feeding her babies
*CHI: yes he need a croissant. (Anne 2;9)
*CHI: so big that one I can't feed (him) because he got teeth.
*NAN: yeah he's got teeth to eat the food with.

(68) Anne and her nanny are playing with a ball.
*CHI: where it went? (Anne 3;1)
*NAN: I don't know maybe it went through the big hole.
*NAN: can you see the big hole?
*NAN: once in the hole it got stuck.
*CHI: maybe somebody throw (it) there and then only like that.

In French, Sophie omits highly accessible referents as in (69) in which Sophie asks the observer whether she wants more cake. Finally, there is no object omission in Anne’s French due to the little amount of object contexts available in this language.

(69) Sophie, her mother and the observer are playing tea-party
*CHI: Maman on mange là.
Mum we eat there
‘Mum, we eat now’
The results also indicate that lexical and pronominal forms largely encode direct objects. In these cases, the children use these grammatical forms in largely appropriate discourse contexts.

In sum, this analysis reveals that the bilingual children largely rely on discourse-pragmatics in the realization of arguments since the majority of subject and object omissions correspond to easily identifiable active referents. Nonetheless, there are also a small number of omissions that correspond to inactive referents. Finally, the children use appropriately pronominal and lexical forms with active and inactive or semi-active referents respectively.

Discussion

The present analysis has examined the role of verbal morphology, transitivity and discourse-pragmatics on the acquisition of argument realization. The present results do not support the existence of a relationship between the development of verbal morphology and the consistent overt realization of subjects. As in Serratrice (2002), the data contains a considerable number of overt subjects in RIs and finite contexts in English as a high number of overt subjects in both
contexts in French. There are two explanatory factors to these high rates of overt subjects in these contexts. The first account rests on the children’s need to disambiguate the referent (Serratrice, 2002). In English, verbal morphology is limited and does not provide a consistent and transparent verbal person-marking system. Although French has a richer verbal morphology, verbal inflections do not necessarily permit to disambiguate the different person/number forms in spoken French (e.g. je mange/ I eat vs. tu manges/you eat vs. ils mangent/they eat). Consequently, children may overtly realize subjects in RIs and finite contexts alike to mark person deixis (Serratrice, 2002). The second explanatory factor relies on recent research which indicates that the animacy of the referent affects children’s choice of referential expression (Serratrice, 2013b; Skarabela & Serratrice, 2009). Serratrice (2013b) showed that 5 year-old children are more likely to encode a referent with a proper name in presence of two animate entities even in absence of ambiguity (i.e. feminine and masculine characters). In contrast, they tend to encode referents with high accessibility markers (i.e. pronouns) in presence of an animate and an inanimate character. Therefore, children’s use of overt subjects in RIs and with finite verb forms may also be triggered by the need to overtly mark referents in presence of animate entities.

This study also provides some additional evidence from two non-null argument languages on the role of discourse-pragmatics on child early argument omission. First, children have proved to develop a sensitivity to Greenfield & Smith’s (1976) principle of informativeness whereby subjects typically correspond to highly identifiable referents and objects encode inactive referents. Children tend to restrict subject omission to transitive predicates. They thus realize the least accessible referent, i.e. the object, and omit the most accessible referent, i.e. the subject. Secondly, children omit predominantly highly accessible referents such as I and you but also non-referential pronouns. Nonetheless, they also omit a few inactive or semi-active referents which creates some ambiguity in the understanding of discourse.

4.3.4 General discussion

The aim of the present study was to explore the existence of a bilingual effect in naturalistic data. I investigated the expression of argument realization in
the longitudinal study of two French-English bilingual children and that of their French and English monolingual counterparts to assess whether bilingual children's early argument omissions were greater than that of monolingual children. The complementary aim of this study was to make a contribution to our understanding of the grammatical and discourse-pragmatic constraints that govern the acquisition of argument realization. Specifically, I explored the association between the development of verbal morphology and subject realization. I also considered the role of transitivity on subject realization and the role of referent accessibility on argument realization.

First, the findings confirm a number of well-known facts on the asymmetry between subject and object omission in child development. More interestingly, the crucial point is that the bilingual data does not provide any evidence of a delay in the acquisition of argument realization in French and in English. The bilingual children did not omit arguments to a greater extent than monolingual peers. In fact, the bilingual children's development is in line with that of French and English monolingual children. Contra to experimental findings (Pirvulescu et al., 2012), the longitudinal study of argument realization in context of French-English bilingualism does not confirm the existence of a bilingual effect.

Secondly, the results do not provide supportive evidence for the association between the development of verbal morphology and subject realization. Only Sophie initially omitted considerably more subjects with RIs than with finite predicates in English. In contrast, Anne initially omitted high rates of subjects with both RIs (e.g. he eat) and other non-inflected verb forms (e.g. I eat) in English. Finally, subject omissions were scarce in both Anne's and Sophie's second data point in English as well as throughout their French data. I interpret these results as an empirical contradiction to the literature on the development of subject realization in non-null argument languages, which reported a 17% residual of overt subjects with RIs (Hoekstra et al, 1996).

Finally, the data supports Allen's (2000) discourse-pragmatic account of argument realization. Transitivity seems to affect the realization of subjects. In English specifically, subject omissions were significantly more frequent with transitive predicates than with intransitive predicates and copulas. In French, only Anne's data showed such a significant association. The extremely small number of
subject omissions in Sophie’s French may potentially explain the absence of a significant association between subject omissions and transitive predicates in her French. Moreover, the data indicated that the bilingual children largely omitted subject and object arguments that were highly accessible, i.e. in discourse maintenance position. These results are in line with Serratrice et al.’s (2004) observation on English where children acquiring non-null argument languages prove to be sensitive to Du Bois’s (1987) Preferred Argument Structure in their acquisition of argument realization.

The bilingual effect

Recent experimental studies on the bilingual acquisition of subject and/or object realization in structurally similar languages (i.e. Italian-Spanish, French-English) reported that bilinguals accept non-target overt subject or/and omit object arguments in infelicitous contexts significantly more than their monolingual peers (Pirvulescu et al., 2012; Sorace et al., 2009). Relying on different theoretical accounts, these studies proposed that bilingual children’s delay in the development of argument realization in comparison to monolingual peers would be the consequence of a bilingual effect. My analysis of argument realization in the naturalistic data of two French-English children directly challenges these experimental studies. Contra to Pirvulescu et al.’s (2012) experimental evidence, the two French-English bilingual children did not omit more subjects and objects in their two languages than monolingual children. The bilingual children’s acquisition of argument realization is in line with that of their monolingual peers. Therefore, my data did not confirm the existence of a bilingual effect in the development of structurally similar constructions across the bilinguals’ two languages. In fact, the present results provide further empirical support to Hulk & Müller’s hypothesis that does not predict CLI at the interface between syntax and pragmatics in absence of structural overlap. Crucially, the findings call into question to what extent methodological issues can account for the differences between experimental and naturalistic studies on the existence of a bilingual effect. Pirvulescu (2006) pointed out an essential difference in the way experimental and naturalistic studies on object realization count object omission. While experimental studies only assess object omission in clitic contexts,
naturalistic studies consider object omission on the total number of obligatory contexts. Pirvulescu’s argument successfully account for the asymmetric rates of object omission between experimental and corpus studies on monolingual children, but it cannot explain why bilingual children omit more objects than monolinguals in an elicited production task and not in spontaneous production. Although it is expected to see smaller rates of object omission in naturalistic data, the reduced number of omissions should not prevent from observing a bilingual effect. Then, the diverging results for bilingual children must lie in other methodological differences. Pirvulescu et al.’s (2012) experimental results may reflect the relative difficulty for bilingual children to respond accurately in an elicited production task that involved successively their two languages. Moreover, the presence of pictures as a mean to elicit the children’s description may bias the need to overtly express this referent due to its highly accessible status (i.e. present on the picture). Overall, bilingual children who took part twice (i.e. French and English) in the same task, may have been more sensitive to the artificiality of the elicitation task than French monolingual children who only did the task once.

*Constraints on argument realization*

With regard to the constraints that affect the development of argument realization, a large body of research posited the existence of a relationship between the development of verbal inflection and that of subject realization (Hoekstra & Hyams, 1998; Valian, 1994; Van Der Veld et al., 2002). My bilingual data does not confirm such an association between null subjects and RIs and between overt subjects and finite verb forms. With the exception of Sophie’s first English data point, both Anne and Sophie used a high number of overt subjects in RIs and finite contexts alike in their two languages. These results support Serratrice’s (2002: 351) claim that children use overt subjects regardless of the finiteness status of the verb they appear with in English in order to mark “the pragmatic function of grammaticalizing the deitic category of person”. In English, verbal morphology is limited. Subjects are obligatory to mark person since there is no consistent and transparent verbal person-marking system. Although French has a richer verbal morphology than English, the same argument can be applied to the children’s use of overt subjects in French with both RIs and finite verb forms. In
spoken French, verbal morphology cannot disambiguate person marking in some contexts (e.g. singular forms). Therefore, it can be assumed that young children choose to grammaticalize the participant role by overtly expressing the subjects regardless of the finiteness status of the verb. Recent research indicates that the animacy of the referent affect the choice of referential expression (Serratrice, 2013b). Five year-old children tended to encode referents with low accessibility markers in presence of two animate entities even in absence of ambiguity (i.e. feminine vs. masculine). Consequently, we can assume that children's use of overt subjects in RIs and with finite verb forms may also be generated by the need to overtly mark referents in presence of animate entities.

Finally, the analysis of the relationship between the informativeness status of discourse referents and argument realization did show that both French and English subject and object realizations are constrained by discourse-pragmatics. Both Sophie and Anne mainly omitted subjects and objects corresponding to highly accessible referents in discourse maintenance position. These findings support Allen’s (2000) discourse pragmatic approach of the acquisition of argument realization. This hypothesis was developed on research involving null argument languages (Clancy, 1993: Korean; Allen, 1997: Inuktitut). In a study on an Italian-English bilingual child, Serratrice et al. (2004) demonstrated that the discourse-pragmatic approach predicts argument realization in null-subject languages such as Italian as well as in non-null subject languages such as English. The present findings provide additional evidence supporting a discourse-pragmatic approach of argument realization in non-null argument languages. The informativeness status of discourse referents is a reliable predictor of argument realization. Moreover, it also explains satisfactorily the well-known asymmetry in the realization of subject and object arguments (Allen, 1997). Finally, the present findings also indicate that the French-English children displayed a sensitivity to Du Bois (1987) Preferred Argument Structure whereby subjects of transitive predicates are more likely to be omitted and subjects of intransitive predicates to be overtly realized. The French-English children omitted significantly more subjects of transitive verbs than subjects of intransitive predicates and copulas. This implies that the children chose in presence of transitive predicates to omit the most accessible referent, i.e. the subject, and realize the least identifiable referent,
i.e. the object, from the early stages of language development. In conclusion, the data provides additional empirical support to children's early sensitivity to Greenfield & Smith's (1976) principle of informativeness.

Summary & conclusion

The longitudinal study of the simultaneous acquisition of two non-null argument languages such as French and English confirms the asymmetry between subject and object omission in child development. More importantly, it challenges the existence of a bilingual effect and questions to what extent methodological issues can account for the differences between experimental and naturalistic studies. In addition, the present analysis provides some additional empirical support to Allen's (2000) discourse-pragmatic approach to the acquisition of argument realization. It also contradicts earlier studies on non-null argument languages that claimed an association between the development of verbal inflection and subject realization.
5 A Global Marker: dislocations

The present study examines the acquisition of dislocations in the longitudinal corpus of two French-English bilingual children. Dislocations correspond to utterances that contain an element on the left or/and on the right periphery of the main clause (e.g. Il est bon, ce chocolat/it is good, this chocolate). They are attested in a range of typologically unrelated natural languages including French and English (Italian: Cinque, 1977; English: Geluykens, 1992; French: Lambrecht, 1981; Pekarek-Doehler, De Stefani, & Horlacher, 2011; Catalan: Vallduví, 1994; Dutch and Icelandic: Zaenen, 1997). However, a range of cross-linguistic differences exists with regard to their frequency, nature of dislocated and resumptive elements as well as discourse functions.

The core issue under investigation here is that of possible CLI in the use of dislocations in context of French-English bilingualism. In both languages, this construction marks topicality. However, two fundamental cross-linguistic differences indicate that dislocations are ideal candidates for CLI. First, French relies heavily on dislocations to mark topicality and is the most ‘dislocating’ language among Romance languages (Blanche-Benveniste, 2006: 477). In contrast, topics are predominantly encoded by canonical SVO order in English (Geluykens, 1992; Lambrecht, 2001). Despite the existence of dislocations in French and English, topics are largely encoded in language-specific ways in the two languages. The second distinction concerns the distribution of dislocations. French allows a substantially greater variety of dislocated and resumptive elements as well as discourse functions than English (Barnes, 1985; Delais-Roussarie, Doetjes, & Sleeman, 2004; Donaldson, 2011a; Ochs-Keenan & Schieffelin, 1976a). In other words, dislocations are syntactically and pragmatically less constrained in French than in English.

The aims of the present study are (i) to document French-English bilingual children's acquisition of dislocations (i.e. rate of acquisition, nature of dislocated and resumptive elements, discourse functions) as well as that of their monolingual peers; and (ii) to assess the vulnerability to CLI of a syntactic construction that involves the syntax-pragmatics interface.
Section 5.1 provides a detailed overview of the literature on dislocations in French and English. After defining these constructions, specific emphasis is drawn to their discourse functions. Section 5.1.5 provides an account of dislocations from a developmental perspective. Then, section 5.2 presents the results of the present investigation. It provides a detailed account of French-English bilingual children’s use of dislocations in their two languages as well as examines the role of children’s language internal and language external (i.e. language dominance, input) variables on the issue of CLI.

5.1 Dislocations

5.1.1 What is a dislocation?

5.1.1.1 Definition

Typically, a dislocation\(^7\) comprises a main clause and a dislocated element that is resumed by an element within the clause. The dislocated element is either assigned to the left or to the right periphery of the main clause. In (70.a), the names ‘Granny and Pappy’ are co-referential with the resumptive pronouns ‘they’ in subject position\(^8\). In (70.b), the DP ‘le hérisson’ is placed on the left of the main clause and is co-indexed with the resumptive clitic ‘le’ in object position. In left dislocations (LDs), the resumptive element is anaphoric whereas the resumptive element is a cataphoric pronoun in right dislocations (RDs).

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\(^7\) While I use the term dislocation to refer to any utterance containing either an element on the left or on the right periphery of a main clause, syntacticians have in fact identified several forms of dislocation: (i) Clitic Left Dislocation (ClLD); (ii) Hanging Topic Left Dislocation (HTLD) (Cinque 1990). With regard to ClLD and HTLD, I follow De Cat (2002) and treat them on a par (see De Cat 2002: 100-110 for discussion). Delais-Roussarie et al. (2004) posited that this syntactic distinction does not affect their pragmatics and prosody. I also include English Topicalizations in the present analysis. Topicalizations differ from LDs in that (i) they are not resumed within the clause; (ii) the preposed element cannot be omitted. Despite these differences, Prince (1984) argued that they are ‘cognitively synonymous’. Moreover, other researchers have treated English topicalization as parallel to French LDs (Pérez-Leroux, et al. 2011).

\(^8\) Subscript letters as in example (70) indicate coreferential elements throughout the thesis.
Lambrecht (2001: 1050) proposed four criteria that characterise this construction: (i) the extra-clausal position of the dislocated element; (ii) the possibility of re-integrating the dislocated element within the main clause; (iii) the existence of a resumptive pronoun within the main clause; (iv) a specific prosody. The presence of a peripheral detached element would be in itself a sufficient criterion to identify a dislocation construction. Nonetheless, Lambrecht suggested that this condition should be paired with at least one of the three other additional criteria. Another core characteristic of dislocations is that the dislocated element can be omitted without changing the grammaticality of the sentence as illustrated in (71) and (72).

(71)  a. Ça, c’est son pique-nique. (Emilie, S)
     this it is her picnic
     ‘this is her picnic.’
     b. C’est son pique-nique.
     it is her picnic
     ‘It is her picnic.’

(72)  a. C’est plein de poussière, ce truc.
     It is full of dust, this thing.
     ‘This is full of dust.’
     b. C’est plein de poussière.
     it is full of dust
     ‘This is full of dust.’

Dislocations have the same semantic structure as their canonical counterparts (Lambrecht 2001: 1051). They generally appear in informal spoken discourse; but they can also be observed in written discourse in order to create a stylistic effect as in (73).

(73)  a. L’or noir, nous en sommes devenus esclaves.
     the gold black we of-it are become slaves
     ‘Black gold, we have become its slaves.’ (Musso, 2013: 70)
     b. Coca Cola vanille, it’s back. (advert on London buses, Spring 2013)
This construction obligatorily performs a discourse function. Dislocations either mark topicality, express a judgement on the predication, or contribute to the logical organisation of the discourse (De Cat, 2002: 193).

5.1.1.2 Theoretical accounts

A core theoretical question has been to establish whether the relationship between the dislocated element and its resumptive pronoun is governed by grammatical or discourse properties (Blanche-Benveniste, 2006; Kayne, 1975; Quirk, Greenbaum, Leech, & Svartvik, 1985; Rodman, 1997). Consequently, thorough investigations on a number of language pairs have examined the syntactic (Blasco-Dulbecco, 1999; Cinque, 1977), pragmatic (Barnes, 1985; Geluykens, 1992; Lambrecht, 1994; Ziv, 1994) and prosodic (Ashby, 1994; Avanzi, 2011; Geluykens, 1992) aspects of dislocations.

Within the transformational framework, the dislocated element was analysed as being moved from its canonical position (Kayne, 1979; Ross, 1967). In approaches against a movement analysis, the proposal was that the dislocated element is not necessarily syntactically resumed within the predicate (Gundel, 1977; Hirschbühler, 1975). Instead, the resumptive and the dislocated element would be base-generated in a clause-peripheral position. Cinque (1977, 1990, 1997) distinguished two types of dislocations. A majority of dislocations would be ruled by movement. That is, the resumptive element would be a pronominal copy of the dislocated element as in (74.a). Other dislocations would be base-generated as in (74.b) in which the anaphoric element ‘cet idiot’ is not a pronominal copy of the dislocated element. Cinque (1977) argued that this resumptive element is coreferential with an NP in the previous context. Hence, it is directly generated in the position where it appears in surface structure.

(74) a. (De) mes fils, j’en suis fier. (Cinque, 1977: 398)
   (Of) my sons, I of-them am proud
   ‘I am proud of my sons’

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9 The prosodic characteristics and analysis of dislocations is well beyond the scope of this study and is therefore not discussed in this thesis. Readers are referred to Avanzi (2011) for an overview on French and to Geluykens (1992) for English.
Functional researchers have described dislocations in terms of discourse-pragmatics (i.e. topic-comment structures) (Barnes, 1985; Geluykens, 1992; Givon, 1990; Lambrecht, 1981; Prince, 1998). The functionalists’ hypothesis rests on the fact that dislocations are at the interface between syntax and discourse-pragmatics. Dislocated elements are identifiable and active referents. Ward (1988) posited that dislocated elements must be related via a salient partially ordered set of relation to one or more entities already evoked in the discourse. Most dislocations are topic-announcing; the dislocated element frequently corresponds to the topic which is adjoined to a clause about that topic (Halliday, 1967; Lambrecht, 1994; Reinhart, 1981). At the syntactic level, “the aboutness requirement is usually met by the resumptive element, but in some languages a weaker, purely semantic form of aboutness apparently suffices as in French” (Van Riemsdijk, 1997: 2). When topics are not expressed with a weak pronoun, they are obligatory dislocated in spoken French (De Cat, 2007, 2011; Lambrecht, 1994). Some dislocations do not encode topicality. They correspond to instances of dislocated adverbs and are sentence modifiers (De Cat 2002).

Within the communicative framework (i.e. focussing on the speakers’ intentions and interactions), dislocations are observed as a construction in which syntax, information structure and turn-taking interact (Pekarek-Doelher, 2001: 192). Dislocations are a turn-taking device and correspond to what the speakers intend to expand their knowledge about (Apothéloz & Pekarek Doehler, 2003; Horlacher, 2012; Pekarek-Doehler et al., 2011).

### 5.1.2 What gets dislocated?

#### 5.1.2.1 Quantitative facts about dislocations

The current literature provides thorough quantitative analysis on dislocation constructions in French, but little information is available on their distribution in English. In French, about 20% to 25% of utterances contain a dislocated element (De Cat, 2002). Dislocations occur mainly in root clauses (95%)
and also in dependent clauses (De Cat, 2002). Typically, one referent is dislocated (80%) but up to four dislocated elements have been identified in the same sentence (De Cat, 2002). When multiple elements are dislocated, they can either be placed on the left periphery as in (75.a), on the right periphery as in (75.b) or on both sides as in (75.c).

(75) a. Ça, les craies, ça va pas là dedans. (Claire, A)
   this, the chalks, it go not there inside
   ‘These chalks do not go in there.’

   b. Il en a plein, Kaloo, il en des cadeaux. (Claire, A)
   he of-them has a lot Kaloo, some presents
   ‘Kaloo has a lot of presents.’

   c. Et toi, tu vas te mettre là-bas, Sophie et Maman va se mettre ici.
   and you you will you put there Sophie and Mum will her put here
   ‘Sophie you're going to stand there and Mummy will stand there.’
   (Emilie, S)

In addition, these multiple dislocated elements can either refer to the same element as in (75.a) in which the demonstrative ‘ça’ and the DP ‘les craies’ refer to the same element. But these dislocated elements can also correspond to different entities as in (75.b) in which ‘Kaloo’ is coreferential with the resumptive subject clitic ‘il’ and ‘des cadeaux’ is co-indexed with the pronoun ‘en’. Contrary to Larsson (1979), De Cat (2002) did not observe a strict pattern in the ordering of dislocated elements. As illustrated in (76), (75.b) could have been produced either as one of the following options without changing the meaning or the grammaticality of the utterance. So, the order dislocated element appears in is not governed by the nature of the resumptive element within the clause. Nonetheless, Vion (1992) and De Cat (2002) pointed out that certain orders prevail despite these multiple possibilities. In Vion (1992), the S(V)O order predominates whereas in De Cat (2002) the SV and SO orders are the most common.

(76) a. Kaloo, il en a plein, des cadeaux.
   Kaloo he of-them has a lot some presents
   ‘Kaloo has a lot of presents.’

   b. Des cadeaux, il en a plein, Kaloo.
   some presents he of-them has a lot Kaloo
   ‘Kaloo has a lot of presents.’
c. Kaloo, des cadeaux, il en a plein.  
Kallo some presents he of-them has a-lot  
'Kallo has a lot of presents.'

d. Des cadeaux, Kaloo, il en a plein.  
some presents Kaloo he of-them has a-lot  
'Kallo has a lot of presents.'

e. Il en a plein, des cadeaux, Kaloo.  
he of-them has a-lot some presents Kaloo  
'Kallo has a lot of presents.'

Left dislocations occur twice as frequently as right dislocations in declarative clauses in adult speech (Blasco-Dulbecco, 1999; De Cat, 2002). With regard to the distribution of dislocations, most dislocations are co-indexed with the subject (77% LDs; 66% RDs) followed by direct object (9% LDs; 16% RDs) and indirect objects (5% LDs; 7% RDs) (Blasco-Dulbecco, 1999: 89). De Cat also observed that dislocated elements are typically co-referential with the subject (65%). However her analysis differs from Blasco-Dulbecco’s as she observed that 14% of dislocated elements do not have a grammatical function within the clause (e.g. Maman, ça a l’air d’aller, oui/Mum seems okay), followed by 12% clause modifiers and 8% object arguments (De Cat 2007: 230-234).

In English, the literature does not provide much quantitative facts about dislocations. Gregory & Michaelis (2001) observed 364 left-dislocations out of 32,805 utterances in the Switchboard Telephone Speech Corpus which consists of telephone conversations between unacquainted adults (both male and female) of varying ages and dialects (Godfrey, Holliman, & McDaniel, 1992). Geluykens (1992) reported that his spoken/conversational data contains about 2 dislocations per 5,000 words. These findings suggest that LDs occur in about 1% of utterances produced in English spontaneous speech. Research on RDs does not provide any detail about their proportion (Gregory & Michaelis, 2001; Ward & Birner, 1996). The strong discrepancy in the number of studies on LDs and RDs suggest that LDs are largely more frequent than RDs. Finally, Snider & Zaenen (2006) provide some details on the distribution of dislocations. They pointed out that 69.5% of left-dislocated elements are co-referential with the subject in the Switchboard Telephone Speech corpus. But, no other detailed analysis on the distribution of this construction is to my knowledge currently available in the literature.
5.1.2.2 Grammatical categories of dislocated elements

A variety of elements can be dislocated. When reference is specific, only definite referring expressions and pronouns may be dislocated. In French, when the reference is non-specific, an indefinite may be dislocated but it will have to be resumed by a demonstrative pronoun as in (77) (Hickmann, 2003). This is not the case in English as illustrated in (78) in which an indefinite NP introduces a new referent which is resumed by the DP ‘his wife’.

(77) Oui mais oh je sais plus, un youkoulele, ci' est pas ça? 
Yes but oh I know anymore a youkoulele it is not that
Yes, but I don't remember whether this is a youkoulele.  (Claire, A)

(78) '...there won’t be any dead up there. There’ll just be tombstones setting there. Because the coal is under the graves. An old preacher down there, they augered under the grave where his wife was buried. And he’s nearly blind and he prayed and everything.' (Ward & Prince, 1991: 4)

In French, various elements such as noun phrases (e.g. les papillons/the butterflies), proper nouns, demonstratives (e.g. ça/this, celui-là/that one), adjectives (e.g. bruyant/noisy), strong pronouns (e.g. moi/me; lui/him), adverbs (e.g. maintenant/now), prepositional phrases (e.g. à la maison/at home) and temporal adjuncts (e.g. ce matin/this morning) can be dislocated. Blasco-Dulbecco (1999) reported that 33% LDs are pronominal against 38% lexical elements. In RDs, pronouns (35%) are dislocated in similar proportion as lexical elements (34%). Adjectives are typically absent from RDs (Hörlacher, 2012). Demonstratives and proper names are also right-dislocated. Some NPs are modified by a relative clause as in (79.a). Indefinite (79.a) and quantifiers (79.b) are rare and never appear with existential reading (De Cat, 2002). Finally, prepositional phrases are dislocated less frequently than NPs and pronouns but they do occur on both peripheries.

(79) a. Et, c’est bizarre, çà, une voiture qui a une casquette.
and it is weird that a car that has a cap
‘Eh that’s weird, a car with a cap.’ (De Cat, 2002: 87)

b. Tout le monde, le soir de la fête, on était tous fatigués.
all the people the evening of the party we were all tired
‘We were all tired on the night of the party.’ (De Cat, 2002: 87)
In English, a close examination of the examples cited in relevant studies suggests that a maximum of two elements can be dislocated in the same utterance as in (80.a-b) (Geluykens, 1992; Ochs-Keenan & Schieffelin, 1976a; Ward & Prince, 1991). Noun phrases are the most frequent dislocated element (Geluykens, 1992; Lambrecht, 2001). They are mainly co-referential with the subject (81.a) and to a lesser extent with the object (81.b).

(80)  
a. My father\textsubscript{i}, he\textsubscript{i}'s Armenian, and my mother\textsubscript{j}, she\textsubscript{j}'s Greek. (Prince, 1997: 2)  
b. John\textsubscript{k}, a doctor\textsubscript{k}, I don't believe it\textsubscript{k}. (Lambrecht, 2001: 1061)  

(81)  
a. She\textsubscript{l}'s a smart cookie, that Diana\textsubscript{l}. (Ward & Birner, 1996)  
b. Well this one book\textsubscript{m}, I read it\textsubscript{m} when I was a kid. (Prince, 1984)

Other types of constituents such as proper nouns (82.a), 1\textsuperscript{st} person pronouns (82.b), prepositional phrases (82.c), gerundial forms (82.d) and infinitival clauses (82.e) can be dislocated. First person pronouns are rarely dislocated; speakers usually create a particular effect (e.g. contrast, emphasis) by stressing the personal pronoun rather than using a dislocation (Ochs-Keenan & Schieffelin, 1976a).

(82)  
a. Steve\textsubscript{i}, he\textsubscript{i} likes beans. (Geluykens, 1992: 20)  
b. Me\textsubscript{j}, I\textsubscript{j} usually end up giving them their stupid incompletes (Prince, 1997)  
c. In this cupboard\textsubscript{l}, Steve put the beans there\textsubscript{l}. (Geluykens, 1992: 20)  
d. Eating beans\textsubscript{m}, Steve likes that\textsubscript{m}. (Geluykens, 1992: 21)  
e. To eat beans\textsubscript{m}, Steve likes that\textsubscript{m}. (Geluykens, 1992: 21)

Demonstratives may be dislocated (83.a), quantitative adjuncts (83.b), locative adjuncts (83.c) and clauses (83.d). Geluykens (1992: 34-35) observed that NPs, PPs and gerunds represent 105/117 LDs in his data. Only 12/117 LDs correspond to a subclause.

(83)  
a. It's not bad, that cake\textsubscript{i}. (Notley et al., 2007: 234)  
b. No, I don't think. I think we're going the opposite direction. It's the parochial schools that I guess many ti-, they've had uniforms for years, I don't really know if they still do. Some of them\textsubscript{b}, yes they\textsubscript{b} do and it's not. (Gregory et al., 2001: 1699)  
c. Well, our house in New Mexico\textsubscript{k}, it\textsubscript{k} was stucco. (Gregory et al., 2001: 1689)
d. You never know, but that, the guy that's taken over for Gorbachev, he's supposed to be on our side, isn't he? (Gregory et al., 2001: 1686)

In sum, the morpho-syntactic nature of dislocated elements are to a certain extent comparable between French and English (Barnes, 1985). Nonetheless, French permits a slightly larger variety of dislocated categories including expressions at the subphrasal level (Lambrecht, 2001: 1061).

5.1.2.3 Nature of resumptive elements

Left and right dislocated elements are co-indexed with a variety of grammatical elements. In French, resumptive subjects correspond to clitics such as ‘elle’ (84.a) or ‘c’ (84.b). In object position, they correspond to object clitics such as ‘l’ (84.c) (LDs 8.96%; RD 15.65%), or indirect object clitic such as ‘me’, ‘lui’, ‘y’ (84.d) (LDs 4.93%; RDs 7.32%), locatives (LDs 2.57%; RDs 1.26%) as in (84.e) or prepositional complement in ‘en’ (84.f) (LDs 1.90%; RD 3.03%) (Blasco-Dulbecco 1999: 86-90).

(84)  

a. Elle, est un peu petite, cette robe.  
she is a bit little this dress  
‘This dress is a bit small.’

b. Qu’est-ce que c’est, ça?  
what is it that it is that  
‘What is that?’

c. Va falloir l’emmener à l’hôpital, le bébé.  
will need him take to the hospital the baby  
‘We’ll need to bring him to the hospital, the baby?’

d. J’y pense, à dormir.  
I of-it think to sleep  
‘I’m thinking of sleeping.’

e. Il y en a, là.  
it there of-it has there  
‘There is some there.’

f. Je crois qu’on en a qu’une, banane, Sophie.  
I think that we of-them have that one banana Sophie  
‘I think we have only one banana Sophie.’

In English, resumptive subjects correspond to nominative pronouns (85.a-b) or to demonstrative pronouns (85.c) whereas in object position they are
accusative pronouns (86.a-b). Dislocated gerund and infinitival phrases are resumed by demonstrative pronouns.

(85)  
| a.  It’s all washed, that one.  | (Sophie 2;8) |
| b.  Paulin, he’s not well.   | (Sophie 3;4) |
| c.  That’s her(s), that one.  | (Anne 2;10) |

(86)  
| a.  I will make it, the dinner. | (Anne 2;11) |
| b.  Nana gave it to me, my baby. | (Anne 3;4) |

5.1.2.4 Agreement between dislocated element and resumptive element

While the dislocated element and its resumptive element often agree in number and gender, this is not consistently the case when the resumptive pronoun is in subject position in French. Cornish (1986: 241) argued that dislocations need “to show gender agreement with their textual antecedent rather than with the head noun of the NP figuring in the conceptual representation of their discourse referent”. He further posited that syntactic agreement with the textual ‘antecedent’ would occur more frequently with RDs than with LDs due to the greater degree of independence that topics (i.e. LDs) exhibit with regard to the predication (Cornish, 1986: 243). Lack of number agreement (87.a-b) would be more frequent than lack of gender agreement (87.c-d) (Blasco-Dulbecco, 1999: 99)

(87)  
| a.  Les doctorants, on travaille beaucoup.  | the PhD students we work a lot. |
| b.  Ils sont inefficaces, l’administration.  | they are inefficient the administration |
| c.  Les familles, ils ont peur, les familles. | the families, they are afraid, the families |
| d.  Les vieilles femmes, ils sont avec la belle-mère, les deux garçons, ils sont avec le beau-frère.  | the old women they are with the mother-in-law the two boys they are with the brother-in-law |

Lack of agreement between the dislocated and the resumptive elements would occur less frequently in right dislocation. This might be explained by the fact
that RDs are typically marked for their case role with respect to the verb (Lambrecht, 1981: 79). The absence of agreement between the two co-indexed elements might be related to the semantic properties of the dislocated and resumptive elements (Blasco-Dulbecco, 1999:104). This phenomenon typically occurs with NPs referring to a group or an entity which can easily entail other elements as in a village and its inhabitants. So this absence of agreement is generally linked to a group-entities relationship.

To my knowledge, the literature on English does not tackle this issue. Moreover, the resumptive pronouns agree in number and genre with the dislocated elements in all of the examples cited in studies on dislocations in English.

5.1.2.5 Absence of resumptive elements

Although, resumptive elements typically resume the dislocated subjects or objects within the main clause, this is not necessarily always the case in French, especially for elements that are not traditionally regarded as topics but that are typically dislocated (De Cat, 2002: 79). First, the resumptive element can be present in the adjoined clause rather than in the main clause. In (88), the dislocated element ‘les enfants’ is coreferential with the clitic subject ‘ils’ in the subordinate clause.

(88) Les enfants, (il) vaut mieux qu’ils partent à un pas xx +//.
    the kids 0 is worth better that they go at one not (??)
    ‘It’s better that the kids go to (??).’

In most cases, the absence of a resumptive element is due to the non-association of the dislocated element with an argument of the verb as in locative modifiers (89.a), clause modifiers (89.b), infinitival clause (89.c) temporal adjuncts (89.d) and sentence adverbs (89.e) among others (De Cat, 2002: 79-80). Adverbs as in (85.d) are analysed as dislocated in French. Dislocated adverbs convey different meanings from adverbs in canonical sentences. Such an interpretation contrasts with English where utterances like (89.d) would be typically interpreted as an example of non-canonical syntax.

(89) a. Oui juste à côté, c’est vert.
    yes just to side it is green
    ‘Yes just next to it, it’s green.’
b. Malgré mon rhume, je sens (que) ça sent bon. (De Cat, 2002: 80)  
Despite my cold I smell (that) it smells nice  
‘Even with my cold, I can smell it smells nice.’

c. Bon décidément, Léa, tu ne penses qu’à ça, toi, faire une queue  
Well decidedly Léa you NEG think only to that you to-do a tail  
‘Really, Lea, you can’t think about anything except making a tail.’  
(De Cat 2002: 80)

d. Maintenant, tu flottes. (De Cat, 2002: 79)  
Now you float  
‘Now you (can) float.’

e. Et alors, tu as joué avec Marine et madame Ghislaine, alors?  
And so you have played with Marine and Mrs Ghislaine, so  
‘So, you played with Marine and Mrs Ghislaine, then.’ (De Cat, 2002: 80)

The absence of a resumptive element can also express a generic reading as in (90.a-b). Contrastive reading is also possible in the absence of resumptive elements as in (90.c-d).

(90)  a. Tu aimes bien, les colliers. (De Cat, 2002: 80)  
you like well necklaces  
‘Do you like necklaces?’

b. Le jus de fruit aussi, j’aime bien. (De Cat, 2002: 80)  
the juice of fruit too I like well  
‘I like fruit juice too.’

c. Non non, ça, tu laisses comme ça. (De Cat, 2002: 81)  
no no that you leave like that  
‘No, that one, you leave like that.’

d. Alors, la soupe de poisson, on va mettre là. (De Cat, 2002: 81)  
so the soup of fish one will put there  
‘And then, the fish soup, shall we put it there?’

The absence of a resumptive element may also be related to the omission of an embedded clause as in (91.a); or it may also mark the dislocated element as a topic of the sentence where the object clitic is omitted (91.b). Finally, it can also be due to the phenomenon of Hanging Topics where the dislocated element is only broadly connected to the sentence as in (91.c) (see Rodman, 1997).

(91)  a. Ah oui, Luc, c’est normal. (De Cat, 2002: 82)  
ah yes Luc it is normal  
‘Oh yes, it’s normal (that) Luc (should be like that).
b. Tu ne sauras pas écrire, ça. (De Cat, 2002: 81)  
you NEG will-know not to-write that  
‘You won’t be able to write that.’

c. Maman, ça a l’air d’aller, oui. (De Cat, 2002: 82)  
mummy it has the air to go yes  
‘As for Mum, things seems to be going ok.’

In English, dislocations have to be resumed by an element within the main clause. Preposed elements that are not co-indexed with a resumptive element correspond to topicalizations as in (92.a). The corresponding left-dislocation construction (92.b) would not be acceptable (see Prince 1981, 1998 for thorough overview).

(92)    
   a. This one, you’ve washed,, haven’t you? (Thomas, S)  
   b. # This one,, you’ve washed it,, haven’t you?  

In sum, the literature highlights several key facts on the cross-linguistic differences in the use and morpho-syntactic characteristics of dislocations in French and English. First, French relies considerably more on dislocations to express topicality than English (25% vs. 1%) (De Cat, 2002; Blasco-Dulbecco, 1999; Gregory & Michaelis, 2001). Secondly, dislocated elements occur either to the left or right periphery of the main clause in both languages. With regard to the morphosyntactic nature of dislocated elements, mainly NPs are dislocated in English while both pronouns and NPs correspond to the largest categories of dislocated elements in French (Barnes, 1985, Blasco-Dulbecco, 1999, Snider & Zaenen, 2006). In addition, French allows expressions at the subphrasal level to be dislocated (Lambrecht, 2001). In both languages, dislocated elements are predominantly associated with the subject of the main clause. But they have to be resumed within the main clause only in English (Prince, 1981, 1998; De Cat, 2002).

5.1.3 What are the discourse functions of dislocations?

Dislocations are governed by discourse-pragmatics and correspond to the topic of the sentence. Building on this fundamental point, researchers have posited the existence of a variety of discourse functions governing the use of left and right dislocations (Apothéloz, 1997; Ashby, 1988; Barnes, 1985; Cornish, 1986;

5.1.3.1 Left dislocations

The present overview is mainly based on two dated but still relevant and extremely detailed account of the discourse functions of LDs (Barnes, 1985: French; Ochs-Keenan & Schiefflin, 1976: English). Table 26 provides a summary of the discourse functions that have been attributed to LDs in the previous literature.

<table>
<thead>
<tr>
<th>Discourse functions</th>
<th>French</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduce a new topic</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2. Contrast</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3. Maintain topics</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Switch topics</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>5. Clarify topics/afterthought</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6. Pointer role, i.e. direct the attention to an object present in the extra linguistics</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>7. Illustrate a topic, i.e. provide new information about it</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>8. Emphasise</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

LDs have comparable discourse functions in French and English. However, there is one crucial difference. In French, LDs mark given entities in Larsson’s (1979) sense, i.e. the referent must be familiar and easily accessible to the interlocutor. That is, dislocated elements have to be hearer-old but not necessarily discourse-old as in (93). In this example, E assumes that her friends C and M know that she passed Latin at the baccalauréat. Therefore, she introduces this new topic by means of a LD.

(93) speakers are talking about the different parts of their baccalauréat exams; C. has just recounted how poorly she performed in English

E: Non, la philo aussi, c’ était. 
    no the philosophy too it was
    ‘No, philosophy too, it was’.
C: La philo, c’était bon.
  the philosophy it was good (Barnes, 1985: 68-69)
  ‘Philosophy was good’.

E: C’était bon, hein!
  it was good
  ‘It went well, didn’t it?’

M: C’était
  it was
  ‘It went’.

C: Ma meilleur note!
  My best mark
  ‘My highest mark’.

M: C’était plutôt le grand sujet. J’prenais (pas)
  it was rather the big topic I took (not)
  ‘It was the big topic. I didn’t take’.

E: Le latin, ça a pas été terrible, hein!
  the latin that has not been terrific
  ‘Latin went very badly’.

In contrast, LDs can introduce discourse-new referents that can also be hearer-new in English as in (94). In this example, the dislocated proper name ‘Pat McGee’ is part of the new information introduced to the discourse. This new element is introduced by mean of a dislocation without the speaker knowing whether this element is hearer new or not. LDs can also introduce referents that are known to the hearer but discourse-new. In (95), the dislocated element ‘his car’ refers to new information providing an explanation to Tom’s psychological state. It is taken for granted that the addressee knows about Tom having a car.

(94)  Pat McGee, I don’t know if you know him. He lives in Palisades [...].
  (Ochs-Keenan & Schieffelin, 1976b: 381)

  B: His car, it broke down and he’s depressed.

Creating a topical contrast is an essential discourse function of French and English LDs (Lambrecht, 1981; Barnes, 1985; Ochs-Keenan & Schieffelin, 1976; Galambos, 1980; Geluykens, 1992). In both (96) and (97), there is a clear opposition between two referents. In (96), the dislocated elements ‘nous’ and ‘eux’ oppose the French cafés from the American fast foods. In (97), the speaker is talking about his impression on two paintings. The LD element ‘this other one’ contrast the painting the speaker likes from the one he does not.
(96)  [...] oui nous, c’est les cafés, eux, c’est les fast foods.
yes us it is the cafés them it is the fastfoods
‘Yes WE have cafés when THEY have fastfoods’. (Barnes, 1985: 18)

(97)  Discourse topic: selecting paintings from a collection
yes mhm I can’t get away from it. But this, I really like. This other one,
by contrast, it’s I’m not sure what it is. (Geluykens, 1992: 86)

The switching function corresponds to cases in which several referents
have been mentioned in the prior discourse. The speaker uses a LD to signal that a
discourse old element becomes the topic. For instance in (98), the pronoun ‘moi’
marks the re-introduction of the speaker as the topic.

(98)  C. recounted earlier her experience in the high-jump at the
baccalauréat, after which M. recounted her experiences of the shotput
and high-jump. C. now resumes her account (Barnes, 1985: 38)

Alors moi, finalement, j’suis partie, j’suis partie la première du
So me finally I am gone I am gone the first-one-of-the
truc. J’avais toute mon après-midi de libre.
thing I had all my afternoon free

‘So in the end, I left the first from this thing. I got my afternoon free.’

This function also applies to English. In (99), the first mention of the ‘red
sweater’ is followed by a series of other type of sweaters. Consequently, the
speaker uses a LD to disambiguate this referent from the others in order to signal
that it is the topic of the sentence ‘I haven’t seen it since I got it’. This function can
also be signalled by the use of an unstressed phrase such as ‘as for’, ‘as far as’
which retrieve earlier discourse materials (Ochs-Keenan & Schiefflin, 1976: 381).

(99)  K: An’ I got a red sweater, an’ a white one, an’ a blue one, an’ a yellow
one, an’ a couple other sweaters, you know, And uh my sister loves
borrowing my sweaters because they’re pullovers, you know, an’ she
c’n wear a blouse under ‘em an’ she thinks “well this is great”.
K: An’ so my red sweater, I haven’t seen it, since I got it. (Ochs-
Keenan & Schieffelin, 1976a: 243)

In French, LDs also introduce objects present in the immediate extra-
linguistic environment. They have a pointer role as such utterances direct the
addressee’s attention to this object. Barnes (1985) specified that the pointer role
function is more often fulfilled by means of a RD than a LD. In (100), the speaker is
talking about her cooking lessons. She points to a menu to direct her interlocutor's attention towards this object. The pointer role function is accompanied by a gesture or an eye gaze that guides the addressee to look at a specific referent present in the extra linguistic. This discourse function is not mentioned in the literature on English LDs.

(100) Alors ça, c'est mon menu international. (Barnes, 1985: 47)

so this it is my menu international

'So THIS is my international menu'.

The function of illustrating one's point is present in both English and French (Ochs-Keenan & Schieffelin 1976; Barnes 1985). The main clause provides some new information as in (101) or illustrates the dislocated element as in (102). In (101), the speaker explains the utility purpose of their guests' bedroom. In (102), the speaker illustrates her point of view by providing an example supporting her case. The speaker does so by introducing the referent "my little sister" and telling information about how her mother dealt with her sister.

(101) […] nous la chambre d'invités, c'est la chambre où il y a le bureau, la chambre de travail. (Barnes, 1985: 34)

study the bedroom of work

'Our guests’ bedroom is also the study. It's a working space'.

(102) Well my parents are different. It isn’t my parents that do it to me, cause my mother, like my little sister, she, had a party. So she says to the girls, "Just don't get pregnant". (Ochs-Keenan & Schieffelin, 1976a: 245)

The last function of LDs is to emphasise the topic (Barnes, 1985; Ochs-Keenan & Schieffelin, 1976). While this function would be one of the principal function of LDs in French, it would be rare in English (i.e. only 6.6% of LDs in Ochs-Keenan & Schieffelin 1976: 245-246). It corresponds to the foregrounding of the left dislocated topic. In (103), the LD marks an emphasis on the fact that M chooses her friends.
(103) M. has just recounted a story about a friend upsetting a merchant’s goods in the street (Barnes, 1985: 68)

E: Ah tes amis (ils) sont (?) ah your friends (they) are ‘Your friends are…’.

M: Oui mais mes amis, je les choisis.

Example (104) illustrates the emphasis function in English. The interlocutors are talking about children who look older than their age. The dislocated element ‘these kids’ underlines the fact that these children’s heights shock the interlocutor.

(104) L: T’know some of ‘em are darmn tall and goodlooking the pass for nineteen. A twelve year old guy comes over I say who’s y-older brother is he? He’n not he’s in the A7.

R: But they don’t. (Ochs-Keenan & Schieffelin, 1976: 245)

R: But they don’t gave a brain to go with it hehhh.

L: These kids, I don’t believe it they’re six foot.

In conclusion, Barnes (1985) and Ochs-Keenan & Schieffelin (1976) have provided a comprehensive picture of the discourse functions that exist in French and English. Since these two seminal works, Prince (1998) and Kim (1995) have discussed the existence of some additional discourse functions. They are not included in this summary, as they do not appear to be particularly relevant to the present study on naturalistic data. Prince’s (1998) account rests on written English, while Kim’s (1995) proposal is specific to story-telling contexts.

5.1.3.2 Right-dislocations

Researchers have commonly assumed that the afterthought function is an extremely prominent function of RDs (Geluykens, 1987; Givon, 1983; Ashby, 1988). This function refers to contexts in which “the speaker may forget to say something in the course of his utterance; or he may find that it is necessary to add something because his interlocutor has not understood; or he may realize that the
sentence he has just uttered is unclear or ambiguous” (Hyman, 1975: 120). But in fact, RDs are also used for an array of other pragmatic functions (see Table 27).

<table>
<thead>
<tr>
<th>Topic functions</th>
<th>French</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establish a topic</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2. Contrast</td>
<td>+/-</td>
<td>-</td>
</tr>
<tr>
<td>3. Maintain topics</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>4. Switch topics</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>5. Clarify topics, i.e. afterthought</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>6. Pointer role, i.e. direct the attention to an object present in the extra linguistics</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>7. Illustrate a topic, i.e. provide new information about it</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8. Emphasise</td>
<td>+</td>
<td>-</td>
</tr>
</tbody>
</table>

In both French and English, right-dislocated elements correspond to accessible referents (Lambrecht, 1981; Ward & Birner, 1996). While RD elements have to be discourse-old in English (Ziv, 1994), RDs can promote hearer-old but discourse-new referents to a topic status in French (Ahsby, 1988; Hørlacher, 2012). In (105), an elderly French man recalls the liberation of his town towards the end of World War II. He mentions that the American army had settled in the north of the city of Tours. He uses a right dislocation to establish the new referent ‘les allemands/the Germans’ as a new topic. In this case, the speaker assumes that his interlocutor has some historic knowledge and knows that the Germans were the enemy during WWII. Consequently, ‘les allemands’ is discourse new but semi-active in this context.
C'était libéré par le maquis ici. C'est le maquis qui a fait la libération du coin. Déjà, un petit peu, l'armée américaine était au nord de la Loire, jusqu'àuprès de Tours; oui, au nord de la Loire. Elle était pas au sud. Et puis. Ils étaient méchants, les allemands. A la fin, quand ils ont vu que la situation était perdue, vous savez? Oh! Alors pour un oui, pour un non, on fusillait beaucoup ici. It had been freed by the resistance here. It's the resistance who set the area free. Already, a bit, the American army was on the north bank of the Loire, at the entrance of Tours; yes, on the north bank of the Loire. They, were nasty, the Germans. At the end, when they realized that the war was lost, you know? oh ! So for everything and nothing, people were shot here. (Ashby, 1988: 214)

Contrast is typically excluded from RDs in both languages (Lambrecht 1981). However, this function may marginally be applied to right-dislocated strong pronouns in French (Ashby, 1988; Doetjes & Sleeman, 2004; Blasco-Dulbecco, 1999; Apothéloz & Grobet, 2005; Horlacher, 2012). In (106), the speaker, waiter in a restaurant, recalls how he fall down one day while entering the dining room. The right-dislocated element ‘moi’ creates an opposition between the waiter and the other people in the room.

Un jour, oui, j'arrive en salle, puis je suis tombé. Le potage par terre. Tout le monde a rigolé. Je, rigolais pas, moi. (Ashby, 1988: 218)

‘One day, yes, I walked in the dining area of the restaurant, then I fall down. The soup was on the floor. Everybody laughed. I did not laugh’.

These cases are extremely rare and contrastive interpretations of RDs need to be made cautiously. In particular, other occurrences of supposedly contrastive RDs as in (103) may in fact be associated with another more appropriate pragmatic function. For instance, Simone (1997: 53) argued that one would naturally presume if (107.a) was canonical that the medicines have not been taken. The author posited that the RD contradicts this false presupposition. But this interpretation is hazardous. Apothéloz & Grobet (2005) and Horlacher (2012) also argued in favour of a contrastive use of RDs in utterances that allow some kind of opposition to another accessible referent or an inferable referent as in (103.b). However, I argue that in fact some instances of supposedly contrastive RDs could instead be interpreted with the emphasising function. In (103.a), the dislocated strong pronoun ‘moi’ seems to highlight the fact that the speaker did take the
medicines. Similarly in (107.b), the right-dislocated NP appears to underline the fact that faithful women exist rather than to create a contrast with unfaithful women.

(107) a. Je les ai pris, les medicaments, moi. (Simone, 1997: 53)
   I them have taken the medicines me
   ‘I have taken the pills.’

   b. Y’a aussi des femmes fidelles. Ça existe hein, des femmes
   there are too some women faithful that exists some women
   ‘There are also faithful women. Faithful women exist.’

fidèles (en riant).  (Horlacher, 2012: 77)
faithful (laughing)

RDs are also associated with the maintenance function (Lambrecht, 1981; 2001; Ziv, 1994; Donaldson, 2011). It subsumes Ashby’s (1988) epithet and filler function. In these cases, RDs appear to mark some sort of continuity with the prior discourse. This function typically corresponds to contexts in which the topic has been mentioned in the several times in the previous turns and especially in the last turn as in (108).

(108) Le bout de papier provient de l’étiquette d’une boîte à conserve.
   the piece of paper comes from the label of a tin-can
   En fait, je l’ai eu en main un peu avant de vous rencontrer,
   in fact I it have had in hand a bit before of you meet
   ‘In fact, I have it in my hands before meeting you.’
   le bout de papier.
the piece of paper. (Lambrecht, 1981: 95)

In contrast, elements that are present in the immediately preceding linguistic context cannot be right-dislocated in English (Ziv, 1994). In (109), the dislocated element ‘Jack’ is infelicitous as it is completely redundant.

(109) A: Did you see Jack yesterday? (Ziv, 1994 : 639)
B: #Yes. He, is going to Europe, Jack.

RDs are associated with the topic-shift function in French (110) and in English (111) (Ashby, 1988; Ziv, 1994). While this function is frequent in English, it is not the case in French that mainly associate topic-shift with LDs.
(110) A: De quelle région vous êtes?
  Of which state you are
  'Which state do you come from?'

  B: Californie. (Ashby, 1988: 219)
  California

  A: J’ai mon frère, moi, qui a été en Pennsylvanie, à State College.
  I have my brother me who has been in Pennsylvania at state college
  'My brother went to Pennsylvania, at State College.'

(111) A: I asked you to read this book for today. (Ziv, 1994: 641)
  B: I know. I tried to very hard, but I was quite busy. Incidentally, it is
  much too difficult for me, this book.

The afterthought function typically corresponds to instances in which the
speaker marks a slight hesitation and realizes that the referent may not be easily
accessible to the hearer. In (112), the speaker suddenly changes the genre of the
anaphoric pronoun that refers to the flat. It is assumed that the speaker expands
his original sentence with the right-dislocated element ‘la maison’ in order to avoid
any confusion with the woman who is renting the flat. In (113), the speaker is
hesitant. The dislocated element ‘your brother’ prevents from any confusion.

(112) [...] C’est un appartement du XIXème siècle. Il est rénové.
  it is a flat of 19th century it is renovated
  'It’s a flat built in the 19th century. It’s renovated.'

  Oh elle, est pas vieille, la maison. (Ashby, 1988: 220)
  Oh she is not old the house.
  'It’s not an old house.'

(113) I met him, your brother, I mean, two weeks ago. (Ziv, 1994: 639)

In addition, RDs have a pointer role function in French and English. They
direct the attention of the addressee to an element that is situationally evoked as
in (114) (Lambrecht, 1981).

(114) Il est beau, ce tableau. (Lambrecht, 1981: 93)
  it is nice this painting
  'This painting is nice.'

In sum, RDs are used for a variety of discourse functions (Ashby 1988;
Horlacher, 2012; Ziv, 1994; Geluykens, 1987). According to the literature, French
counts 7 functions when English only totals 4 of them. Moreover, RD elements
have to be accessible in both languages. However, French allows discourse-new referents in this structure.

5.1.4 Summary on dislocations

Table 28 summarises the cross-linguistic differences in the way LDs and RDs are constrained in French and English.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>French</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Number of dislocated elements</td>
<td>up to 4</td>
<td>typically 1</td>
</tr>
<tr>
<td>Nature of resumptive element</td>
<td>clitics</td>
<td>pronouns</td>
</tr>
<tr>
<td>Nature of dislocated element</td>
<td>mainly NPs or dem.</td>
<td></td>
</tr>
<tr>
<td>LDs – Referent accessibility</td>
<td>[hearer-old] and [discourse new] or [discourse old]</td>
<td>[hearer-old] or [hearer-new] and [discourse new]</td>
</tr>
<tr>
<td>LDs – Pragmatic functions</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>RDs – Referent accessibility</td>
<td>[hearer-old] and [discourse new] or [discourse old]</td>
<td>[hearer-old] and [discourse old]</td>
</tr>
<tr>
<td>RDs – Pragmatic functions</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>
5.1.5 *Children's acquisition of dislocation*

Research on the acquisition of dislocations is only recent. In French, the development of dislocation has been investigated either as a subpart of discourse-pragmatics (De Cat, 2009; Hickmann & Hendriks, 1999; Hickmann et al., 1996; Kail & Hickmann, 1992) or on its own right in child French (De Cat, 2002, 2007; Labelle & Valois, 1996). As for English, Pérez-Leroux, et al. (2011) and Notley, et al. (2007) are to my knowledge the only studies that examined the development of dislocations in child English.

In an experimental study, Hickmann & Hendricks (1999) examined the use of referential expressions in maintenance contexts in narratives. Children acquiring English (N=80), French (N=40), German (N=40) and Chinese (N=40) and aged between 4-5 year-olds, 7 year-old and 9-10 year-olds took part in a storytelling game. After being presented a two picture-sequence story, the children had to tell the story to a blindfolded naïve addressee. With regard to global markers specifically, the authors observed that French pre-schoolers used left-dislocations with 48% of all definite nominal references in maintenance context as in (115). This pattern decreased with age as 7-year-olds produced LDs in 42.5% of DPs and 10-year-olds did so in 22% of DPs. Adults did not use LDs. Differences in the speech registers may account for these asymmetric findings in the use of LDs across ages.

(115) a. Le chat, il observe les oiseaux.
the cat he observes the birds
'The cat observes the birds.' (Hickmann & Hendricks, 1999: 430)

b. Il lui attrape la queue, au chat.
he him catches the tail to-the cat
'He catches the cat's tail.' (Hickmann & Hendricks, 1999: 430)

c. La maman, elle s'envole, la maman.
the mummy she her flies-away the mummy
'The mummy flies away.' (Hickmann & Hendricks, 1999: 430)

d. Lui, il regarde.
him he looks
'HE looks.'

In contrast to French, dislocations were considerably less used at all ages in the other languages (i.e. for all mentions: 1% English; 2% Chinese; 5% German). This study showed that French-speaking children used left-dislocation in
maintenance/topic contexts. Young children also produced infelicitous LDs in introductory context when telling a story with a picture support (Hickmann et al. 1996). Furthermore, dislocations would be register-dependent, as adults and 10 year-old children did not use them very frequently in a formal setting (i.e. in a linguistic experiment).

Recently, De Cat (2009) examined the mastery of topic in 45 French-speaking pre-schoolers (group A: 2;11, group B: 4;0, group C: 5;2). The children took part in a picture-description task in which they had to describe seven sets of pictures in topic condition and six sets of pictures in focus condition.

In the topic condition, the children were presented with a first picture containing three animate characters involved in the same activity that they would describe with the experimenter. A second picture depicting the same characters involved in different activities was then introduced. A prompt question asking the children ‘qu’est-ce qu’ils font mainenant?/what are they doing now?’ was used to elicit a description by the child. In this condition, the elicited description involved old referents that needed to be specified; hence the children were expected to produce dislocations containing a definite NP (e.g. le lion, il dort/the lion, he is sleeping; l’éléphant, il s’arrose/the elephant, he is pouring water on himself).

In the focus condition, the children were presented with a first picture representing a scene (e.g. a room; a beach) and a second picture depicting the same scene including a referent (e.g. a cow on a boat). A question ‘qu’est-ce qu’il se passe maintenant?/What is happening now?’ prompted the children’s description. In this condition, the children were expected to produce an existential containing an indefinite NP (e.g. il y a une vache sur un bateau/there is a cow on a boat).

The results showed that the three groups of children largely used clitic topic markers, i.e. null subjects (116.a) and dislocated NPs (116.b), to mark the target referents in the topic condition (i.e. 8% non-target encoded topics for group A; 2% for group B; 5% for group C).

(116) a. 0 fait dodo. 0 makes sleep
0 makes sleep
‘S/he is sleeping.’

b. Le singe, il(l) (se) reveille. the monkey he (REFL) wakes-up
‘The monkey wakes up.’

(De Cat, 2009: 229)
In the focus condition, the three groups clearly favoured heavy subjects (117.a), fragments (117.b) and the *il y a* existential construction (117.c) to encode the referent (5% error-rate for group A; 4% for group B; 0% for group C).

(117) a. maintenant la petite fille joue aux balles.  
    now the small girl plays at-the balls  
    'Now the little girl is playing with balls.' (De Cat, 2009: 229)

b. une vache!  
   a cow  
   '(There's) a cow!' (De Cat, 2009: 229)

c. il y a une voiture qui arrive.  
   there is a car that arrives  
   'A car arrives.' (De Cat, 2009: 230)

These findings indicate that by the age of 2;11 French-speaking children are already aware of the different morpho-syntactic and structural markers that govern the discourse functions of topic and focus. Moreover, the children’s consistent and only use of dislocations in topic condition across ages is a strong indication that they associate dislocations with topicality.

In a cross-linguistic experiment, Pérez-Leroux et al. (2011) examined the acquisition of left-dislocation in French and topicalization in English. While children acquiring French and English both go through an early null object phase; convergence to the adult-use of objects occurs earlier in English than French. So, Pérez-Leroux et al. tested whether the proportion of null objects available in French and English input affects the development of target-like behaviours in LD/topicalization contexts. The authors predicted that children would be sensitive to the distribution of null objects available in their input. Hence, the null object stage should be visible in these constructions. French children, who are exposed to both overt and null objects (i.e. diverging evidence), should omit object clitics in LDs in obligatory context for a protracted period of time. In contrast, English children, who are exposed to the consistent realization of overt objects, should acquire the specificity of object realization in topicalization from early on and exhibit an early convergence towards null objects in topicalization.

Thirty-seven French-speaking children and 40 English-speaking children divided into three age groups (I: 3;0; II: 4;0 and III: 5;0) took part in a sentence
completion task based on six stories. After hearing a story, a shy puppet was asked questions about it. The child was invited to finish the sentence the puppet did not complete. The elicitation task is illustrated in (118) for English and (119) for French.

(118) Topicalization responses in English (Pérez-Leroux et al., 2011: 288)
Prompt: The water, he is not ...
Target site responses: ... drinking.
Expected response: The water, he is not drinking.

(119) Left-dislocation responses in French (Pérez-Leroux et al., 2011: 288)
Prompt: L'eau, il ne ... the water, he NEG...
Target site response: ... la boit pas. ... it drink Neg.
Expected response: L'eau, il ne la boit pas. The water, he is no drinking.

The results showed that English-speaking children’s responses corresponded to topicalization about 60% of the time at 3;0, about 80% at 4;0, 86% at 5;0. This pattern increased with age and reached 96% mean target response in adulthood. In French, the scores were lower. At 3;0 children responded slightly better (65%) than English children but at 4;0 target-response were 10% lower than in English at the same age. Surprisingly at 5;0, French-speaking children responded equally well as English children. The issue is that even adults did not consistently respond appropriately (i.e. 68% appropriate response rate). The authors argued that the low target-response rates in adult French are in part accounted by the wider variety of ‘other’ responses (i.e. passives, or different responses such as la voiture ... (il) fait rien avec).

In both languages, the children showed a growing sensibility to encode the target-response (i.e. null object in English; object clitic in French). In English, Pérez-Leroux et al. observed a clear transition between the ages of 3;0 and 4;0. In French, they observed two distinct stages: (i) minimal clitic production at 3;0 and 4;0; (ii) intermediate stage at 5;0. Their findings indicate that the older group of French children still produced a non-negligible proportion of null objects.

Pérez-Leroux et al. (2011) concluded that children are sensitive to the distribution of null objects in their input. French children, who are exposed to some optional null objects, stay for a protracted period of time in the null object phase in a variety of constructions. In contrast English children, who do not have this diverging evidence in their input, acquire early the absence of a null form in
topicalization. This experiment provides additional evidence about the development of the obligatory object clitic in LDs in French child language showing that omission is protracted at least until the age of 5. These results should, however, be interpreted with caution since even the adults were not at ceiling, and may in fact be the consequence of methodological issues (e.g. constraints of the experimental task in French). This study also provides some insight into young English-speaking children’s knowledge of topicalization as it shows that 3 year-olds are already aware of this construction despite the little evidence present in their input.

In sum, these experimental studies have shown that (i) French children use dislocations in maintenance context when English, German and Chinese children do not (Hickmann & Hendricks 1999); (ii) as early as 2;11, French children associate dislocations with topicality and (iii) French children are aware of the morpho-syntactic and structural markers of topics (De Cat 2009); (iv) French children omit object clitics until 5 year-old even in dislocations whereas (v) English children are aware from early on that topicalized elements are not resumed within the main clause (Pérez-Leroux et al. 2011).

Corpus-based studies have provided a complementary picture of the acquisition of dislocation (De Cat 2002; Labelle & Valois 1996; Notley et al. 2007). Labelle & Valois (1996) examined the status of postverbal subjects in the longitudinal corpus of three French-speaking children aged between 1;9 and 2;8: Philippe (Leveillé corpus) (Suppes, Smith, & Léveillé, 1973), Grégoire (Champaud corpus) and Cynthia (Pupier-Dubuisson corpus), all available on the CHILDES database (MacWhinney 1991). In particular, they evaluated whether postverbal subjects as in (120) are true left- or right-branching VP internal subjects (Déprez & Pierce, 1993) or right-dislocations (Ferdinand, 1993).

(120) a. veut encore, Adrien, du pain. (Labelle & Valois, 1996: 64) want again Adrien some bread ‘Adrien wants more bread.’
    b. va rouler tout seul le navion. (Labelle & Valois, 1996: 64) will roll by itself the plane ‘The plane will roll alone.’
Labelle & Valois posited that postverbal subjects would correspond to right-dislocations with a missing subject clitic pronoun. Their first argument was based on the children’s input which was rich in RD structures. It contained twice more RDs (121) than LDs. Therefore, Labelle & Valois emphasised the children’s familiarity with this structure.

(121) Il est cassé, ton camion, Philippe? (Labelle & Valois, 1996: 66)
It is broken your truck Philippe
Is your truck broken, Philippe?

Secondly, postverbal NPs occurred at an age at which children typically omit preverbal subjects in canonical utterances. Since the data contained instances of ‘true’ dislocations, Labelle & Valois argued that RDs should also exhibit subject omissions. Such utterances would typically correspond to the examples in (116). Moreover, these postverbal NPs followed the same constraints as RDs in that they only referred to accessible information encoded with a definite referring expression. Finally, the prosody of postverbal NPs was consistent with that of RDs. Utterances containing a postverbal NP exhibited two distinct intonation contours that were sometimes marked by a pause between the predicate and the postverbal subject. The initial segment of the subject was lower than the final segment of the immediately preceding sequence. Labelle & Valois also extended their analysis to postverbal subjects in Root Infinitive contexts. Although dislocations are not possible with infinitival verbs in adult speech, they claimed that they are possible in child language since RIs result from the underspecification of the functional head number (Hoekstra et al., 1996).

In conclusion, this study reported that young children use right-dislocation from the start of multiword productions. Moreover, the children’s appropriate use of definite markers suggests that they possess the pragmatic knowledge to encode old and new referents from early on. Finally, this study also revealed that French input exhibit twice more RDs than LDs in contrast to adult-to-adult speech which displays the opposite pattern.

De Cat (2002) extended Labelle & Valois’ (1996) and Ferdinand’s (1993) analyses on the status of postverbal subjects to preverbal elements expressing the subject in early acquisition. Based on distributional evidence, quantitative and
acoustic analysis of the York and De Cat corpora (De Cat, 2002), De Cat demonstrated that preverbal strong pronouns should in fact be analysed as dislocations even in the absence of a resumptive element as (122).

(122) a. Moi, mettre ça comme Pol.  
   Me put that like Pol  
   ‘I (want to) put it like Pol.’  

   b. Moi, a gagné.  
   Me have won  
   ‘I have won.’

For instance, such dislocations in child French exhibit the same prosodic features as those observed in corresponding dislocations in adult French. With regard to the distribution of these dislocations, De Cat (2002) observed the same proportion of left and right dislocations co-indexed with a missing resumptive pronoun (75% LDs – 9/12; 65% RDs – 11/17) in child French. This rate decreased drastically with the emergence of verbal morphology and the increase of subject realization (28% LDs – 121/431; 32% RDs – 42/141). Moreover, LDs with a missing resumptive pronoun mainly occurred in the null subject stage.

De Cat’s (2002) study on the emergence of dislocation has also shown that dislocations appear in the two-word stage. She reported that verbless utterances consisting of two constituents in early child French appeared to be the topic and the comment of the utterance as in (123.a-b). Such utterances were observed throughout the acquisition stage but were also found in adult speech.

(123) a. moi, vu.  
   me seen  
   ‘I’ve seen (one)’.

   b. 0 s’ appelle, lui.  
   REFLECT calls him  
   ‘what’s that one called?’

De Cat argued that these fragments behave like full clauses. The element which appears to be dislocated is not a dislocation as it is neither associated with a position inside the clause nor is it co-referential with a resumptive element. However the element which appears in the periphery has the same properties as

[10] Longitudinal data from Max (Canada), Anne (France) and Tom (Belgium) children aged between about 2 and 3 years old (De Cat & Plunkett, 2002).
dislocated elements: (i) same prosody as LDs or RDs, (ii) can be omitted without altering the discourse contribution of the utterance; (iii) appears to fulfil the same informational function as dislocated elements (De Cat, 2007: 197-198). In addition, this study revealed that children use left- and right-dislocations in largely the same way as adults do. They possess the relevant pragmatic competence from early on as most dislocated elements (60-90%) appear to be co-referential with the subject of the sentence (even more occurrences than the 65% observed in adult speech).

In her data, the children seemed to have figured out the association between the discourse function of topics and the grammatical function of subjects. From the start, the children appeared to clearly distinguish the pragmatic functions of LDs and RDs. Finally, De Cat (2002) pointed out that there is a considerable degree of individual variation in the use of LDs and RDs in her child data. These disparities, De Cat argued, may be the consequence of the play-context in which the children were recorded (e.g. drawing vs. playing with characters).

De Cat's (2002) key findings are twofold. First, preverbal strong pronouns are LDs in absence of resumptive subject clitics. Moreover, children's use of dislocation largely mirror that of their parents' in terms of distribution (i.e. nature and function of dislocated elements and resumptive pronouns) but also in terms of the prosodic and pragmatic features. This final finding suggests that children acquire from early on the discourse-pragmatic constraints that govern the use of dislocations.

A last longitudinal study, closely related to the present thesis, examined the development of left- and right-dislocation in French, English and Dutch (Notley et al., 2007). Notley et al. specifically explored the issue of CLI in French-English and French-Dutch bilingual children at the sentence level of discourse-pragmatics. Their analysis is based on seven longitudinal corpora available on the CHILDES database (MacWhinney, 2000)\textsuperscript{11}. The bilinguals' production of LDs and RDs co-

indexed with a subject or/and object were compared to that of their monolingual counterparts at 5 time points (I: 2;1; II: 2;6; III: 3;0; IV: 3;3 and V: 3;5 or 3;10). Notley et al.’s noted three cross-linguistic differences between French and English dislocations: (i) the frequency of this construction, i.e. highly frequent in French vs. rare in English; (ii) the function of dislocated elements, i.e. ‘subjects and objects of all three persons are equally likely to be dislocated in French vs. only 3rd person referents are dislocated in English; (iii) their discourse functions, i.e. French LDs establish referents, maintain referents, switch referents, emphasise and create topical contrast vs. English LDs mainly contrast topics; French RDs have all functions except contrast vs. English RDs are mainly used as an afterthought (Notley et al., 2007: 232-334). A clear set of predictions taking into account the above cross-linguistic differences were formulated in light of Hulk & Müller’s (2000) structural overlap hypothesis. First, LDs would be vulnerable to CLI since they present a case of structural overlap between French and English. No predictions were made for the direction of CLI. Secondly, CLI would not involve RDs since this structure is absent from the child and input English data.

In contrast with their predictions, Notley et al.’s findings reported the occurrence of CLI from French to English in the use of both LDs and RDs. In French, comparable rates of dislocations were observed in the bilingual and monolingual data. Crucially, the bilingual children used LDs in non-finite utterances for a longer period of time than the monolinguals. However this last result only mirrors the overall production of non-finite utterances in both data sets. In English, the bilinguals largely encoded topics as their monolingual peers (i.e. subject-predicate). Nonetheless, the bilingual data also contained a non-negligible number of LDs (16%) and RDs (13%) when extremely few instances (3% LDs and no RDs) were reported in the English monolingual data.

The authors proposed that the cross-linguistic transfers from French to English in the use of dislocations – especially the unpredicted RDs in English – would be the result of the interaction between input frequency and three additional factors. Notley et al.’s first argument relies on the Transparency of Syntactic-Pragmatic Mapping. It is based on the authors’ assumption that the main discourse function of RDs in French and English would be that of topic maintenance. Notley et al. argued that this discourse function would be ‘simpler’ to
acquire than the other discourse functions associated with RDs (i.e. contrast, switch or establish topics). This supposedly ‘simple’ discourse function would in part lead to the use of RDs in English (Notley et al., 2007: 253). The second factor responsible for CLI would be the absence of Structural Overlap between French and English RDs. This variable would account for the smaller rates of RDs in comparison to LDs in the bilinguals’ English. But, Notley et al.’s bilingual data contained a comparable proportion of RDs and LDs, which is an empirical contradiction to their own argument. Finally, Syntactic Complexity would also account for the occurrence of RDs in the bilinguals’ English. RDs would be syntactically less complex than LDs which need to be prompted earlier in the utterance. Hence, the presence of CLI for both LDs and RDs.

Notley et al.’s study provides interesting insights on the direction of CLI on dislocation constructions in French-English bilingual children. However, their interpretation of the findings has many drawbacks. It mainly relies on the syntactic and discourse-pragmatic properties of RDs as opposed to properties of both LDs and RDs. Contra to their first argument, topic maintenance is not necessarily the main function of RDs. Moreover, RDs exist in different proportions in both French and English. Hence, they are candidates to CLI in the same way as LDs are. Finally, language dominance has surprisingly not been considered as a variable that could have accounted for the direction of influence.

In sum, the literature on the acquisition of dislocations in French and English offers several key insights. First, case studies provided interesting diagnostics of LDs and RDs in the early development of child French (Labelle & Valois, 1996; De Cat, 2002). Secondly, large-scale experimental studies demonstrated that French, English and bilingual children acquire dislocations from early on (De Cat, 2009; Hickmann & Hendricks, 1999; Pérez-Leroux et al., 2011). Moreover, French children use them in maintenance context and associate them with the expression of topicality (De Cat, 2009; Hickmann & Hendricks, 1999). Finally, Notley et al.’s (2007) case study showed that both LDs and RDs are vulnerable to CLI. However, much work is still needed to provide a full account of the acquisition of dislocations in context of French-English bilingualism and to
examine the possible determinants of CLI at the sentence-level of discourse-pragmatics.

5.2 The present study

5.2.1 Aims and predictions

In this study, I document the acquisition of dislocations in context of French-English bilingualism. More importantly, I examine the role of the language-external constraints (i.e. input quality, language dominance) that may affect CLI at the sentence level of discourse-pragmatics and I discuss the implications of the language internal variables (i.e. language processing, frequency, structural complexity) on CLI.

Research on the acquisition of dislocations have shown that French and English children use dislocations in a largely target-way from an early age (De Cat, 2009; Pérez-Leroux et al., 2011). In French, syntactic analyses have notably demonstrated that elements on the left and right periphery correspond to dislocations even in absence of a resumptive element (De Cat, 2002; Labelle & Valois, 1996). An area that remains largely unexplored is the study of the different discourse functions associated with dislocations in child language.

With regard to the phenomenon of CLI, Notley et al. (2007) is the only study that examined the acquisition of dislocations in context of the simultaneous acquisition of two languages. This study reported the vulnerability of dislocations to CLI in the form of transfers from French to English for both LDs and RDs. Unfortunately this work contains many theoretical weaknesses that affect the interpretation of the results. It also failed to address a certain number of issues related to the constraints playing a role on CLI (i.e. direction of influence; implications for CLI of RDs). For instance, Notley et al. could not successfully account for the direction of CLI. In fact, they surprisingly did not discuss how language processing as well as children's language external factors such as the quality and quantity of input may affect CLI.

In the last decade, BFLA researchers started to consider the role of language processing on CLI. The current state of research suggests that grammatical structures would be to some extent shared across bilinguals' two languages (Hsin,
Legendre, & Omaki, 2013; Nicoladis et al., 2010; Vasilyeva et al., 2010). This implies that the frequency of a particular structure in the bilingual children’s languages will have implications for the incidence of being processed and eventually for the entrenchment of the mental representation that arises out of this processing (Serratrice et al. 2011). In the present study, the role of language processing on CLI is discussed in relation to the frequency of dislocations and the direction of influence.

With respect to the language-external variables of CLI, very little is known on whether input quality, i.e. the existence of a contact-modified input, affects CLI. To date, only Paradis & Navarro (2003) and Hauser-Grüdl et al. (2010) discussed the potential role of input quality on CLI. In a case study on a Spanish-English bilingual aged 1;9-2;6, Paradis & Navarro (2003) observed a parallel use of null and overt subject arguments between the child’s output and her unique Spanish input profile (i.e. Cuban Spanish for the father; non-native Panamanian Spanish for the mother). These findings raised two questions: (i) are bilingual children exposed to input that is qualitatively different from that of monolingual children due to language contact? (ii) is CLI in part mediated by contact-modified input? Hauser-Grüdl et al. (2010) addressed these questions in a study examining subject realization in the naturalistic data of five German-Italian bilinguals aged 2;4-3;3 and in their respective Italian input. An analysis of the input revealed that the bilinguals’ Italian input did not contain higher rates of overt subjects than that of Italian monolinguals. Therefore the authors argued against potentially contact-modified input as a possible determinant of CLI. Instead, a subsequent analysis suggested that language dominance (i.e. fluency) plays a role on CLI.

Paradis & Navarro’s (2003) and Hauser-Grüdl et al.’s (2010) conflicting views with respect to the role of input quality on CLI call for additional investigations on new grammatical structures. The present study aims at clarifying whether bilingual children are exposed to a contact-modified form of input that could eventually affect CLI. It also assesses the role of language dominance on this phenomenon at the sentence-level.

This study is based on the longitudinal corpus of two French-English bilingual children who both receive comparable exposure to their languages. Nonetheless, the two children show extremely different expressive skills. Sophie
has fairly balanced expressive abilities while Anne demonstrates a stronger expressive proficiency in English (see section 3.2.3 for details on the children’s language dominance).

Predictions

Several predictions can be drawn from the literature; they broadly fall into two domains: the directionality of CLI and the language-external predictors of CLI.

1) Directionality of CLI: Notley et al. (2007) provide some clear indications with regard to the vulnerability of dislocations to CLI in the context of French-English bilingualism. As in Notley et al. (2007), the present data should display unidirectional CLI from French to English. Specifically, the bilinguals should produce substantially more LDs and RDs in English than their monolingual counterparts. In contrast, their use of dislocations in French should be unaffected and be comparable to that of their monolingual peers.

2) Language-external predictors of CLI – input quality: two contrastive predictions can be made.

a- Paradis & Navarro (2003) suggested that bilingual children might be exposed to a contact-variety of input that would play a role on CLI. In the present study, CLI is expected to be unidirectional from French to English in the use of dislocations. If children’s production of dislocations in English is at least partly affected by a contact-variety of input, then their English input should contain more dislocations than that of English monolingual children. This would suggest that the parents’ English is affected by exposure to French and contains a higher proportion of dislocations than would be expected in non-attributed speakers.

b- Hauser-Grüdl et al. (2010) argued against the existence of a qualitatively different input in context of bilingualism. This implies that the bilinguals’ English input should not exhibit higher rates of dislocations than that of English monolingual children. This would suggest that the parents’ English is not affect by exposure to French.
3) **Language-external factors on CLI – language dominance:** Hauser-Grüdl et al. (2010) proposed that the degree of CLI varies with fluency. In particular, they predicted that the more fluent a child is in the most computationally complex languages, the least he shows evidence of CLI. With regard to dislocations, English appears to be the more complex language since topics can be encoded with the preferred SV(0) order as well as dislocation and topicalization. In contrast, French mainly relies on dislocation to mark topicality. So, the magnitude of CLI should be greater in Sophie (i.e. balanced) than in Anne (i.e. English dominant).

**Data & Procedure**

The following sections present an empirical analysis of the emergence of dislocations in the speech of two French-English bilingual children. As in sections 4.3, this analysis is based on the Hervé corpus collected for this study (Table 29) and a sample of comparable French and English data (Table 30). The analysis of monolingual data provides a detailed account of the development of dislocations in child English as well as supplements the current picture of dislocations in child French by providing an overview of their discourse functions. More importantly, it also allows an accurate comparison between the bilingual children’s and the monolingual children’s acquisition of dislocations. In addition, a sample of the English input of the bilingual children and of their English peers is also analysed. The reader is referred to sections 3.2, 3.3 and 3.4 for details on the participants, procedure, sampling method and coding system.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>No. of recordings</th>
<th>MLUw (mean)</th>
<th>No. of clauses</th>
</tr>
</thead>
<tbody>
<tr>
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<td>5</td>
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<td>881</td>
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<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>6</td>
<td>4.15</td>
<td>1023</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
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<td>158</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
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<td>3.35</td>
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<tr>
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<tr>
<td></td>
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<td>2;8-3;2</td>
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<td>2.52</td>
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Table 30 Overview of the monolingual data (reproduced from section 4.3)

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>No. of recordings</th>
<th>MLU (mean)</th>
<th>No. of clauses</th>
</tr>
</thead>
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<td></td>
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<td>2</td>
<td>2.51</td>
<td>388</td>
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</tbody>
</table>

**Analysis**

Dislocations were coded following a specific scheme based on De Cat (2002). They were coded for (i) their direction (i.e. left, right, both, etc.), (ii) the nature of their dislocated element (i.e. DP, demonstrative, etc.), (iii) the discourse status of their dislocated element (new, given, old), (iv) their discourse function (i.e. contrast, emphasis, pointer role etc.), (v) the nature of their resumptive element (i.e. clitic, lexical, no resumptive etc.), and (vi) their function (i.e. subject, object, attribute etc.) (see section 3.4.2 for details). As in Pérez-Leroux, et al. (2011), topicalizations were included in the dislocation analyses of English since they are parallel to French LDs. In French, dislocated elements coreferential with a null subject were counted as dislocations since topicalizations do not exist in French (personal communication with Lambrecht).

5.2.2 CLI at the sentence-level: dislocations

*Distribution of left and right dislocations*

Table 31 summarises the number and proportion of LDs and RDs over the total number of clauses, as well as the functions associated with dislocated elements in the bilingual data. The results show three sets of asymmetries. Firstly, the bilingual children use fewer dislocations in English than in French. These findings are in line with the literature that described dislocations as being rare in
English and frequent in French (Lambrecht, 2001). Secondly, considerably more RDs than LDs are observed in Sophie’s English while the opposite pattern is found in her French. In contrast, Anne produces in both English and French more LDs than RDs. Finally, the English data shows a clear asymmetry in that left-dislocated elements mainly correspond to the object or the predicate of the main clause as in (124), while right-dislocated elements are predominantly co-indexed with the subject of the clause as in (125). This finding is in direct opposition with previous work on LDs in adult English reporting that this construction is mainly associated with the subject of the clause (Snider & Zaenen, 2006; Geluykens, 1992)

(124)  a. The toast, you dip it into the egg.  (Sophie 3;4)  
       b. That, I did fold it.  (Sophie 2;7)  
       c. That one, Thomas do it.  (Anne 2;8)  
       d. Caterpillar game, I don’t know.  (Anne 3;0)

(125)  a. Has he got a baby now, Joseph?  (Sophie 3;5)  
       b. It’s a bit sticky, that bit.  (Sophie 2;8)  
       c. What you doing, you?  (Anne 2;7)  
       d. 0; need weewee, that one.  (Anne 2;9)

Table 31 Distribution of left and right dislocations in the bilingual data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>LDs</th>
<th>RDS</th>
<th>Total</th>
<th>No. of clauses</th>
</tr>
</thead>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Subj.</td>
<td>Other</td>
<td>Subj.</td>
<td>Other</td>
</tr>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>2</td>
<td>5</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>3</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Anne</td>
<td></td>
<td>2;4-2;7</td>
<td>4</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>9</td>
<td>21</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>58</td>
<td>7</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>141</td>
<td>10</td>
<td>41</td>
<td>10</td>
</tr>
<tr>
<td>Anne</td>
<td></td>
<td>2;4-2;7</td>
<td>7</td>
<td>6</td>
<td>3</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

Subj.: dislocated elements co-indexed with the subject of the main clause; Other: all other type of dislocations (e.g. co-indexed with the object, attribute etc.). Highlighted percentages: highest value.
The pattern observed in English differs from French in which the dislocated element in both LDs and RDs mainly express the subject of the utterance (126).

(126) a. Toi, tu vas faire le rouge. 
    you you will do the red 
    ‘You will do the red one.’ 

b. Ca, c’est manège. 
    this it is merry-go-round 
    this is the merry-go-round. 

c. Où il est, le papillon, Maman? 
    where it is the butterfly Mummy 
    ‘Where is the butterfly Mum?’ 

d. Il pleure, bébé. 
    he cries baby 
    ‘The baby is crying.’

Table 32 summarises the distribution of LDs and RDs observed in the monolingual data. The English and French data displays four crucial differences: (i) dislocations are frequent in the French data and almost absent in the English data; (ii) the few occurrences of dislocations in English correspond to LDs, while LDs and RDs are evenly distributed in the French children; (iii) the only three LDs present in English express the object or predicate of the utterance; (iv) LDs and RDs are largely co-indexed with the subject of the main clause in French.

A detailed comparison of the bilingual and English monolingual data indicates that the bilingual children seem to use more dislocations than their monolingual peers across ages. An independent-samples t-test was conducted to compare the proportion of both LDs and RDs in the bilingual and monolingual data. The proportion of dislocations was not significantly different in the bilingual (M=3.40, SD=1.13) and monolingual (M=0.85, SD=0.92) data; t(2)=-2.47, p = .132. When considering RD production only, there was a significant difference between the bilinguals’ (M=1.89, SD=0.16) and monolinguals’ (M=0.24, SD=0.34) data; t(2)=-6.18, p = .025. These results suggest that the absence of significance on the statistical test on the overall production of dislocations may be skewed by the small amount of data available for the monolingual English children (i.e. especially for Ella) and my thus reveal a sampling effect.
An additional difference between bilinguals and English monolinguals is that the bilinguals' data contains both LDs and RDs in comparable proportions while three out of the four dislocations observed in the monolinguals correspond to LDs. In fact, the bilingual children produce a considerable number of RDs as is the case in child French. However, the bilingual children behave as the English children in that they largely associate LDs with the object or predicate of the utterance.

Table 32 Distribution of left and right dislocations in the monolingual data.

<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>LDs</th>
<th>RDs</th>
<th>Total</th>
<th>No. of clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subj.</td>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subj.</td>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Subj.</td>
<td>Other</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>Ella</td>
<td>2;4</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;7</td>
<td>(100%)</td>
<td>-</td>
<td>(100%)</td>
<td>(1.7%)</td>
</tr>
<tr>
<td>Liz</td>
<td>2;1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>246</td>
</tr>
<tr>
<td></td>
<td>2;5-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>191</td>
</tr>
<tr>
<td></td>
<td>2;11</td>
<td>(100%)</td>
<td>-</td>
<td>-</td>
<td>(0.5%)</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>Marie</td>
<td>2;6</td>
<td>6 (75%)</td>
<td>2 (25%)</td>
<td>9 (90%)</td>
<td>1 (10%)</td>
</tr>
<tr>
<td></td>
<td>3;0-</td>
<td>31</td>
<td>7</td>
<td>27</td>
<td>8</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>3;7</td>
<td>(82%)</td>
<td>(18%)</td>
<td>(77%)</td>
<td>(23%)</td>
<td>(18%)</td>
</tr>
<tr>
<td>Anaïs</td>
<td>2;4</td>
<td>6 (75%)</td>
<td>2 (25%)</td>
<td>9 (100%)</td>
<td>17 (35%)</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>2;7-</td>
<td>18</td>
<td>5</td>
<td>57</td>
<td>1</td>
<td>81</td>
</tr>
<tr>
<td></td>
<td>3;0</td>
<td>(78%)</td>
<td>(22%)</td>
<td>(98%)</td>
<td>(2%)</td>
<td>(21%)</td>
</tr>
</tbody>
</table>

Subj.: dislocated elements co-indexed with the subject of the main clause; Other: all other type of dislocations (e.g. co-indexed with the object, attribute etc.). Highlighted percentages: highest value.

In French, the bilingual data largely mirrors the monolingual data. An independent-samples t-test was conducted to compare the proportion of both LDs and RDs in the bilingual and monolingual data. The proportion of dislocations was not significantly different in the bilingual (M=16.05, SD=2.05) and monolingual (M=19.95, SD=3.61) data; t(2)=1.33, p = .315. In other words, the bilinguals' production of dislocations is significantly comparable to that of the monolinguals'. While, Sophie and her monolingual peer, Marie, use similar amount of dislocations, Anne's data contains slightly fewer dislocations than that of her monolingual peer Anaïs. These differences are rather minimal and can reflect individual variation in
the early stages of development. For instance, between 19% and 37% sentences contained a dislocation in De Cat’s (2002: 288) child French data. Moreover, both the bilingual and the monolingual children mostly associate dislocations with the subject function. Nonetheless the data sets differ in that the monolingual children use about the same proportion of LDs and RDs when the bilingual children produce considerably more LDs than RDs. These differences may be attributed to the frequency of LDs and RDs in the children’s respective input.

In sum, the bilinguals’ English (i) displays more dislocations than the monolingual data, at least for RDs; (ii) contains both LDs and RDs as in French; (iii) shows an association between LDs and the object or predicate of the utterance as in the English data. The bilinguals’ French (i) shows a comparable amount of dislocations to the monolingual data; (ii) contains more LDs than RDs when the monolingual data does not exhibit such an asymmetry; (iii) displays a clear association between dislocations and the subject of the main clause as in the monolingual data.

Nature of dislocated elements

Table 33 reports the nature of the dislocated elements in the bilingual data. In the two bilingual children, LD elements are extremely varied. The proportion of the different elements appears to be language and age dependent. In English, Sophie’s LDs initially mainly correspond to demonstratives. Then at 3;0, LD elements are predominantly nominals. By contrast in Anne’s data, nominals correspond to the largest category of left-dislocated elements across ages. In French, a different pattern emerges. In both Sophie’s and Anne’s data, demonstratives are particularly prevalent in LDs. However, other elements such as pronouns, nominals and adverbs also occur on the left periphery of the utterance.
Table 33: Nature of the dislocated element in the bilingual data.

<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>LDs</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
<tr>
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<td></td>
<td></td>
<td>Clauses</td>
<td></td>
<td></td>
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<td>Clauses</td>
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<td>Clauses</td>
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<td>Clauses</td>
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</tr>
</tbody>
</table>

**English**

|       | Sophie  | 2;6-2;10 | _   | 1 (14%) | 5 (71%) | _       | 1 (14%) |         |          |         |          |          |          |         |          |         |          |          |         |          |          |          |          |          |
|       |         | 3;0-3;7  | _   | 6 (75%) | _       | 2 (25%) |          |         |          |         |          |          |          |         |          |         |          |          |         |          |          |          |          |          |

|       | Anne    | 2;4-2;7  | _   | 2 (50%) | 1 (25%) | 1 (25%) | _       |          |         |          |          |          |          |         |          |         |          |          |         |          |          |          |          |          |
|       |         | 2;8-3;4  | 4 (13%)| 10 (33%)| 5 (17%) | 9 (30%) | 2 (7%)  |          |         |          |          |          |          |         |          |         |          |          |         |          |          |          |          |          |

**French**

|       | Sophie  | 2;6-2;9  | 13 (20%) | 5 (8%) | 45 (69%) | 2 (3%) | _       |          |         |          |          |          |          |         |          |         |          |          |         |          |          |          |          |          |
|       |         | 2;10-3;7 | 94 (62%) | 9 (6%) | 46 (30%) | 2 (1%) | _       |          |         |          |          |          |          |         |          |         |          |          |         |          |          |          |          |          |

|       | Anne    | 2;4-2;7  | _   | 3 (23%) | 7 (54%) | 3 (23%) | _       |          |         |          |          |          |          |         |          |         |          |          |         |          |          |          |          |          |
|       |         | 2;8-3;2  | _   | 1 (9%)  | 8 (73%) | 2 (18%) | _       |          |         |          |          |          |          |         |          |         |          |          |         |          |          |          |          |          |

Pro: pronouns in English and clitics in French; Nom: nominal; Dem: demonstratives; Adv/PP: adverbs/prepositions; Pred/Clauses: predicates/clauses; Highlighted percentages: highest value.
Table 34 summarises the nature of dislocated elements in the monolingual child data. In English, two of the three LDs and the only RD correspond to a nominal. The third LD is an adjective. In French, the nature of LD elements is extremely diverse as shown in the bilingual data. Marie’s and Anaïs’ LDs are associated with almost even proportions of demonstratives, nominals, pronominals and adverbs/PPs. As for RDs, they mainly correspond to nominals in Marie’s data. Anaïs’ data does not exhibit a strong association with a particular grammatical element. Initially, demonstratives are prevalent. But in the second period under investigation, fairly similar rates of pronouns, nominals and demonstratives are right-dislocated.

A comparison of the bilingual and monolingual data reveals that the nature of dislocated elements is more varied in the bilinguals’ English than in their monolingual peers. This may be the consequence of the small number of dislocations in the English monolingual data. However, it could also be the result of CLI from French to English. In French, the nature of dislocations is overall slightly more varied in the monolinguals than in the bilinguals’ French. But, this difference may well be due to individual variation.
<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>LDs Pro.</th>
<th>LDs Nom.</th>
<th>LDs Dem.</th>
<th>LDs Adv./PP.</th>
<th>Pred./Clauses</th>
<th>RDs Pro.</th>
<th>RDs Nom.</th>
<th>RDs Dem.</th>
<th>RDs Adv./PPs.</th>
<th>Pred./Clauses</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Ella</td>
<td>2;4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 (50%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>_</td>
<td>1 (50%)</td>
<td>_</td>
<td></td>
<td></td>
<td>_</td>
<td>1 (50%)</td>
<td>_</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liz</td>
<td>2;1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>_</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;5-2;11</td>
<td>_</td>
<td>1 (100%)</td>
<td>_</td>
<td></td>
<td></td>
<td>_</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>Marie</td>
<td>2;6</td>
<td>4 (50%)</td>
<td></td>
<td>2 (25%)</td>
<td>1 (13%)</td>
<td>1 (13%)</td>
<td>1 (10%)</td>
<td>8 (80%)</td>
<td>1 (10%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>11 (29%)</td>
<td>10 (26%)</td>
<td>7 (18%)</td>
<td>8 (21%)</td>
<td>2 (5%)</td>
<td>3 (9%)</td>
<td>21 (60%)</td>
<td>10 (29%)</td>
<td>1 (3%)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anaïs</td>
<td>2;4</td>
<td>1 (13%)</td>
<td>2 (25%)</td>
<td>5 (63%)</td>
<td></td>
<td></td>
<td>2 (22%)</td>
<td>1 (11%)</td>
<td>6 (67%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;7-3;0</td>
<td>8 (35%)</td>
<td>6 (26%)</td>
<td>5 (22%)</td>
<td>4 (17%)</td>
<td></td>
<td>16 (28%)</td>
<td>28 (48%)</td>
<td>14 (24%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pro: pronouns in English and clitics in French; Nom: nominal; Dem: demonstratives; Adv/PP: adverbs/prepositions; Pred/Clauses: predicates/clauses. Highlighted percentages: highest value.
Nature of resumptive elements

Table 35 presents the nature of resumptive elements in the bilinguals’ LDs and RDs. Sophie’s and Anne’s data reveal that French and English dislocations are co-indexed with a large range of resumptive elements. English LDs, specifically, are initially mainly co-indexed with impersonal and object pronouns in Sophie’s data. From the age of 3;0, Sophie’s LDs are evenly resumed by personal subject pronouns, impersonal and object pronouns as well as other elements. A non-negligible proportion of LDs are also not resumed within the clause as in (127).

(127) a. With Ella, I sing. (Sophie 3;3)
    b. There, I’m pointing Ella. (Sophie 3;7)

In Anne’s English data, half of the resumptive elements are missing as in (128) in the first period under investigation. This is clearly related to the fact that Anne is still in the 2-word stage at that time. In the second period, the proportion of missing resumptive elements decreases. LDs are increasingly co-indexed with a variety of elements as in Sophie’s data. In addition, a considerable number of dislocations that are not resumed by an overt resumptive element as in (129) are also observed at this time.

(128) a. But them, (they) didn’t. (Anne 3;1)
    b. All together, (we) eat. (Anne 2;11)
    c. And that, how (does it) roll? (Anne 2;10)

(129) a. Downstairs, he work. (Anne 2;8)
    b. This one, I’m taking. (Anne 3;1)
    c. Like this, I have it. (Anne 2;8)

French LDs are mainly resumed by impersonal and object clitics in both data sets. Sophie’s French LDs are also co-indexed with a considerable number of personal subject clitics. By contrast, missing resumptive are frequent in Anne’s data as in (130). Finally, only a few LDs are not resumed within the clause in both Sophie's and Anne’s data as in (131).

(130) a. ça, (c’est) not bleu. (Anne 2;7)
    that (it is) not blue
    ‘This is not blue’.
English and French RDs display a similar pattern as LDs. The nature of resumptive elements is diverse in both Sophie’s and Anne’s data. LDs are somewhat more likely to be resumed by impersonal and object pronouns/clitics or personal subject pronouns/clitics in Sophie’s data. By contrast, Anne’s data initially exhibits a large number of missing resumptive elements in her two languages as in (132) and (133). In the second period under investigation, Anne’s RDs are comparable to Sophie’s as they are resumed by a variety of elements in both English and French.

(132)  a. (c’est) lego, that (it is) lego that ‘that’s a lego’.
      b. (il) est rose, Barbideur. it is pink Barbideur ‘Barbideur is pink’.

(133)  a. (they are) coming, the sandals
      b. (he) need weewee, that one.
Table 35 Nature of resumptive element in the bilingual data.

<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>LDs</th>
<th>RDs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Ø</td>
<td>Pro/clitic (c', le, la)</td>
</tr>
<tr>
<td>English</td>
<td>Sophie</td>
<td>2;6-2;10</td>
<td>1 (14%)</td>
<td>4 (57%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;0-3;7</td>
<td>2 (25%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1 (25%)</td>
<td>1 (25%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;4</td>
<td>8 (27%)</td>
<td>3 (10%)</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-2;9</td>
<td>4 (6%)</td>
<td>41 (63%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;10-3;7</td>
<td>2 (1%)</td>
<td>47 (31%)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-2;7</td>
<td>1 (8%)</td>
<td>5 (38%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-3;2</td>
<td>2 (18%)</td>
<td>7 (64%)</td>
</tr>
</tbody>
</table>

Ø: null elements; Pro/clitic: pronouns/clitics; Miss: missing element; other: adverbial locution, impersonal pronouns, lexical elements, wh-word; Highlighted percentages: highest value.
Table 36 summarises that nature of the resumptive pronouns associated with LDs and RDs in the English and French monolingual data. In English, the three LDs are in fact topicalizations (134) and therefore are not resumed within the main clause. The RD is co-indexed with an object pronoun (135).

(134) a. Green, you can.  
    b. Yeah Daddy's work, we went to.  
    c. Eensie weensie spider, I like.  

(135) I like it, finger painting.

In French, the monolingual data largely mirrors the bilingual data. Impersonal and object clitics correspond to the largest number of resumptive elements in LDs as in (136.a). Personal subject clitics (136.b) are also important in Marie’s LDs. Their overall number rises in Anaïs’ LDs while the number of omitted resumptive element (136.c) decreases.

(136) a. Ca, c’est ma tasse c’est chaud hein.  
    b. Léa, elle sait bien faire ces gommettes là?  
    c. Moi, cochon, (je) (l’) ai fait.

A similar pattern is observed for RDs. Personal subject clitics are preponderant throughout Marie’s RDs. Initially, impersonal and object clitics occur in similar proportion as omissions before increasing in the second period under investigation. Anaïs’ data is very similar to Marie’s. Initially impersonal and object clitics as well as omission occur in the same proportions. To a minimal extent, personal subject clitics are also present. In the second period, omission decreases; impersonal and object clitics as well as personal subject clitics are frequent.
<table>
<thead>
<tr>
<th>Lang.</th>
<th>Child</th>
<th>Age</th>
<th>LDs</th>
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<th>RDs</th>
<th></th>
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<td></td>
<td></td>
<td></td>
<td>null elements</td>
<td>Pronouns/clitics</td>
<td>null elements</td>
<td>Pronouns/clitics</td>
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<td></td>
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<td>other</td>
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<td>Ella</td>
<td>2;4</td>
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<td></td>
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<td>2 (100%)</td>
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<td>1 (100%)</td>
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<tr>
<td></td>
<td>Liz</td>
<td>2;1</td>
<td>-</td>
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<td></td>
<td></td>
<td>2;5-2;11</td>
<td>1 (100%)</td>
<td>-</td>
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</tr>
<tr>
<td>French</td>
<td>Marie</td>
<td>2;6</td>
<td>1 (13%)</td>
<td>2 (25%)</td>
<td>3 (38%)</td>
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</tr>
<tr>
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<td>5 (13%)</td>
<td>13 (34%)</td>
<td>20 (53%)</td>
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<tr>
<td></td>
<td>Anaïs</td>
<td>2;4</td>
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<td>4 (44%)</td>
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<td>2;7-3;0</td>
<td>1 (4%)</td>
<td>7 (30%)</td>
<td>3 (13%)</td>
<td>5 (22%)</td>
</tr>
</tbody>
</table>

Ø: null elements; Pro/clitic: pronouns/clitics; Miss: missing element; other: adverbial locution, impersonal pronouns, lexical elements, wh-word; Highlighted percentages: highest value.
A comparison of the monolingual and bilingual data shows several differences. In the monolingual English data, LDs are topicalized elements and not resumed within the clause. In contrast, LDs are resumed by a variety of resumptive elements (i.e. impersonal and object pronouns; personal subject pronouns; Ø; other) in the bilinguals’ English. The same applies to RDs. The only RDs in the monolingual English data is resumed by an object pronoun when RDs are co-indexed with a diverse range of resumptive elements in the bilinguals’ English. In fact, both LDs and RDs in the bilinguals’ English seem to follow the same pattern as that observed in the bilinguals’ French and the monolinguals’ French. That is, LDs and RDs have a large variety of resumptive elements in French. Moreover, omission is frequent in the early stages of development, but overall dislocations appear to be mainly co-indexed with either impersonal and object pronouns as well as personal subject pronouns. So, the nature of the resumptive elements in the bilinguals’ dislocations in both languages seems to mirror that of the French monolinguals’ dislocations.

*Accessibility of the dislocated element*

Table 37 reports the discourse and hearer status of dislocated elements in the bilingual data. In English, most dislocated elements are either hearer and discourse old elements or have not been introduced to the discourse but are physically accessible to the hearer. Only a few LDs include referents that are either new to the discourse or new to the hearer as well. This finding is surprising since the literature on English LDs has insisted on their introductory function (Geluykens, 1992; Gregory & Michaelis, 2001; Manetta, 2007; Prince, 1998). Example (137) contains a hearer new and discourse new referent. Anne explains for the first time that her baby wants to keep his nappy on.

(137)  *NAN: when the nappy gets dirty what are we going to do?  
*CHI: change <my nap(py)> [/] he nappy like that.  
*CHI: **keep that nappy on**, he want to.  

In RDs, most elements also correspond to hearer old and discourse old referents or to elements that are present in the extra-linguistic. Contra to Ziv (1994) who posited the absence of hear new and/or discourse new elements in
English RDs, Anne introduces two elements by means of a RDs. In (138), the dislocated element is knew to the hearer and to the discourse whereas in (139) the element is only knew to the discourse.

(138) *NAN: where is the cake shall we make the cake?
*CHI: I know where is the cake.
*CHI: I will make it, the dinner. (Anne 2;11)

(139) *OBS: are you tired?
*CHI: yes.
*OBS: you’re that tired wow.
*CHI: about talking. (Anne 3;0)
*OBS: you’re tired of talking.
*CHI: I’m tired of <do> [/] do that, doing the hairdresser thing.

French displays a comparable pattern to English. LDs largely correspond to discourse old referents or elements present in the extra-linguistic context. Sophie introduces one hearer new element illustrated in (140). This type of occurrence is not expected in French (Barnes, 1985; Lambrecht, 1981; 1994) but is also attested in child French. RDs follow the same pattern as LDs. But Sophie and Anne also introduce some discourse new elements as in (141) in which the referent ‘la musique’ has not been mentioned previously in the discourse.

(140) Une luge, on fait. (Sophie 2;8)
 a sledge we do
 ‘We draw a sledge.’

(141) *OBS: tu bordes le bébé d’ Ella?
you tuck-in the baby of Ella
 ‘You tuck in Ella’s baby?’

*CHI: ouais.
yeah

*CHI: voilà c’ est chaud.
here it is warm

*OBS: ça y est il se repose.
that there is he REFL rests
 ‘Here we go, he’s sleeping.’

*CHI: Maman où il est, la musique, <pour> [/] pour mon bébé?
Mummy where it is the music for my baby
 ‘Mummy, where is the music for my baby?’
Table 37 Discourse and Hearer status of dislocated elements in the bilingual data.

<table>
<thead>
<tr>
<th>Language</th>
<th>Child</th>
<th>Age</th>
<th>LDs</th>
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<td>3;0-3;7</td>
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<td>Anne</td>
<td>2;4-2;7</td>
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<td>Sophie</td>
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<td>2;8-3;2</td>
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</table>

[+HN] [+DN]: [+ Hear New] [+ Discourse New]; [-HN] [-DN]: [- Hear New] [- Discourse New]; phy. Pres.: physically present; NA: not applicable.
Table 38 reports the hearer and discourse status of dislocated elements in the monolingual data. In English, 2/3 LDs involve a discourse old element and 1/3 introduces a new element to the discourse. The RD element is discourse old.

In French, LD elements often correspond to discourse old or to physically present referents. Very few elements are newly introduced to the discourse. Anaïs also introduces a hearer-new element as in (142). As for RDs, the same pattern applies, except that none refer to a hearer-new element.

(142) *CHI: C’est quoi un cygne?
it is what a swan
‘What is a swan?’

*SIS: Un cygne blanc.
a swan white
‘A white swan.’

*CHI: Un chat, j(e) veux fai(re).
a cat I want to-make
‘I want to draw a cat.’

In sum, the bilingual and monolingual data is in line with one another. In both languages, LDs and RDs largely correspond to discourse-old referents or to referents that are present in the extra-linguistic context and are therefore accessible to the hearer. The English data contradicts the literature on English LDs which emphasised that English LDs were associated with discourse-new and/or hearer-new referents. The following sections on the discourse functions of dislocations provide further information about this.
Table 38  Discourse and Hearer status of dislocated elements in the monolingual data.

<table>
<thead>
<tr>
<th>Language</th>
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<th>RDs</th>
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<td>Liz</td>
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</tbody>
</table>

[+HN] [+DN]: [+ Hear New] [+ Discourse New]; [-HN] [-DN]: [- Hear New] [- Discourse New]; phy. Pres.: physically present; NA: not applicable.
Discourse functions of dislocations

Left-dislocation

Table 39 presents the discourse functions associated with LDs in the bilinguals’ English and French. LDs appear in seven different discourse functions in both languages. Overall, the bilinguals’ English does not display a strong preference for a specific discourse function. Sophie uses slightly more LDs to establish a new topic as in (143) and eventually to provide some additional information about the dislocated element as in (144). Example (143) is associated with establishing a new referent because Sophie introduces the ball she has just found as the new topic of the sentence. In (144), the sentence corresponds to the explaining function since Sophie specifies that the glass of water on the table they have been talking about is for her.

(143) Sophie and her father are playing a game in which they need to open different boxes to find a total of three balls. The father looks briefly at his younger daughter who is eating, while Sophie finishes her turn.
*FAT: what is she eating?
*FAT: there we go.
*CHI: Daddy, one, 0 got it. (Sophie 3;3)
*FAT: that’s pretty cool, isn’t it?

(144) Sophie and her father are talking about warm the water is in the glass on the table.
No that, it’s for me. (Sophie 2;9)

In Anne’s English, LDs are to some extent more associated with the emphasis function (145) than with the other 6 functions. For instance in (145), the preposed element ‘that’ marks an emphasis on the fact the she needs this element.

(145) *CHI: I need that.
*NAN: hum?
*CHI: that. (Anne 2;4)
*NAN: shall we put it in the box?
*CHI: that, e need.
Table 39 Discourse functions of LDs in the bilingual data.

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<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>7</td>
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</tbody>
</table>

Cont.: mark a topical contrast; Estab.: establish a topic; Main.: maintain a topic; Swi.: switch topics; Poin.: point towards the topic; Expl.: explain the topic; Emph.: emphasise the topic; highlighted figures: highest value.

In French, both Sophie and Anne associate LDs more with the explaining function (146-147). The pointer role is also important in Sophie’s data as in (148). Both children also associate LDs with the other functions (between 2-17% for each function) except the clarifying/afterthought function.

(146) Sophie is looking at a mat representing animals in the savannah. She points at different animals and tells the observer that the animals correspond to different members of her family including herself.

*CHI: *ça, c’est Sophie. 
this it is Sophie (Sophie 2;6)

*CHI: *ça, c’est Sophie qui veut jouer avec Ella. 
this it is Sophie who wants to-play with Ella ‘This is Sophie who wants to play with Ella’.

(147) *OBS: Elle est où, Aurélie?
She is where Aurélie ‘Where is Aurélie?’

*CHI: [*-mix] Elle est bed@e.
she is bed (Anne 2;10)

 ‘She is in bed.’

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Table 40 summarises the discourse functions associated with LDs in the monolingual data. In English, the three LDs occur to create a topical contrast (134.a), to explain or provide some additional information about the dislocated element (134.b) and also to establish a new topic (134.c).

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</table>

Cont.: mark a topical contrast; Estab.: establish a topic; Maint.: maintain a topic; Swi.: switch topics; Poi.: point towards the topic; Expl.: explain the topic; Emph.: emphasise the topic; highlighted figure: highest value.

In French, neither Marie nor Anaïs demonstrates a strong preference for a particular discourse function. In fact, both girls use LDs with the whole range of
discourse functions. In Marie’s data, LDs are somewhat less associated with the emphasis and the maintenance functions. As for Anais’ data, initially LDs are not observed with the contrastive, maintaining and switching functions. In the second period, LDs occur much less with the maintenance than with the other functions.

In sum, LDs are associated with the whole range of discourse functions in the bilinguals’ English and French. As detailed in the literature, LDs are typically not associated with the clarifying/afterthought function. The English monolingual data indicates that LDs can also occur for different discourse functions in child English. Finally, the bilingual and the monolingual French data is in line with one another since LDs mark topicality in a variety of discourse contexts.

Right-dislocation

Table 41 presents the discourse function associated with RDs in the bilingual data. In English, Sophie's RDs initially often clarify the topic of the main clause as in (149). In the second period, RDs somehow occur slightly more with the maintenance function as in (150) and emphasis function as in (151).

(149) *CHI: can I have this because I wants it, soup.
(Sophie 3;1)

(150) *CHI: do you like your potty?
*CHI: she loves it so much, her new potty.
(Sophie 3;1)

(151) *FAT: I don’t have anything to get dressed up in.
*CHI: you need to be a prince, you, coz you’re a boy.
(Sophie 3;7)

As for Anne, the three RDs produced in the first period under observation occurred with the pointer role (152.a), the explaining (152.b) and the emphasis (153) functions. Then, most RDs are associated with the clarifying/afterthought function. Finally, both children seem to dissociate RDs from the establishing and switching functions.

(152) a. *CHI: lego, that. (while pointing)
(b. *CHI: (they are) coming, sandals.
(Anne 2;4)
(Anne 2;5)

(153) (Father walks into the room)
*CHI: hello you.
*NAN: hello.
*CHI: what you doing, you?
(Anne 2;7)
Table 41 Discourse functions of RDs in the bilingual data.

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</thead>
<tbody>
<tr>
<td></td>
<td>Sophie</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>English</td>
<td></td>
<td>2;6-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>1</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td>2;10</td>
<td>(11%)</td>
<td>-</td>
<td>-</td>
<td>(39%)</td>
<td>(6%)</td>
<td>(22%)</td>
<td>(22%)</td>
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<tr>
<td></td>
<td></td>
<td>3;0-</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>5</td>
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<tr>
<td></td>
<td></td>
<td>3;7-</td>
<td>(29%)</td>
<td>-</td>
<td>-</td>
<td>(18%)</td>
<td>(6%)</td>
<td>(18%)</td>
<td>(29%)</td>
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<tr>
<td></td>
<td>Anne</td>
<td>2;4-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>1</td>
<td>1</td>
<td>1</td>
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<td></td>
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<td>2;7-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(33%)</td>
<td>(33%)</td>
<td>(33%)</td>
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<td></td>
<td></td>
<td>2;8-</td>
<td>-</td>
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<td>-</td>
<td>10</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td>3;4-</td>
<td>(14%)</td>
<td>-</td>
<td>-</td>
<td>(45%)</td>
<td>(9%)</td>
<td>(14%)</td>
<td>(18%)</td>
</tr>
<tr>
<td>French</td>
<td>Sophie</td>
<td>2;6-</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>3</td>
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<tr>
<td></td>
<td></td>
<td>2;9-</td>
<td>(12%)</td>
<td>(12%)</td>
<td>(18%)</td>
<td>(12%)</td>
<td>(6%)</td>
<td>(24%)</td>
<td>(18%)</td>
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<td>2;10</td>
<td>10</td>
<td>3</td>
<td>8</td>
<td>9</td>
<td>12</td>
<td>9</td>
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<tr>
<td></td>
<td></td>
<td>3;7-</td>
<td>(20%)</td>
<td>(6%)</td>
<td>(16%)</td>
<td>(18%)</td>
<td></td>
<td></td>
<td>(24%)</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2;4-</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;7-</td>
<td>(33%)</td>
<td>(67%)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2;8-</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(50%)</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3;2-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>(50%)</td>
</tr>
</tbody>
</table>

Cont.: mark a topical contrast; Estab.: establish a topic; Maint.: maintain a topic; Swi.: switch topics; Poin.: point towards the topic; Expl.: explain the topic; Emph.: emphasise the topic; highlighted figure: highest value.

In French, Sophie uses this structure with all the discourse functions. There is no obvious strong association between RDs and a particular discourse function. Anne only produces 3 and 4 RDs in the two periods under investigation. These RDs mark topic maintenance (154), some additional information about the topic (155) and establish a topic (156).

(154) *CHI:  [-mix] Mets socks@e.
  put  socks
  'Put socks'.

*CHI:  [-mix] Put@e (...) un sock@e.
  put a sock
  'Put one sock'.

*CHI:  L’ autre [/] l’autre.
  the other one the other one
  'The other one'.

*CHI:  Où    l'est, l'autre?
  where it is the other one?
  'Where is the other one?'
Table 42 summarises the discourse functions that occur with RDs in the monolingual data. In English, the only RD marks an emphasis, see example (135) above. In French, the variety of discourse function is associated with RDs apart from creating a topical contrast. Marie’s RDs are overall more associated with the maintenance, explaining and emphasis functions. In Anaïs’ data, RDs are initially only observed with the pointer role, explaining and emphasis function. Then, Anaïs uses RDs with all the discourse functions and particularly more with the maintenance, pointer role.

The comparison between the bilingual and the monolingual data indicates that RDs in the bilinguals’ and the monolinguals’ English are not associated with the establishing and switching functions. In contrast, these two functions are used in French alongside all the other discourse functions apart from the contrastive one. Moreover, the bilingual and the monolingual French data suggests that RDs may to some extent be more associated with the maintenance, explaining and
emphasis functions than with the others. However, if existent, this preference is minimal.

Table 42 Discourse functions in RDs in the monolingual child data.

<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>Ella</td>
<td>2;4</td>
<td>3;0</td>
<td>3;7</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Liz</td>
<td>2;1</td>
<td>2;5</td>
<td>2;11</td>
<td>6%</td>
<td>20%</td>
<td>9%</td>
<td>2%</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>French</td>
<td>Marie</td>
<td>2;6</td>
<td>3;0</td>
<td>3;7</td>
<td>(50%)</td>
<td>(20%)</td>
<td>(10%)</td>
<td>(10%)</td>
<td>(10%)</td>
<td>(10%)</td>
</tr>
<tr>
<td></td>
<td>Anaïs</td>
<td>2;4</td>
<td>2;7</td>
<td>3;0</td>
<td>(56%)</td>
<td>(22%)</td>
<td>(16%)</td>
<td>(19%)</td>
<td>(3%)</td>
<td>(29%)</td>
</tr>
</tbody>
</table>

Cont.: mark a topical contrast; Estab. establish a topic; Main.: maintain a topic; Swi.: switch topics; Poin.: point towards the topic; Expl.: explain the topic; Emph.: emphasize the topic; highlighted figure: highest value.

Discussion

The present analysis has provided a detailed account of the acquisition of dislocations in French-English bilingual children and in their monolingual peers. It also tackled the issue of CLI at the sentence level by examining possible transfers in the bilingual children’s use of dislocations.

The French-English children use both left and right dislocations in their two languages. While these structures are found but infrequent in the bilinguals’ English (between 2.4% and 4.4%), they are frequently used in their French (between 13.7% and 19.2%). A number of differences between the bilingual children’s and their English counterparts’ use of dislocations posit the existence of a unidirectional CLI from French to English. The bilingual children differ from their English peers in that (i) they regularly use both LDs and RDs; (ii) LDs include topicalizations but also ‘true’ LDs; (iii) dislocated elements are diverse (i.e. nominals, demonstratives, pronouns, adverbs/PPs) as opposed to mainly
nominals; (iv) resumptive elements mainly correspond to pronouns as opposed to the absence of resumptive element. But the bilingual data mirrors the English monolingual data in that (i) LDs are mainly associated with the object/predicate of the main clause while RDs correspond to its subject; (ii) LDs are associated with a variety of discourse functions; (iii) most dislocated elements correspond to discourse-old elements.

The absence of CLI from English to French is supported by the fact that the bilingual children’s use of dislocations largely mirrors that of French monolinguals. First, they use comparable amounts of dislocations. Moreover, both sets of data exhibit a variety of dislocated elements. They also both indicate that resumptive elements are frequently omitted in the early stages of language development. These elements mainly correspond to personal subject clitics or impersonal and object clitics. They encode discourse old referents or elements that are easily accessible in the extra-linguistics. Finally, LDs and RDs are associated with a variety of discourse functions in both data sets. However, the clarifying function is not observed in the bilinguals’ and monolinguals’ LDs while the contrastive function does not appear with RDs.

5.2.3 Language external variables affecting CLI

Frequency in the input

As predicted CLI for dislocations only occurred from French to English. The bilinguals produced a higher number of LDs and RDs than their English counterparts. Given this direction of CLI, if children are exposed to a contact-modified form of input that potentially affects CLI, then the bilinguals' English input should display more dislocations than that of monolinguals. Conversely, the absence of CLI from English to French makes it redundant to examine a sample of French input to examine the role of input quality on CLI.

Table 43 summarises the number of dislocations observed in the English input of the bilingual and monolingual children. The English input contains very few dislocations. Sophie’s input sample contains one topicalization (157). Anne’s input sample displays two LDs (158).
This one, you’ve washed, haven’t you?  

a. But you, Anne, you’re big so it’s difficult for me to hold you all the time. 

b. Granny and Papy, they live in Canada. 

Table 43 Frequency of LDs and RDs in the English input.

<table>
<thead>
<tr>
<th>Input</th>
<th>Child</th>
<th>LDs</th>
<th>RDs</th>
<th>No. of clauses</th>
<th>Dislo. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biling.</td>
<td>Sophie</td>
<td>1</td>
<td>0</td>
<td>372</td>
<td>0.3%</td>
</tr>
<tr>
<td></td>
<td>Anne</td>
<td>2</td>
<td>0</td>
<td>444</td>
<td>0.5%</td>
</tr>
<tr>
<td>Mono.</td>
<td>Ella</td>
<td>1</td>
<td>8</td>
<td>379</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Liz</td>
<td>1</td>
<td>3</td>
<td>334</td>
<td>3%</td>
</tr>
</tbody>
</table>

Subj.: dislocated elements co-indexed with the subject of the main clause; Other: all other type of dislocations (e.g. co-indexed with the object, attribute etc.). Highlighted percentages: highest value.

The English monolinguals' input exhibits a different pattern. Ella’s input does not contain any dislocation while Liz’s contains a topicalization (159) and 8 RDs as in (160).

A blue one, did you say? 

a. oh it’s getting very big, your chimney, isn’t it? 

b. that’s all white, that one. 

c. it mustn’t be very tight, that lid.

Overall, the bilingual children’s English input does not contain more dislocations than that of their English monolingual peers. On the contrary, the number of dislocations in the bilinguals' input is below the mean number of dislocations observed in the monolinguals’ input. Thus, there is no evidence of a contact-modified variety of parental English input in the bilingual data, at least as far as dislocations are concerned.

**Language dominance**

The incidence of language dominance on CLI for dislocations is examined here in terms of both language expressive abilities (i.e. language use, MLUw, UB, increase of the number of noun and verb in the lexicon) and language exposure.

Table 44 reports these two measures of bilinguals’ language dominance which have been thoroughly detailed in section 3.2.3. Sophie and Anne have
comparable exposure to English. They are considered to receive a rather balanced exposure to English and French (i.e. $40\% < X < 60\%$) throughout most of data collection. However, the children have extremely different expressive abilities as measured by the language use, MLUw, Upper Bound as well as nominal and verbal lexical diversity. Sophie demonstrates a slight dominance in English during the whole recording period. In contrast, Anne shows a much stronger command of English than French.

Table 44 *Language dominance in the bilingual children.*

<table>
<thead>
<tr>
<th>Language dominance</th>
<th>Sophie</th>
<th>Anne</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to English</td>
<td>58%</td>
<td>58%</td>
</tr>
<tr>
<td>(65% last 3 months)</td>
<td></td>
<td>55%</td>
</tr>
<tr>
<td>Expressive abilities</td>
<td>3.0&lt;sub&gt;en&lt;/sub&gt;</td>
<td>1.3&lt;sub&gt;en&lt;/sub&gt;</td>
</tr>
<tr>
<td>(index)</td>
<td>1.0&lt;sub&gt;en&lt;/sub&gt;</td>
<td>3.8&lt;sub&gt;en&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

Regardless of their expressive abilities, both Sophie's and Anne's data show the same magnitude of CLI. These results suggest that for high frequency structures such as dislocations, language exposure may play a greater role in predicting the direction of CLI than the children's degree of expressive abilities. The data indicates that frequency of a particular structure in the input may well interact with language exposure to establish the direction of influence. In contrast, the degree of productive skills does not appear to affect CLI in the case of a high frequency structure.

**Discussion**

The present analysis examined the role of input on CLI. With regard to input quality, the bilinguals’ English input is largely in line with that of the English monolinguals. In fact, the total number of dislocations in the bilinguals’ English input corresponds to half of the number of dislocations present in the monolingual input. This finding indicates that input quality cannot be responsible for CLI from French to English here since the two bilingual children are not exposed to an English input that is qualitatively different from that of their monolinguals. Finally, the role of language dominance appears to be complex. Contra to earlier findings,
the bilinguals show a comparable degree of CLI from French to English. Differences in their expressive abilities do not seem to affect CLI on dislocations. In fact, the results indicate that the high frequency of dislocations seems to interact with the degree of exposure to French and English.

5.3 General discussion

The overall aim of this study was to make a contribution to our understanding of CLI by shifting the analysis from individual referential expressions to the sentence-level. Aside from providing an account of the acquisition of dislocations in French-English bilingual children and their monolingual counterparts, the objective was to refine the predictive power of language-external variables such as input quality and language dominance and of language-internal variables such as language processing, frequency, structural complexity, on the direction and magnitude of CLI.

Input quality and language dominance are the two language-external variables that have been examined as potential determinants of CLI in this study. With regard to the potential role of input quality on CLI, I formulated two contrasting predictions. If input quality affects CLI, then the bilingual children’s input should quantitatively differ from that of monolinguals regarding the construction under investigation (Paradis & Navarro, 2003). Given the direction of CLI in the present study, this implies that the French-English children’s English input should contain more dislocations than that of the English children. The contrastive view rests on Hauser-Grüdl et al.’s (2010) argument, which posits that the input of bilingual children does not differ from that of monolingual children. Hence, the bilinguals’ English input should not exhibit more dislocations than the input of English children. The data supports Hauser-Grüdl et al.’s (2010) hypothesis, namely the input of bilingual children does not qualitatively differ from that of monolinguals. An analysis of the total number of left and right dislocations in the English input of the bilingual and monolingual children showed that these structures are used only marginally. In both the bilingual and monolingual data, the English input contained comparable amount of dislocations.
In fact, the bilingual English input sample displayed less than the mean number of dislocations observed in the monolingual English input sample. So, the bilinguals’ English parents/carers do not speak a variety of English that is modified by contact with the French of the bilinguals’ French-speaking mothers. This finding indicates that the input from the majority language (i.e. British English) is not affected by the daily contact with the minority language input (i.e. French). However, the results may have been different if the English-speaking parent lived in France and that English was the minority language. The present finding supplements Hauser-Grüdl et al.’s (2010) study on the role of input quality on CLI in Italian-German children’s over use of overt subject in Italian. In this study, the focus was also on the minority language input (i.e. Italian in Germany).

Despite the different conceptualizations and measures of language dominance, a wealth of research has shown the impact of this variable on the direction and magnitude of CLI (Argyri & Sorace, 2007; Foroodi-Nejad & Paradis, 2009; Hauser-Grüdl et al., 2010; Serratrice et al., 2011). The current literature predicts that children dominant in the more complex language would be more likely to respond in a target-like manner in the more complex language than in the less complex language and reverse. This hypothesis implies for the present study that Anne, dominant in English, should produce an amount of dislocations similar to that of the English children and fewer dislocations in French than the French children. In contrast, Sophie who is fairly balanced should largely behave similarly to her monolingual peers.

The picture that emerges from the current results indicates the existence of a much more complex relationship between dominance and CLI. Despite different expressive skills, the two bilingual children display comparable use of dislocations in English. These findings imply that language dominance as expressed by productive abilities does not play a role on the magnitude or direction of cross-linguistic transfers in the use of dislocations. In fact, if language dominance affects CLI in this context, only the bilinguals’ comparable exposure to their languages can account for their parallel use of dislocations in English. These results do not corroborate earlier findings on the role of dominance on CLI at the determiner level in the same French-English bilingual children. In chapter 4, expressive
abilities were clearly held responsible for the use of bare nouns in partitive, indefinite plural and generic contexts in French (i.e. contexts in which determiners do not occur with mass nouns and plural nouns in English). The data suggested that language exposure could have played a role on the direction of these cross-linguistic transfers. The contrasting results regarding the role of language dominance, as measured by language exposure and expressive skills, on CLI at the determiner level and for dislocations shed light on the complexity of the relationship between dominance and CLI. Research that examined the role of language dominance on bilingual children's linguistic development has shown that bilingual children exposed evenly to their two languages produced a greater number of target-like productions than bilingual children with an unbalanced exposure to their languages (Cobo-Lewis et al., 2002; Gathercole & Thomas, 2005; Scheele, Leseman & Mayo, 2010; Barrena, Ezeizabarrena & Garcia, 2008; Unsworth et al., 2011). Moreover, language dominance affects the development of grammatical structures differently as a function of their complexity (e.g. Dutch gender; Greek gender; Greek voice) (Unsworth et al., 2011; 2012) and frequency in the input (e.g. regular and irregular past tense) (Nicoladis, Palmer & Marentette, 2007). So, bilingual development would be affected by the complexity of a particular structure, its frequency in the input as well as exposure to each language. In the present case, dislocations and determiners are complex structures. They both involve the interface between syntax and discourse-pragmatics; they also contain semantic and phonological constraints. While dislocations are acquired early in French (De Cat, 2002) but also in English (Pirvulescu et al. 2011), the development of determiners is a long process in English and other Germanic languages (Chierchia et al., 1999). These differences could account for the different implications of language exposure and expressive abilities in the CLI of these structures.

This hypothesis is in line with the recent processing interpretation of CLI whereby the daily processing of a high frequency structure in a bilingual's language A would prime the use of this structure in infelicitous contexts in language B (Serratrice, 2007; Vasilyeva et al., 2010; Nicoladis et al., 2009). Bilingual children need to mark the same meaning (i.e. topicality) onto language-specific forms (i.e. dislocations in French; SVO in English). In presence of structural
overlap, the structure that is present in a bilingual’s two languages is likely to be more often activated than structures that are purely specific to one language; hence to be vulnerable to cross-linguistic transfers (Serratrice 2014). As shown in Vasilyeva et al. (2010), the different frequencies of comparable structures in two languages (i.e. passives in English vs. fue-passive, i.e. used literary context in Spanish) are also likely to affect the degree and direction of CLI. Specifically, Vasilyeva et al. observed in a priming study on 4-5 year-old Spanish-English bilinguals that cross-linguistic priming occurred from Spanish to English but not the reverse. The children were more likely to use a passive in English after hearing a passive in Spanish. The low frequency of the fue-passive was held responsible for this unidirectional CLI. In the present study, CLI is also only unidirectional and it involves a structure which has extremely different frequencies in the two languages under investigation. I posit that the transfers from French to English in the use of dislocation may be related to the children’s daily processing of this high frequency structure in French. If this were the case, then the interaction between language processing, frequency, structural complexity and language dominance could in part predict the direction and magnitude of influence. This interaction could explain the different implications of language exposure and expressive abilities on CLI of dislocations and determiners.

In the present data, the different measures of language dominance have different implications depending on the frequency of the structure vulnerable to CLI and depending on its complexity (i.e. early or late acquisition). On the one hand, dislocations are high frequency structures (20-25% of utterances) in French. This construction is acquired early (2;6) in child French. Bilingual children with a rather balanced exposure to French and English demonstrate similar degree of CLI from French to English. On the other hand, determiners, especially bare nouns in English occur in a limited number of contexts. In English, children fully master the use of determiners late (3;5). Expressive abilities in English seem to affect the magnitude of CLI from English to French.

Following these observations, I can formulate the following conclusions:

1. Language exposure affects CLI for high frequency structures that are acquired relatively early in child language.
2. Expressive abilities play a role on structures available in a limited number of contexts which are acquired late.

Conclusion

The present study has confirmed that CLI occurs at the sentence-level for structures that involve the syntax and discourse-pragmatics interface. In addition, I have demonstrated that the majority language input quality does not differ between bilingual and monolingual children in this instance. In other words, bilingual children are not exposed to a contact-modified variety of majority input as shown in Hauser-Grüdl et al. (2010). Finally, the findings have shed light on the complexity of the role of language dominance on CLI. The results are in line with research examining the different variables that affect bilingual development (Gathercole & Thomas, 2005; Nicoladis et al., 2007; Unsworth et al., 2011). Language dominance appears to play a different role on CLI depending on input frequency and complexity of grammatical structures.
6 CLI: exploring the language processing factor

This chapter reports the results of two within-language elicitation experiments, one in French and one in English, in which bilingual French-English five-year-olds and monolingual peers took part in a picture description task which elicited either a NP+VP construction (e.g. The lion's running/Le lion court) or a Left Dislocation (LD) (The lion, he's running/Le lion, il court). Cross-linguistic syntactic differences in the prototypical marking of sentence topics in English (i.e. NP+VP) and French (i.e. Left Dislocations) was exploited to investigate whether bilingual children's use of sentence-level constructions to mark topicality could be elicited to reveal an effect of CLI. The hypothesis was that French-English bilingual children would be significantly more likely than English monolinguals to produce LDs when elicited because of the default use of this construction in French to mark sentence topics. Conversely in French, bilingual children were expected to use significantly more NP+VP constructions when elicited than monolingual French children because of the overwhelming frequency of this construction in their other language, English. Finally, it was anticipated that the magnitude of CLI in one language would be positively correlated with the amount of exposure to the other language.

The results confirm the above predictions and make a new experimental contribution to our understanding of CLI in constructions that involve a partial overlap as well as the interface between syntax and discourse-pragmatics. Unlike most research that has principally focused on the distribution of single anaphoric expressions (i.e. personal pronouns), this study confirms that larger syntactic units at the sentence level can be affected by CLI. An investigation on the relevance of language exposure on CLI has been permitted by the inclusion of a parental questionnaire. The data displays a positive correlation between the amount of French addressed to the children and the likelihood of LD production in French and English. These results make a case for the role played by the input frequency of a given construction to determine the likelihood of CLI. From the point of view of the mechanisms underlying CLI, the successful use of discourse-pragmatic inappropriate syntactic constructions shows how systematic interaction across languages is the result of language use.
6.1 Theoretical background

6.1.1 CLI in bilingual children

In the past fourteen years, researchers have tried to identify the main predictors of CLI. Hulk & Müller’s (2000) seminal hypothesis proposed that this phenomenon occurs in bilingual children if (a) the structure is at the interface between two modules of grammar, and more particularly at the interface between discourse-pragmatics and syntax in the so-called C-domain and if (b) there is a degree of overlap of the two language systems at the surface level (Hulk & Müller, 2000: 228-229). Since then, evidence of CLI occurring after instantiation of the C-domain for the realization of pronominal arguments has been reported especially in null-subject and non-null-subject language pairs (Paradis & Navarro, 2003; Serratrice et al., 2004). Recently, cross-linguistic effects have been reported in the absence of structural overlap and/or syntax-pragmatics interface (Foroodi-Nejad & Paradis, 2009; Pérez-Leroux et al., 2011; Serratrice et al., 2009; Strik & Pérez-Leroux, 2011). Hence, research examining the potential role on CLI of other factors such as language dominance, language processing, input quality and age has recently flourished. The present study specifically focuses on whether CLI is affected by language processing and language dominance, as expressed by language exposure.

Input quantity

Input effects in bilingual acquisition have been observed on bilingual children’s language development, specifically on the acquisition of morpho-syntax and the lexicon (Barnes & Garcia, 2013; Cattani et al., 2014; Thordardottir, 2011) but also phonology (Nicoladis & Paradis, 2011; Sundara & Scutellaro, 2011). Similar input effects have been reported on the acquisition of vocabulary and grammatical complexity (i.e. MLU, word-combination) (Hoff et al., 2012) and on the development of vocabulary and verbal morphology (Paradis, 2011). In addition, Chondrogianni & Marinis (2011) reported that the quantity of L2 input, second language learner children receive at home, is a good predictor of their skills at the syntactic level in their L2 (e.g. wh-questions in English).
A growing body of research has started to investigate the impact of input quantity on CLI; however very general measures of input such as the language of the environment have essentially been considered (Argyri & Sorace, 2007; Serratrice et al., 2009, 2011). In these studies, language exposure has been confounded with the language of the environment. The role of input quantity on CLI has been assessed by assuming that bilingual children would be more exposed to the language of the community. These studies did observe a general effect of the language of the environment on CLI among other variables. Argyri and Sorace (2007) observed different results while comparing two groups of 8-year-old Greek-English bilinguals growing up in Greece and in the UK. Only the children living in the UK and dominant in English – the less complex language – displayed CLI from English to Greek in the acceptance and use of non-target pre-verbal subjects in wide focus contexts and non-target pre-verbal subjects in what-embedded interrogatives in Greek – the more complex language. The Greek-dominant children’s responses did not significantly differ from that of their Greek and English monolingual counterparts. Language dominance appeared to be one of the variables affecting the degree of CLI. With regard to language dominance alone, the results implied that input quantity has a considerable effect on the children’s proportion of accurate responses and therefore has a non-negligible impact on the magnitude of CLI. Comparable results were observed in Serratrice et al.’s (2009) study on 6- to 10-year-old Italian-English and Spanish-Italian children’s encoding of specificity and genericity in noun plural noun phrases. Language dominance also appeared to play a role on CLI. While performance was overall poor in English, the bilingual children accepted significantly more bare nouns in generic contexts in Italian than all other groups. Crucially, the bilinguals living in the UK performed less accurately in Italian than the bilinguals in Italy. So the children’s limited exposure to Italian had an effect on their acceptance of bare nouns in generic context in this language. Along the same line, Serratrice et al. (2011) also observed an effect of the language of the environment on CLI in a study examining 6- to 10-year-old English-Italian and Spanish-Italian children’s knowledge of pronominal objects. In an acceptability judgement task, English-Italian children in the UK accepted infelicitous postverbal object clitics in [-focus] contexts twice as often as Italian children and more often that all other bilingual groups. These findings also
displayed an effect of language dominance on CLI. Specifically, the high exposure to postverbal object pronouns in [-focus] contexts in English significantly affected English-Italian children’s living in the UK acceptance of postverbal object clitics in Italian in contrast to English-Italian bilinguals living in Italy.

A common issue to these studies investigating the language dominance factor as expressed by input quantity is the assumption that the bilinguals would be dominant or predominantly exposed to the language of their living-environment. Although this relation between dominance and the language of the immediate environment was verified in Kupisch (2012)’s study on German-Italian bilingual (2L1) adults’ use of articles in specific and generic contexts; this is not necessarily the case especially for children. One of the reasons the studies reviewed here found an overall effect of language of the community is because they were considering older school-age children, or adults, for whom we can assume that the language of the community plays a significant role in their daily interactions. In the case of pre-school children, who may be spending more time at home with a minority language-speaking parent or other minority language speaking caregivers, making the same assumption is potentially more problematic as the role of the community in the child’s daily language input would be considerably more restricted than for older children. Therefore, research investigating the role of input quantity on CLI should always include a separate measure of language exposure, especially in the case of younger children for whom relative exposure to the two languages cannot be straightforwardly inferred from their environment. A measure of language exposure could then be used as a quantitative predictor of the likelihood of CLI.

Language processing

Research on bilingual development has started to investigate whether the daily processing of two languages affects the rate of bilingual development (i.e. acceleration, delay) and the bilingual children’s use of their languages (i.e. transfer) (Nicoladis et al., 2010; Sorace & Serratrice, 2009). Specifically, a growing body of evidence suggests that the additional processing demands caused by the

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As assessed by the cloze test involving 45 blanks that require being filled with free morphemes and content words (Tremblay, 2011).
simultaneous acquisition of two languages would be responsible for delays in the development of grammatical structures or cross-linguistic transfer (Nicoladis, 2006, 2012; Pirvulescu et al., 2012; Serratrice et al., 2011; Sorace et al., 2009).

Recently, studies adopting the structural priming paradigm have contributed to the investigation of CLI and to the study of syntactic representations in bilingual adults and children. Research using the structural priming paradigm to explore the nature of syntactic representations has developed considerably in the past few years. This methodology is based on a tendency in speakers to repeat the syntactic structure they have recently been exposed to (Bock, 1986; Levelt & Kelter, 1982). Inferences can be drawn about the nature of syntactic representation by observing which expressions prime which other expressions (Branigan, 2007: 1). While syntactic priming has been used extensively with monolingual adults and increasingly with children (Kidd, 2011; Savage, Lieven, Theakston, & Tomasello, 2003, 2006; Shimpi, Gámez, Huttenlocher, & Vasilyeva, 2007; Thothathiri & Snedeker, 2008), relatively few studies have used this paradigm to examine the issue of shared syntactic representations in bilinguals and to explore a processing account of CLI. So far, these few studies have mainly focused on proficient adult speakers of an L2 (Bernolet et al., 2007; Cacoullos & Travis, 2011; Hartsuiker et al., 2004; Loebell & Bock, 2003; Schoonbaert et al., 2007). Experiments on advanced adult second language learners (Desmet & Declercq, 2006; Schoonbaert et al., 2007) have provided evidence of structural priming across languages (from L1 to L2 or from L2 to L1) suggesting that bilingual adults share syntactic representations across languages for certain structures such as passive or ditransitive constructions. To date, Vasilyeva et al. (2010) conducted the first structural priming experiment with Spanish-English bilingual 5-year-olds. Following Hartsuiker et al.’s (2004) design, the children were primed with passive or active structures across languages (i.e. Spanish to English or English to Spanish). The syntactic construction under investigation was the passive form of the transitive construction. Spanish has two forms of passives, the so-called se-passive and the fue-passive. While passives are not frequent in the spoken language in either Spanish or English, the fue-passive in Spanish is even more rare. However, due to its parallel structural properties with the English passive - the use of the BE auxiliary and the prepositional phrase “by-
phrase” - this passive was used in the priming experiment. In the study, the bilingual children, who were in a bilingual mode, would hear descriptions in language A and describe pictures in language B; the assumption being that the structural overlap between the Spanish and the English passive constructions should lead to a cross-linguistic priming effect. The results did show a significant cross-linguistic priming effect. But this effect was unidirectional from Spanish to English. When primed with Spanish \textit{fue}-passive sentences, the children increased their use of passive constructions in English. However, the reverse effect was not observed. Exposure to English passives in the prime sentences did not lead to a significant increase of the use of \textit{fue}-passives in Spanish. The findings in the Spanish to English condition lend additional support to the hypothesis that syntactic representations can be shared across languages in bilingual children, as previously found in studies with bilingual adults. The fact that priming from English to Spanish was not successful is somewhat more problematic. Although the study did not include independent measures of language proficiency or of language exposure, on the basis of a comparison of the children's responses in the two languages the authors concluded that there was not a substantial difference that would justify the asymmetry of the results. Instead they speculate that the relative infrequency of the \textit{fue} passive construction in Spanish is responsible for the lack of priming after exposure to English passives.

In conclusion, syntactic priming has been successfully used to explore the issue of shared syntactic representation in bilingual adults. Vasilyeva et al.'s (2010) study suggests that syntactic representations are shared across languages in bilingual children. Therefore, the priming paradigm appears to be ideal to examine the issue of language processing on CLI. This methodology can provide some interesting insights into how bilingual children map syntactic structures that involve the discourse-pragmatics interface, and specifically on whether the processing of high frequency structures can result in cross-linguistic transfer.

6.1.2 Why left-dislocation?

Discourse coherence is established and maintained by the informational elements, which organize the constituents on the basis of whether they have been mentioned previously or whether they are new to the discourse. The large body of
research examining the way in which bilingual children encode old and new information has essentially focused on the referential level (e.g. null vs. overt pronouns in Italian, Spanish, Hebrew, Turkish) where numerous instances of CLI have been observed (Hacohen & Schaeffer, 2007; Hauser-Grüdl et al., 2010; Pinto, 2006; Serratrice, 2007; Serratrice et al., 2004).

The present study investigates the phenomenon of CLI at the interface between syntax and discourse-pragmatics at the sentence level (i.e. left-dislocations) in two experimental studies involving French-English bilingual children. As thoroughly detailed in chapter 5, LDs are an interesting test case, as they appear to be ideal candidates to CLI. LDs typically include a constituent that appears to the left periphery of a main clause that is coreferential with a resumptive element (e.g. \textit{Le lion, il court/The lion, he is running}). There is a partial overlap in the way topicality is encoded in French and in English. LDs mark topics in both languages. However, only French strongly relies on their use (Barnes, 1985; De Cat, 2002; Lambrecht, 1981, 2001). In English, topics are largely encoded by the canonical word order (i.e. SV(0)) and topic dislocation, though possible, is not at all frequent (Donaldson, 2011a; Geluykens, 1992).

LDs are syntactically, semantically and pragmatically less constrained in French than in English (i.e. nature of dislocated and resumptive elements, discourse functions) (see chapter 5 for a detailed account of LDs in French and English). In both languages, about 70\% of LDs are associated with the subject of the main clause (Blasco-Dulbecco, 1999; Snider & Zaenen, 2006). Although a variety of grammatical elements can be dislocated, LD elements typically correspond to full NPs or strong pronouns (Blasco-Dulbecco, 1999; Geluykens, 1992). The fundamental difference between French and English lies in the accessibility of the LD element. In Prince’s (1981) terms, LD elements are predominantly discourse old or inferable (i.e. extra-linguistic) referents in French (Barnes, 1985; De Cat, 2002; Delais-Roussarie et al., 2004; Lambrecht, 1981). In contrast, LDs principally introduce discourse-new or inferable referents in English (Donaldson, 2011a; Gregory & Michaelis, 2001; Ochs-Keenan & Schieffelin, 1976a) LDs are used for a variety of discourse functions as summarized in Table 45. As in De Cat (2009), the two elicitation studies involve the discourse function of “creating a topical contrast”. This function is ideal to elicit LDs because topics are
obligatorily left-dislocated in spoken French if they are expressed by a heavy subject (De Cat, 2002, 2009; Lambrecht, 1994). Therefore, the need to distinguish two referents in topic position would automatically yield the use of a full NP or a proper name and hence of a LD in French.

Table 45 Discourse functions of left-dislocations in French and English (reproduced from section 5.1.3)

<table>
<thead>
<tr>
<th>Discourse functions</th>
<th>French</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Introduce a new topic</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2. Contrast</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3. Maintain topics</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Switch topics</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>5. Clarify topics/afterthought</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6. Pointer role, i.e. direct the attention to an object present in the extra linguistics</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>7. Illustrate a topic, i.e. provide new information about it</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>8. Emphasize</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

6.1.3 The present study

The existence of cross-linguistic syntactic priming suggests that bilinguals share syntactic representation across languages since hearing a construction in language A primes the same construction in language B (Hartsuiker et al., 2004; Vasilyeva et al., 2010). Moreover, the asymmetric relationship observed by Vasilyeva et al. seems to indicate that cross-linguistic priming is in some way also mediated by the respective frequency of the target syntactic structure in the two languages and potentially by bilinguals’ relative exposure to the two languages.

In the present study, the aim was to explore children’s sensitivity to the language-specific encoding of topical subjects in English and French and to investigate whether the processing of a relatively high frequency structure in one language can result in its use in the other language when the structure is discourse-pragmatically sub-optimal. The relation between the bilingual children’s two languages at the interface between syntax and discourse-pragmatics is investigated in two within-languages elicitation experiments using the priming
paradigm, one in French (study 1) and one in English (study 2) in order to answer the following questions:

1. What is the effect of input manipulation on the probability of producing a left dislocation in French (study 1) and in English (study 2)?
2. What is the role of language exposure in the probability of producing a left dislocation in French (1) and in English (2)?

Previous research has shown that topics are obligatory dislocated to create a topical contrast in French when they are not expressed by a weak pronoun (De Cat, 2002; Lambrecht, 1994). In contrast, English favours the subject-verb order to mark topicality (Donaldson, 2011a). By this rationale, high proportions of LD responses are expected in French regardless of elicitation condition. On the reverse, low proportions of LDs are expected in English given their relative low frequency. Nonetheless, it is anticipated that LDs production will be significantly different as a function of input manipulation. In particular, the number of LD produced after being elicited a LD should be higher than the number of those following a NP+VP description.

Following the language exposure hypothesis I formulated in chapter 5, I anticipate that exposure to French will affect the magnitude of CLI since dislocations are high frequency structures in this language. In both experiments, there should be a positive correlation between the children’s exposure to French and the probability that they will produce a LD. Monolingual French children should be maximally likely to use LDs and monolingual English children should be the least likely to produce LDs in English.

Finally, I do not expect to observe a significant interaction between priming condition and language exposure in French; while in English the proportion of LDs should be significantly higher in the LD condition than in the NP+VP condition for children with the highest amount of French exposure.
6.2 Method

6.2.1 Participants

A total of 78 children were recruited from six schools in the UK and in France (40 girls, 38 boys): 19 French-English children in two bilingual schools in London (mean age 5;5, age range 5;4-6;4); 19 French-English children (mean age 5;9, age range 5;4-6;7) in two bilingual schools in the Paris area, 20 English monolingual children (mean age 6;00, age range 5;07-6;04) in a school in Manchester and 20 French monolingual children (mean age = 5;9, age range 5;4-6;4) in a school in Paris. The two bilingual groups took part in the two experiments while the monolinguals only took part in their respective language experiment.

The monolingual children were recruited in schools situated in an upper-middle class neighbourhood in order to match the socio-economic status of the children attending the bilingual schools. All our bilingual participants were either the offspring of French-English couples or were born in the country of their school when they came from French monolingual families living in the UK (N=5) or English-speaking families living in France (N=4). Their parents were asked to fill Cattani et al.’s (2014) questionnaire in order to obtain a percentage of language exposure. The questionnaire required the parents to estimate the average time the child spends in the bilingual school and with a child-minder as well as which parent speaks which language(s) to the child and the weekly number of hours the child spends alone with each parent. Parents were also asked to evaluate whether they speak roughly the same amount to the child or if a parent addresses the child more than the other. Finally, an evaluation of the time the child spends sleeping in a typical day was required in order to make the best approximation of the percentage of the child’s weekly exposure to languages. Following Cattani et al.’s (2014) study on bilingual children’s acquisition of lexicon which showed that children with 60% and more exposure to a language behave similarly to monolingual children of that language, I defined 60% of exposure to a language as the cut-off point for establishing language dominance. The children were categorised as balanced bilinguals when they had an exposure between 40% and 60% to French and English. Overall, the outcomes of the questionnaires revealed very different percentage of exposure to the languages among the children in
London and in Paris. As reported in Table 46, the children were not necessarily predominantly exposed to the language of the local environment.

<table>
<thead>
<tr>
<th>Table 46</th>
<th>Bilinguals’ exposure to French and English.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exposure to languages</td>
<td>Paris bilinguals</td>
</tr>
<tr>
<td>Dominant in French (Exp&gt;60%)</td>
<td>2</td>
</tr>
<tr>
<td>Balanced (60%&gt;Exp&gt;40%)</td>
<td>13</td>
</tr>
<tr>
<td>Dominant in English (Exp&lt;40%)</td>
<td>3</td>
</tr>
<tr>
<td>NA</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>19</strong></td>
</tr>
</tbody>
</table>

NA: missing data on language exposure for one participant.

The bilingual group growing up in Paris contains a larger number of balanced bilinguals (N=13) compared to the London group (N=6). Overall, it is in London that the bilinguals were the most dominant in French (N=9). Across the two groups, there is nearly the same number of English dominant children (Paris N=3; London N=4). Finally, the children recruited in the monolingual schools in Paris and in London were strictly monolinguals.

6.2.2 Materials common to the two experiments

The material consisted of 40 sets of pictures for the French and for the English experiment respectively, 20 for each condition (NP+VP, Left-dislocation). The picture sets were based on cartoons such as *Rio*, and *Dora The Explorer* for the French study and on *Madagascar* and *Toy Story 3* for the English study. The pictures consisted of screenshots of these films and were compiled into PowerPoint presentations. All the pictures were only used once. In order to favour the children’s use of LDs to identify a referent, I followed De Cat’s (2009) experimental design. Figure 10 gives an example of the experimental materials for the LD condition. The first picture of each set created a discourse-pragmatic context in which two animate referents engaged in the same action were introduced and established as topics by a LD (e.g Blu et Linda, ils se lavent les dents/Blu and Linda, they are washing the teeth). The description was followed by a question containing a LD that maintained the topical status of the referents (*Blu*
and Linda, que font-ils maintenant?/Blu and Linda, what are they doing now?). The target picture re-introduced the two topical referents side by side but engaged in two different actions (e.g. Blu is reading a book. Linda is speaking on the phone). This set-up was designed to elicit a *topical contrast* requiring a LD in spoken French as the two previously mentioned referents needed to be distinguished from each other.

**LD Prime:** Blu et Linda, ils se lavent les dents. Blu et Linda, que font-ils maintenant?

*Blu and Linda, they are washing their teeth. Blu and Linda, what are they doing now?*

**Target:** Linda, elle est au téléphone. Blu, il lit un livre. *Linda, she is on the phone. Blu, he is reading a book.*

Figure 10 Sample of prime target pictures in the LD condition and their description.

In the NP+VP condition, the picture sets differed slightly in order to de-emphasise the notion of establishing a topical contrast between the two referents. Figure 11 provides an example of the experimental materials. When the NP+VP construction was elicited the prime picture introduced two animals/characters involved in the same activity by using a NP+VP construction (e.g. *Le zèbre et le lion courent/The zebra and the lion are running*). The description was followed by a question in which the two subject NPs were repeated (e.g. *Que font le zèbre et le lion maintenant?/What are the zebra and the lion doing now?*) and the child was then presented with two successive pictures in which the two referents were presented individually.

**NP+VP Prime:** Le zèbre et le lion courent. Que font le zèbre et le lion maintenant? *The zebra and the lion are running. What are the zebra and the lion doing now?*
Target 1: Le zèbre souffle sur la bougie de son gâteau d’anniversaire. The zebra is blowing the candle on his birthday cake.

Target 2: Le lion se cache derrière un buisson. The lion is hiding behind a bush.

6.2.3 Procedure

The experimental design manipulated the two elicitation conditions as a within-subjects variable, and language exposure groups (e.g. French monolinguals, French dominant, English dominant and balanced bilinguals) as a between-subjects variable. The language and elicitation conditions presentation order were counterbalanced throughout the experiments in order to diminish possible carry-over effects. About half of the bilingual children took part in the French experiment first and then in the English experiment and vice versa. The order of presentation of the stimuli in the two elicitation conditions was blocked, i.e. all the items in one condition were presented one after the other, and the presentation order of the elicitation conditions differed between children. For each study, the children were tested on consecutive school days with a different elicitation condition on each day (e.g. day 1: NP+VP day 2: LD). I saw individually all the children and I asked them whether they agreed to play a game on the computer. The children were told they would take turn with the computer at describing pictures. They would have to listen to a description of a picture before describing the second picture (i.e. PowerPoint slide). Before each elicitation condition, I exemplified the child’s task.
in taking part in a trial session constituted of a single picture-set where I would have to describe the second picture of the set. Each testing-condition lasted no longer than 10 minutes; the sessions were audio-recorded for coding purposes.

6.2.4 Coding

Children’s responses were coded as NP+VP (e.g. The zebra is dancing), LD (e.g. Velma, she is eating two biscuits), Clitic+Verb (e.g. He is eating a cake) and Other (e.g. 0 calling somebody). Subject-less utterances and expletives (i.e. il y a/there is) were classified as Other. Utterances with missing participles or complements such as in Alex is (holding) an umbrella or Woody, he is looking in the (toy box) were included as valid responses. Children would produce incomplete utterances mainly in cases where they would not know the appropriate vocabulary.

In order to examine the effect of priming, I then categorized each response as either matching the initial description (1) or as deviating from it (0). Additionally responses were coded as to whether they were an instance of LD (1) or not (0).

6.3 Results

Analyses were conducted using the lme4 package in R 3.0.2 (Bates, Maechler, Bolker, & Walker, 2013; R Core Team, 2013). For each experiment, we conducted a Generalized Linear Mixed Model (GLMM) fit by maximum likelihood in order to examine the likelihood of producing a LD as a function of elicitation condition and to investigate the role of language dominance on the probability of producing a LD. We treated LD production as the dependent variable; priming condition and exposure to English were treated as fixed factors; the intercept, the priming condition and their correlation were allowed to vary randomly by participants. Elicitation conditions varied within participants and exposure to English varied between participants. We centred the exposure to English predictor in order to avoid collinearity; 50% corresponding to hypothetical ‘perfectly’ balanced bilingual. Consequently, -50% corresponded to English monolinguals.
production seems to be driven by the children’s language background. The model included both elicitation condition and exposure to English as fixed effects.

6.3.1 Experiment 1: French

Figure 12 and 13 report the proportion of responses in the NP+VP and LD conditions respectively. The figures indicate that monolingual and bilingual children used a considerable number of LDs in both elicitation conditions. Bilingual children tended to produce fewer LDs than monolinguals. In the NP+VP condition, monolinguals used LDs 56% (202/360) of the time against 50% (111/220) for the French dominant bilinguals, 27% (96/360) for the balanced bilinguals and 36% (51/140) for the English dominant bilinguals. A similar pattern is observed in the LD condition. Monolinguals used LDs 64% (232/360) of the time when the French dominant children produced LDs 57% (126/220) of the time, balanced bilinguals 43% (154/360) and English dominant only 39% (55/140). These findings suggest that French monolingual children are more likely to use LDs than bilinguals regardless of the elicitation condition. Moreover, LD production seems to be driven by the children’s language background.

![Figure 12: Proportion of responses in the NP+VP condition in French.](image-url)
The GLMM indicated that all children were more likely to use a dislocation as a function of input manipulation in French (β 1.59, SE(β)=0.44, z=3.56, $p<.001$). The children were 4.90 times ($e^{1.59}$) more likely to produce a LD in the description of the target after hearing a LD in the prime. The analysis showed a main effect of exposure to English on LD production (β 0.05, SE(β)=0.02, z=2.95, $p=.003$) confirming that the use of LDs in French varies as a function of language exposure. For every percentage point increase in exposure to French, the likelihood of producing a LD rose of 1.05 ($e^{0.05}$). This result implies that reduced input to LDs in French made the participants less likely to use this construction. Finally, there was no interaction between elicited condition and exposure to English suggesting that participants with more exposure to French were simply more likely to produce LDs in the LD condition.

Table 47 Model coefficients (in logits) for the likelihood of producing a LD in French.

| Fixed Effect | Estimate | SE     | z      | Pr(>|z|) | Random Effect | Variance |
|--------------|----------|--------|--------|---------|---------------|----------|
| Analysis     |          |        |        |         |               |          |
| Intercept    | -1.73897 | 0.56699| -3.07  | 0.00216**| Intercept     | 10.10    |
| Elicit condition | 1.59193 | 0.44718| 3.56   | 0.00037***| Elicit condition | 3.65    |
| ExpEng       | 0.04872  | 0.01650| 2.95   | 0.00315**|               |          |
| Elicit vs. ExpEng | -0.00772 | 0.01268| -0.61  | 0.54267  |               |          |

Figure 13 Proportion of responses in the LD condition in French.
Discussion

In French, children took part in a picture-description task based on the priming paradigm. The participants initially heard a picture description involving a NP+VP or a LD construction depending on the experimental condition. Then, a question following the same syntactic structure prompted their description of a second picture. All children produced significantly more LDs in the LD condition than in the NP+VP condition regardless of their language background. Although LDs were highly used in the NP+VP condition, the analysis reported that LDs were significantly more frequent in the LD condition. LDs can be successfully elicited as a function of input manipulation. More interestingly in terms of potential CLI, LD production varied as a function of language exposure. For every additional point of exposure to French, the likelihood of producing a LD increased. Hence, the routine processing of LDs in French affects the children’s sensitivity to use this construction. Consequently, children exposed to reduced French input are less likely to use LDs in discourse-pragmatically optimal contexts. In fact, children used a considerable number of subject-verb structures, which correspond to the English preferred structure. These findings confirm the existence of CLI at the sentence-level of discourse-pragmatics and make a strong case for the role of language processing and language exposure on this phenomenon.

6.3.2 Experiment 2: English

Figures 14 and 15 summarize the participants’ responses in the NP+VP and LD condition respectively. In the NP+VP condition, LDs were largely absent of the children’s elicited descriptions; English monolinguals used a trivial number of LDs (0% – 1/400) while the three groups of bilinguals produced LDs 1% of the time (i.e. English dominant: 1/140; balanced: 3/340; French dominant: 2/220). The English children behaved similarly in the LD condition and did not produce any LDs. The English dominant group produced LDs only 1% (1/140) of the time against 3% of the time for the balanced bilinguals (9/340). Finally, the French dominant appeared to be the most sensitive to the LD condition as they produced LDs 11% (24/220) of the time. As in the French experiment, these findings indicate that the use of LDs may be mediated by the bilinguals’ language background.
The GLMM showed no significant effect on the likelihood to produce a LD as a function of elicitation condition ($\beta=-0.05$, SE($\beta$)=0.58, $z=0.08$, $p=.93$) despite the fact that the balanced and French dominant bilinguals used a non-negligible number of LDs in the LD condition. The analysis also indicated a significant effect of exposure to English on LD production ($\beta=-0.03$, SE($\beta$)=0.01, $z=-2.56$, $p=.011$) across all participants. For every percentage point increase in exposure to English, the likelihood of producing a LD decreased of 0.97 ($e^{-0.03}$). There was a marginal interaction between LD production and exposure to English ($\beta=-0.04$, SE($\beta$)=0.02,
z=-1.86, p=.063) suggesting that exposure to English made the participants less likely to use a LD when elicited. This implies that the greater the exposure to French the higher the likelihood that children would use a LD when primed to do so.

Table 48 Model coefficients (in logits) for the likelihood of producing a LD in English.

| Fixed Effect | Estimate | SE   | z      | Pr(>|z|) | Random Effect | Variance |
|--------------|----------|------|--------|---------|---------------|----------|
| Analysis     |          |      |        |         |               |          |
| Intercept    | -4.7646  | 0.2898 | -16.44 | <2e-16*** | Intercept     | 0.886    |
| Elicit condition | -0.0480  | 0.5826 | -0.08  | 0.934   | Elicit condition | 3.709    |
| ExpEng       | -0.0278  | 0.0109 | -2.56  | 0.011*  |               |          |
| Elicit vs. ExpEng | -0.0406  | 0.0218 | -1.86  | 0.063   |               |          |

Discussion

In English, the children took turns at describing pictures with the computer. After hearing a description about a first picture, a question prompted the children's response. The description and the question followed the syntactic structure induced by the elicitation condition (i.e. NP+VP, LD). Monolingual and bilingual children did not produce significantly more LDs after hearing a LD than a NP+VP. Despite the lack of significant differences across elicitation conditions, language exposure appeared to affect the likelihood of producing LDs. Children with more exposure to English were less likely to produce LDs. This finding implies that the more an English-speaking child is exposed to French the more likely he is to use LDs. The fact that the children with the largest exposure to French were more likely to use LDs in English makes a strong case for the issue of CLI. The implications are that the routine processing in language A of structures that exhibit a structural overlap in the way they are used across language A and B, can prime the use of this structure in language B in discourse-pragmatic sub-optimal contexts as a function of language exposure to language A.

6.4 General discussion

The overall aim of the present studies was to make a contribution to the current understanding of the role of language processing and language exposure
on the phenomenon of CLI. French-English bilingual children as well as French and English monolingual children took part in a priming elicitation study to test their sensitivity to the distribution of LD and NP+VP structures in the input to mark topicality. The children took part in a picture-description task that elicited either LD or NP+VP constructions depending on the description of a first picture prompted by a pre-recorded voice on the computer. Elicitation condition and language exposure were considered as fixed effects in a GLMM.

In French, all the children produced significantly more LDs after hearing a LD construction than after hearing a NP+VP structure. So, processing LD construction led to the activation of this structure in the children’s mind. Moreover, LD production varied as a function of French exposure. This indicates that the routine processing of LDs in French affects the children’s sensitivity to use LDs to mark topicality.

In English, monolingual and bilingual children did not significantly use more LDs after processing this construction. However, language exposure played a role on LD production. Specifically, high exposure to French increased the likelihood to use LDs. This finding implies that the daily processing of LDs in French may activate the use of this structure in English as a function of language exposure.

**Language processing**

A growing body of research has started to address the role of language processing on CLI (Nicoladis, 2006, 2012; Nicoladis et al., 2010; Pirvulescu et al., 2012; Serratrice et al., 2009, 2011; Sorace et al., 2009). The theoretical motivations come from research on bilingual adults showing that processing considerations have real implications for bilinguals’ language use (Desmet & Declercq, 2006; Hartsuiker & Pickering, 2008; Hartsuiker et al., 2004; Schoonbaert et al., 2007). These studies suggested that bilingual adults can access shared syntactic representations across languages. Therefore, processing syntactic structures would affect the mental representation and subsequent use of these structures across languages. Vasilyeva et al. (2010) showed that bilingual children also access a shared syntactic representation for passive constructions in English and Spanish. In this study, the use of discourse-pragmatic sub-optimal LD constructions in
English to mark topicality provides some additional evidence that the mental representation of syntactic structures is affected by the simultaneous acquisition of two languages. Specifically, the data indicates that the routine processing of LDs, a high frequency structure in French seemed to activate the use of this structure in English. These results suggest that language processing can be a driving force in CLI.

**Input quantity**

The secondary aim of this chapter was to investigate the role of input quantity on the magnitude of CLI. Previous research reported different sensitivity to CLI as a function the bilingual children’s exposure to languages (Argyri & Sorace, 2007; Serratrice et al., 2009, 2011). In chapter 5, I proposed that language exposure would particularly affect CLI for high frequency structures. The present findings confirm this hypothesis and provide a quantified measure of the probability to produce a LD as a function of language exposure. In these two experiments, the results clearly indicated that the more a child was exposed to French the more likely she would be to produce a LD. Conversely, the more exposure to English a child would receive the less likely he would be to use a LD. These findings suggest that dislocations are more or less accessible in French-English bilingual children’s mental representation as a function of language exposure.

In conclusion, the present elicitation studies provide new evidence showing that CLI is affected by the routine processing of shared syntactic structures. Moreover, the current findings provided a first statistical analysis on the role of language exposure on the magnitude of CLI for high-frequency structures.
7 Language-internal and language-external determinants of CLI: concluding remarks

This final chapter briefly discusses the values and limitations of case studies before highlighting the implications of the thesis for the issue of CLI in the field of BFLA. Aside from documenting the acquisition of determiners, pronouns and dislocations in the context of French-English bilingualism, the four empirical studies presented here provide original new insights into the language-internal and language-external variables implicated in the phenomenon of CLI.

Rationale for case studies in BFLA studies

The present work relied on the longitudinal corpus of two French-English bilingual children that was supplemented by two elicitation experiments. Corpus studies represent the foundations of research on child language. Their relevance is still major today as they offer invaluable insights on language development especially for languages that are under-investigated. In context of BFLA, case studies provide a unique opportunity to consider the role of an array of variables, i.e. language dominance, language presentation within the family home, input quality, that play a role on bilingual development and to examine their evolution over time. Longitudinal corpora thus constitute an invaluable ground for the formulation of new hypotheses on the role of these different variables and motivate the elaboration of large-scale experiments to test these hypotheses.

The context of a PhD offers the opportunity to carry on such long haul and crucial projects. In addition, the collection of individual case studies contributes to the enrichment of the current CHILDES database and may serve as the foundation stone of larger corpora.

CLI: language-internal variables

Three language-internal factors have been discussed as possible variables playing a role on CLI: (i) structural overlap; (ii) the syntax-pragmatics interface (Hulk & Müller 2000); and (iii) language processing (Nicoladis, 2006). The results
confirm the vulnerability to CLI of structures at the interface between syntax and discourse-pragmatics in the presence of a structural overlap across the two languages (i.e. determiners and dislocations) (Hulk & Müller, 2000). Specifically at the level of referential expressions, the first analysis (chapter 4) demonstrated that the development of determiners in the context of French-English bilingualism displays evidence of (i) a delay in comparison to French monolinguals; (ii) an acceleration in comparison to English monolinguals; and (iii) transfer from English to French in the use of bare nouns in partitive (i.e. mass nouns) and indefinite plural contexts. At the sentence-level (i.e. dislocations), the study in chapter 5 showed evidence of transfers from French to English in the use of both LDs and RDs. As also predicted by Hulk & Müller's (2000) seminal hypothesis, the study on the development of the pronominal system (chapter 4) suggests that CLI does not occur for structurally equivalent structures such as clitics/pronouns in French and English (i.e. two non-null argument languages).

The bi-directionality of CLI at the determiner level indicates that variables other than the structural overlap and syntax-pragmatics interface conditions affect CLI. Hulk & Müller’s (2000) hypothesis successfully account for the acceleration in the development of determiners in English, but it cannot justify the transfer from English to French in the use of bare nouns, and hence the delays in the acquisition of determiners in French. While Serratrice et al. (2009) accounted for the unidirectional CLI in the form of transfer from English to Italian in the use of bare nouns in argument position in line with Chierchia’s (1998) Nominal Mapping Parameter, the picture that emerges from the present data displays a less clear-cut implication of this variable. Chierchia’s (1998) NMP successfully predicts that bilingual children will opt for the more economical setting of English [+arg; +pred] which will induce delays in the acquisition of French; it cannot, however, predict bilingual children’s early mastery of the English determiner system in comparison to English monolinguals. Moreover, neither of these two proposals can justify the children’s different sensitivity to CLI (i.e. magnitude of CLI). This last point implies that a language-external factor such as language dominance (i.e. expressive skills) interacts with the two variables discussed above. Overall, the findings suggest that both structural overlap and economy considerations predict CLI at the determiner level as a function of language dominance (i.e. expressive skills).
With regard to language processing, the studies on the development of argument realization and on dislocations respectively provide new insights on the role of this variable on CLI. The language processing account specifically suggests that CLI would be the consequence of bilingual children's language use and difficulties at processing overlapping structures in their two languages (Serratrice, 2013). Nicoladis (2006) proposed that CLI would be due to competition at the lemma level between constructions that overlap in the bilinguals’ two languages. The two language systems would be co-activated and would compete regardless of the language being used.

As predicted by the language processing account, the study in chapter 4 on the acquisition of the pronominal system in French and English (i.e. two non-null argument languages) indicates that processing limitations do not arise in presence of structurally comparable constructions. The French-English bilingual children did not omit higher rates of subjects or objects than comparable monolingual children. These results contrast with recent experimental findings. Pirvulescu et al. (2012) did report higher object omission rates in French-English children than in comparable French monolinguals. I proposed that methodological differences should account for the different results between the present naturalistic data and Pirvulescu et al.’s experimental findings. In particular, the fact that their elicitation task was based on pictures may have biased the bilingual children’s perception of the need to overtly realise the referent in object position. Moreover, the bilingual children's successive participation in the same elicitation task in their two languages may have increased their sensitivity to the artificiality of the task in comparison to the French monolinguals who only did the task once. So, the bilingual effect reported in Pirvulescu et al. (2012) may well be caused by the experimental protocol.

In contrast, chapter 5 indicates that language processing affect CLI for structures that present a degree of structural overlap across the two languages (i.e. dislocations). Dislocations exist in both French and English, however French relies heavily on them to mark topicality while English favours the canonical word order (i.e. SVO). The presence of unidirectional transfer from French to English in the use of both LDs and RDs indicates that the pervasive use of dislocations in French and the processing of this high-frequency construction prime their use in English
Despite this construction being sub-optimal in that language. This proposal has been verified and confirmed in the two elicitation studies based on the priming paradigm reported in chapter 6. While the bilingual children used LDs and NP+VP structures in comparable proportion as French children in the two respective experimental conditions, the bilinguals were more likely to use LDs in sub-optimal contexts in English than monolingual peers. These results indicate that bilingual children have a shared syntactic representation for LDs across languages. These studies support the recent suggestions made in the literature on the role of language processing on CLI and indicate that cross-linguistic priming could be the processing mechanism underlying CLI (Nicoladis, 2006; Nicoladis et al., 2010; Serratrice, 2014).

**CLI: language-external variables**

The present work has examined the implications of three language-external variables on CLI: (i) language dominance – expressive skills (i.e. MLUw, Upper Bound, increase in the number of noun and verb in the lexicon, language uses); (ii) language dominance – language exposure (i.e. parental questionnaire on children’s language exposure); and (iii) input quality (i.e. contact-modified input). As discussed above for determiners, the two bilingual children exhibited different degrees of CLI, which implies that this phenomenon would be the consequence of the interaction between language dominance as expressed by the children’s expressive skills and two language-internal variables. I formulated two predictions on the implications of language dominance on CLI at the determiner-level:

a. If a child has fairly balanced expressive abilities in her two languages, as was the case for Sophie, the less complex language should affect the more complex language to a larger extent than the more complex language influences the less complex language.

b. If a child is dominant in the more complex language, as in Anne’s case, then this language affects the less complex language to a larger extent than the reverse. So, CLI can occur from the more complex language to the less complex language when the child shows a strong dominance in the more complex language.
The study on bilinguals’ use of dislocations in French and English (chapter 5) indicates the existence of a more complex implication of the role of language dominance on CLI. Despite exhibiting different levels of expressive abilities, the two bilinguals showed the same magnitude of CLI from French to English in the use of dislocations. This finding makes a strong case for the role of language exposure, language processing and the frequency of the structure in the input language on the directionality and magnitude of CLI for dislocations.

Put into perspective with the above predictions for determiners, the results indicate a much more complex picture of the role of language dominance on CLI. In fact, the different incidence of language exposure and children’s expressive abilities for CLI at the determiner-level and for dislocations suggests that these two variables may interact with additional factors such as language complexity and frequency. Determiners are known to be a complex grammatical structure that is acquired early in French since determiners are obligatory in argument position, and they are acquired later in English notably as a consequence of the optionality of the projection of a determiner in argument position as well as phonological constraints. In contrast, children acquire dislocations early in French (De Cat, 2002) but also despite its low frequency in English (Pérez-Leroux et al., 2011). The evidence detailed here suggests that language exposure and the level of expressive abilities have a different impact on CLI depending on the structure under investigation. In fact, the frequency of the structures and their structural complexity appear to interact with language dominance. Evidence from the longitudinal corpus lends support to the following hypothesis:

a. Language exposure affects CLI from language A (i.e. French) to language B (i.e. English) for high-frequency structures in language A, such as dislocations, when such structures are acquired relatively early in child language.

b. Expressive abilities play a role on CLI from language B (i.e. English) to A (i.e. French) for structures available in a limited number of contexts (i.e. bare nouns) in language B and when these structures are typically acquired late.
The experimental data confirmed prediction ‘a’ on the interaction between language exposure, frequency and linguistic complexity. The processing of LD structures (i.e. frequent and acquired early in French) led to the use of this structure in sub-optimal contexts in English as a function of language exposure, with children with more exposure to French being more likely to use LDs in English contexts in which they would be pragmatically less than appropriate.

Finally, the role of input quality on CLI has also been examined in chapter 5. This variable did not affect the transfers from French to English in the use of dislocations. French-English bilingual children were exposed to English input that was qualitatively comparable to that of English children, at least with regard to dislocations. The bilinguals’ English input was not attrited as a result of language exposure to the co-existing French input. These results indicate that the input from the parent speaking the language of the primary environment (i.e. here British English) is not affected by the prolonged and sustained contact with the minority language (i.e. French). However, it is important to note that the results may have been different if the English-speaking parent were living in France.

In conclusion, this thesis contributes to the on-going research that tries to refine and disentangle the role of a number of variables such as language dominance, language processing, structural overlap, frequency and structural complexity on CLI. It has shown that this phenomenon is the result of an interaction of a multitude of variables rather than being the consequence of a combination of two factors (e.g. structural overlap, discourse-pragmatics interface) (Hulk & Müller, 2000).
References


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Appendix A – Longitudinal Corpus - Transcription and Coding Conventions

1. The longitudinal data

The children’s age at the time of each recording are given in Tables 49 and 50. There are 12 recordings in French context and 11 recordings in English context for Sophie and only 11 recordings in French and English contexts for Anne.

Table 49 Anne’s ages at each recording session.

<table>
<thead>
<tr>
<th>Anne</th>
<th>French</th>
<th>English</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video 1</td>
<td>22/08/2011</td>
<td>23/08/2011</td>
<td>2;4</td>
</tr>
<tr>
<td>Video 2</td>
<td>26/09/2011</td>
<td>27/09/2011</td>
<td>2;5</td>
</tr>
<tr>
<td>Video 3</td>
<td>23/10/2011</td>
<td>/</td>
<td>2;6</td>
</tr>
<tr>
<td>Video 4</td>
<td>14/11/2011</td>
<td>15/11/2011</td>
<td>2;7</td>
</tr>
<tr>
<td>Video 5</td>
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<td>13/12/2011</td>
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</tr>
<tr>
<td>Video 6</td>
<td>16/01/2012</td>
<td>17/01/2011</td>
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</tr>
<tr>
<td>Video 7</td>
<td>27/02/2012</td>
<td>28/02/2012</td>
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<td>Video 8</td>
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<td>27/03/2012</td>
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<tr>
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<tr>
<td>Video 12</td>
<td>/</td>
<td>21/08/2012</td>
<td>3;4</td>
</tr>
</tbody>
</table>

Table 50 Sophie’s age at each recording session.

<table>
<thead>
<tr>
<th>Sophie</th>
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<th>English</th>
<th>Age</th>
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<td>09/12/2011</td>
<td>2;7</td>
</tr>
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<td>Video 3</td>
<td>18/01/2012</td>
<td>18/01/2012</td>
<td>2;8</td>
</tr>
<tr>
<td>Video 4</td>
<td>15/02/2012</td>
<td>15/02/2012</td>
<td>2;9</td>
</tr>
<tr>
<td>Video 5</td>
<td>21/03/2012</td>
<td>21/03/2012</td>
<td>2;10</td>
</tr>
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<td>Video 6</td>
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<td>10/05/2012</td>
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<td>Video 7</td>
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<td>19/06/2012</td>
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<td>27/07/2012</td>
<td>3;2</td>
</tr>
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<td>Video 9</td>
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<td>24/08/2012</td>
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<td>Video 10</td>
<td>27/09/2012</td>
<td>27/09/2012</td>
<td>3;5</td>
</tr>
<tr>
<td>Video 11</td>
<td>19/10/2012</td>
<td>/</td>
<td>3;6</td>
</tr>
<tr>
<td>Video 12</td>
<td>03/12/2012</td>
<td>03/12/2012</td>
<td>3;7</td>
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</table>
The Mean Length of Utterance in words (MLUw) for each child is reported in Tables 51 and 52.

<table>
<thead>
<tr>
<th>Anne</th>
<th>MLU French</th>
<th>MLU English</th>
<th>Age</th>
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</thead>
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<td>/</td>
<td>2;6</td>
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<td>Video 12</td>
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Anne's use of French, English and mixed utterances in each recording is reported in Tables 53-54.

Table 53 Anne’s use of French, English and mixed utterances in English context.

<table>
<thead>
<tr>
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<td>English</td>
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<td>28</td>
<td>6</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>2;5</td>
<td>3</td>
<td>48</td>
<td>4</td>
<td>55</td>
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<td>163</td>
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<td>165</td>
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<tr>
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<td>3;4</td>
<td>0</td>
<td>155</td>
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<td>156</td>
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</table>

Table 54 Anne’s use of French, English and mixed utterances in French context.

<table>
<thead>
<tr>
<th>Anne</th>
<th>French sessions</th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Age</td>
<td>French</td>
<td>English</td>
<td>Mix</td>
<td>Total</td>
</tr>
<tr>
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<td>18</td>
<td>13</td>
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<td>25</td>
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<td>2;9</td>
<td>26</td>
<td>99</td>
<td>23</td>
<td>148</td>
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<tr>
<td></td>
<td>2;10</td>
<td>6</td>
<td>102</td>
<td>26</td>
<td>134</td>
</tr>
<tr>
<td></td>
<td>2;11</td>
<td>3</td>
<td>81</td>
<td>20</td>
<td>104</td>
</tr>
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<td>118</td>
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</tr>
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<td>3;1</td>
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<td>115</td>
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<td>138</td>
</tr>
<tr>
<td></td>
<td>3;2</td>
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<td>137</td>
<td>23</td>
<td>161</td>
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</table>
Sophie’s use of French, English and mixed utterances in each recording is reported in Tables 55-56.

### Table 55 Sophie’s use of French, English and mixed utterances in English context.

<table>
<thead>
<tr>
<th>Sophie</th>
<th>English sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>French</td>
</tr>
<tr>
<td>2;6</td>
<td>0</td>
</tr>
<tr>
<td>2;7</td>
<td>0</td>
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<tr>
<td>2;8</td>
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<tr>
<td>2;9</td>
<td>0</td>
</tr>
<tr>
<td>2;10</td>
<td>4</td>
</tr>
<tr>
<td>3;0</td>
<td>4</td>
</tr>
<tr>
<td>3;1</td>
<td>0</td>
</tr>
<tr>
<td>3;2</td>
<td>24</td>
</tr>
<tr>
<td>3;3</td>
<td>0</td>
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<tr>
<td>3;5</td>
<td>4</td>
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<td>3;6</td>
<td>/</td>
</tr>
<tr>
<td>3;7</td>
<td>0</td>
</tr>
</tbody>
</table>

### Table 56 Sophie’s use of French, English and mixed utterances in French context.

<table>
<thead>
<tr>
<th>Sophie</th>
<th>French sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>French</td>
</tr>
<tr>
<td>2;6</td>
<td>101</td>
</tr>
<tr>
<td>2;7</td>
<td>152</td>
</tr>
<tr>
<td>2;8</td>
<td>137</td>
</tr>
<tr>
<td>2;9</td>
<td>165</td>
</tr>
<tr>
<td>2;10</td>
<td>173</td>
</tr>
<tr>
<td>3;0</td>
<td>61</td>
</tr>
<tr>
<td>3;1</td>
<td>51</td>
</tr>
<tr>
<td>3;2</td>
<td>120</td>
</tr>
<tr>
<td>3;3</td>
<td>198</td>
</tr>
<tr>
<td>3;5</td>
<td>166</td>
</tr>
<tr>
<td>3;6</td>
<td>121</td>
</tr>
<tr>
<td>3;7</td>
<td>96</td>
</tr>
</tbody>
</table>
2. **Main CHAT conventions used to transcribe the data**

*CHI:* “CHI” provides the identity of the speaker, usually the first three letters of the person’s name or status (e.g. child, mother, observer, sister, nanny, cleaner). Usage is identified in the header lines of each file.

`xx` indicates a single uninterpretable word.

`xxx` indicates an uninterpretable utterance with an indeterminate number of words.

`www` indicates that an exchange took place which has not been transcribed. This is used when adults speak to each other as though the child were not present, for example when someone answers the telephone and has a conversation.

`(`) indicates a pause (as noted below, commas indicate syntactic juncture only and are not used to mark where pauses normally occur in speech).

`[?]` indicates that the transcriber was not completely certain of the transcription. The uncertain word or string of words is indicated by `< >`.

`[/]` indicates that the speaker restarts their utterance.

`[//]` indicates that the speaker repairs the misuse of a word or a mispronounced word.

`[///]` indicates that the speaker reformulates their utterances.

`+/.` indicates that the speaker was interrupted.

`+//.` indicates that the speaker interrupted themselves.

`+...` indicates that the speaker does not finish their utterance

`+//?` indicates that the speaker does not finish their utterance as an invitation for another person to complete the utterance

`:::` marks the lengthening of a sound

`[=! laughs]` indicates that the speaker is laughing. The verb into the square brackets is changed according to the situation (e.g. crying, shouting, singing etc.).
3. **Specific coding to bilingual conversations and child interactions were adopted.**

[-eng] indicates that the speaker is talking in English in a French context.

[-fra] indicates that the speaker is talking in French in a French context.

[-mix] indicates that the speaker is code-switching.

@e indicates that a word has been uttered in English in a French context.

@f indicates that a word has been uttered in French in a French context.

@s:eng&fra indicates that it is not clear whether the word has been pronounced in a French or English way.

@s:eng+fra indicates that a word contains an English stem with a French ending and vice-versa.

@c indicates that a word has been created by the child.

@co indicates that the child uses a word for another meaning. The meaning is then noted as follows [=! t+shirt].

0 indicates the absence of a word easily recoverable from the context.

4. **Use of commas**

A simple comma was used to denote the dislocated elements from the main clause. Its use permits an easy identification of utterances containing a dislocation.

*ANN: ahah 0 tangle, that one. (Anne 2;9)
*SOP: we're gonna both make cup+cake, me and Ella. (Sophie 3;0)

*ANN: ça, c'est souris vert. (Anne 2;9)
   this it is mouse green
   'This is a green mouse'.

*SOP: mais [/] mais moi, je mets la musique. (Sophie 3;0)
   but but me I put the music
   'But I put some music on'.

A double comma was used to mark question-tags in English.

*FAT: that's probably what you would choose,, wouldn't you?
*NAN: it was more fun when you were smaller,, wasn't it?
5. **Morphosyntactic coding**

Each utterance analysed in this study has been coded at the construction level, argument level and for dislocation constructions following the grid below. At the construction and argument level, the coding is based on Serratrice (2005). At the dislocation level, it is based on De Cat (2002).

<table>
<thead>
<tr>
<th>Construction level coding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A/ Utterance type</strong></td>
</tr>
<tr>
<td>1 declarative</td>
</tr>
<tr>
<td>2 exclamative</td>
</tr>
<tr>
<td>3 imperative</td>
</tr>
<tr>
<td>4 incomplete utterance</td>
</tr>
<tr>
<td>5 yes/no question</td>
</tr>
<tr>
<td>6 wh-question</td>
</tr>
<tr>
<td><strong>B/ Clause type</strong></td>
</tr>
<tr>
<td>1 matrix clause</td>
</tr>
<tr>
<td>2 conjoined clause</td>
</tr>
<tr>
<td>3 subordinated</td>
</tr>
<tr>
<td><strong>C/ Finiteness</strong></td>
</tr>
<tr>
<td>1 non-finite</td>
</tr>
<tr>
<td>2 3p.s</td>
</tr>
<tr>
<td>3 Progressive</td>
</tr>
<tr>
<td>4 Past</td>
</tr>
<tr>
<td>5 Modals</td>
</tr>
<tr>
<td>6 Copula</td>
</tr>
<tr>
<td>7 Other</td>
</tr>
<tr>
<td>8 no verb</td>
</tr>
<tr>
<td><strong>D/ Transitivity</strong></td>
</tr>
<tr>
<td>1 intransitive</td>
</tr>
<tr>
<td>2 transitive</td>
</tr>
<tr>
<td>3 distransitive</td>
</tr>
<tr>
<td>4 copula</td>
</tr>
<tr>
<td>5 N/A</td>
</tr>
<tr>
<td>6 other</td>
</tr>
<tr>
<td>Argument level coding</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td><strong>E/ Subject</strong></td>
</tr>
<tr>
<td>1 1st P.S</td>
</tr>
<tr>
<td>2 2nd P.S</td>
</tr>
<tr>
<td>3 3d P.S (il/elle)</td>
</tr>
<tr>
<td>4 1st P.Pl</td>
</tr>
<tr>
<td>5 2nd P.Pl</td>
</tr>
<tr>
<td>6 3d P.Pl</td>
</tr>
<tr>
<td>7 Impersonal pronoun (on/il and it/there)</td>
</tr>
<tr>
<td>8 Definite article (le, la, les / the) LICIT</td>
</tr>
<tr>
<td>9 Indefinite article (un, une / a, an) LICIT</td>
</tr>
<tr>
<td>10 Non-target definite article</td>
</tr>
<tr>
<td>11 Non-target indefinite article</td>
</tr>
<tr>
<td>12 Strong pronoun (celui-là, lui@d and that one/this one)</td>
</tr>
<tr>
<td>13 Demonstrative (c’ ; ce and this/that)</td>
</tr>
<tr>
<td>14 omitted pronoun (imperative)</td>
</tr>
<tr>
<td>15 missing subject</td>
</tr>
<tr>
<td>16 Proper name</td>
</tr>
<tr>
<td>17 Mass Nouns</td>
</tr>
<tr>
<td>18 Indefinite Plural NPs</td>
</tr>
<tr>
<td>19 Definite – Generics (le, la, les / The )</td>
</tr>
<tr>
<td>21 error marking generics</td>
</tr>
<tr>
<td>22 Wh-</td>
</tr>
<tr>
<td>23 Strong Pronouns (moi, toi, them)</td>
</tr>
<tr>
<td>24 Pronom indéfini (l'autre, tout, chacun, personne, plusieurs/ everybody etc.)</td>
</tr>
<tr>
<td>25 Quantifiers 1 (some, numerals)</td>
</tr>
<tr>
<td>26 Quantifiers 2 (many, any, both, either, much etc.)</td>
</tr>
<tr>
<td>27 Partitive (du, de la, des)</td>
</tr>
<tr>
<td>28 Possessives (mon NP, ton NP / my NP, your NP etc.)</td>
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<tr>
<td>29 That + NP</td>
</tr>
<tr>
<td>30 Non-target bare nouns</td>
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<tr>
<td>F/</td>
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<td>G/</td>
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<tr>
<td>H/</td>
</tr>
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</tr>
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<td><strong>I/</strong></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
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<td>3</td>
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<tr>
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<td>9</td>
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<td><strong>L/</strong></td>
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<td>2</td>
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</table>

### Dislocation construction

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<th>N/</th>
<th>Direction of dislocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>left</td>
</tr>
<tr>
<td>2</td>
<td>two elements on the left</td>
</tr>
<tr>
<td>3</td>
<td>right</td>
</tr>
<tr>
<td>4</td>
<td>two elements on the right</td>
</tr>
<tr>
<td>5</td>
<td>both (same element on both sides)</td>
</tr>
<tr>
<td>6</td>
<td>both (same element but slightly different)</td>
</tr>
<tr>
<td>7</td>
<td>different dislocated elements on both sides</td>
</tr>
<tr>
<td>8</td>
<td>three dislocated elements</td>
</tr>
<tr>
<td>9</td>
<td>unclear whether there is a real dislocation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>O/</th>
<th>Nature of dislocated element</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>first person sg pronoun (strong form)</td>
</tr>
<tr>
<td>2</td>
<td>second person sg pronoun</td>
</tr>
<tr>
<td>3</td>
<td>third person sg pronoun</td>
</tr>
<tr>
<td>4</td>
<td>first person plur pronoun</td>
</tr>
<tr>
<td>5</td>
<td>second person plur pronoun</td>
</tr>
<tr>
<td>6</td>
<td>third person plur pronoun</td>
</tr>
<tr>
<td>7</td>
<td>impersonal pronoun</td>
</tr>
<tr>
<td>8</td>
<td>adverb</td>
</tr>
<tr>
<td>9</td>
<td>de + NP (partitif)</td>
</tr>
<tr>
<td>10</td>
<td>indefinite DP</td>
</tr>
<tr>
<td>11</td>
<td>adjective</td>
</tr>
<tr>
<td>12</td>
<td>là, ici</td>
</tr>
<tr>
<td></td>
<td>bare noun</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>P</td>
<td><strong>New/old status of dislocated element</strong></td>
</tr>
<tr>
<td>1</td>
<td>[+ Hearer New; + Discourse New]</td>
</tr>
<tr>
<td>2</td>
<td>[- Hearer New; + Discourse New]</td>
</tr>
<tr>
<td>3</td>
<td>[- Hearer New; - Discourse New] - shift</td>
</tr>
<tr>
<td>4</td>
<td>[- Hearer New; - Discourse New] - maintenance</td>
</tr>
<tr>
<td>5</td>
<td>NA</td>
</tr>
<tr>
<td>Q</td>
<td><strong>Pragmatic function of dislocation</strong></td>
</tr>
<tr>
<td>1</td>
<td>contrastive reading</td>
</tr>
<tr>
<td>2</td>
<td>establish referent (simplifying referents to introduce discourse new entities)</td>
</tr>
<tr>
<td>3</td>
<td>maintaining referents (continuity)</td>
</tr>
<tr>
<td>4</td>
<td>switching referents (discourse old)</td>
</tr>
<tr>
<td>5</td>
<td>clarifying (afterthought)</td>
</tr>
<tr>
<td>6</td>
<td>pointer role (directing attention to an object present in the extra linguistics)</td>
</tr>
<tr>
<td>7</td>
<td>explaining (adding information about it)</td>
</tr>
<tr>
<td>8</td>
<td>emphasis</td>
</tr>
<tr>
<td>R/</td>
<td>Nature of resumptive element</td>
</tr>
<tr>
<td>----</td>
<td>------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>no resumptive element (and grammatical)</td>
</tr>
<tr>
<td>3</td>
<td>impersonal clitic and object clitic (c’, ce, le, la …)</td>
</tr>
<tr>
<td>4</td>
<td>deictic element (celui-là, là-dessus,…)</td>
</tr>
<tr>
<td>5</td>
<td>en, y</td>
</tr>
<tr>
<td>6</td>
<td>impersonal pronoun (cela, ça)</td>
</tr>
<tr>
<td>7</td>
<td>lexical</td>
</tr>
<tr>
<td>8</td>
<td>personal subject clitic (je, tu, il)</td>
</tr>
<tr>
<td>9</td>
<td>adverbial locution (comme ça), locative (dedans, là)</td>
</tr>
<tr>
<td>10</td>
<td>wh-word</td>
</tr>
<tr>
<td>11</td>
<td>no resumptive element and ungrammatical</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>S/</th>
<th>Function of resumptive element</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>no grammatical function (ça, elles protestent)</td>
</tr>
<tr>
<td>2</td>
<td>sujet</td>
</tr>
<tr>
<td>3</td>
<td>genitive (mon bébé, ses cheveux)</td>
</tr>
<tr>
<td>4</td>
<td>indirect object</td>
</tr>
<tr>
<td>5</td>
<td>object</td>
</tr>
<tr>
<td>6</td>
<td>modifier of an NP (sa vie est facile, à lui)</td>
</tr>
<tr>
<td>7</td>
<td>predicate</td>
</tr>
<tr>
<td>8</td>
<td>attribute</td>
</tr>
<tr>
<td>9</td>
<td>no resumptive element</td>
</tr>
</tbody>
</table>
6. **Coding the discourse functions of dislocations**

As detailed in section 5.1.3, dislocations are used for different discourse functions in French and English. The definition and criteria to establish these discourse functions are presented below. A DVD\(^{13}\) attached to this thesis illustrates the examples presented below.

1) *Establishing a referent: simplifying referents to introduce discourse new entities*

Criteria:
- a. **One** referent which is **new** to the discourse
- b. No specific gaze or gesture
- c. Meaning: if dislocated element is removed then we don't know what the child is talking about since she uses a pronoun in the main clause. (left-dislocated obligatorily because the topic is first mentioned and then talked about)

In this example, the child is baking with her father. She knows the recipe requires plums. She saw that all the ingredients have been gathered on the kitchen top. As they clean up the tops, Sophie saw the can of plums. She is a bit greedy and asks for them. She uses a dislocation to mark the introduction of a referent in the discourse.

*FAT:* we'll do that later on we don't need to do that right now.  
*CHI:* Daddy there’s a little bit there.  
*FAT:* and there’s water all over the floor now as well.  
*CHI:* plums [/] plums, can I have it please?  
*FAT:* yeah.

---

\(^{13}\) The present examples only come from Sophie's English and French data since Anne's video files were not available at the time.
In this example, the child is playing a game with her mother and the observer. They have to pick up specific cards as quickly as possible. As Sophie picks up a card representing a plane, she introduces it as a new topic to say that she likes this card.

*MOT: ba t’ as fait vite.  
well you have done fast  
‘Well you’ve been fast’.

*CHI: avion, je l’aime, l’ avion Maman.  
plane I it like the plane Mummy  
‘I like the plane Mum’.

*MOT: +< xxx.

*MOT: vraiment?  
really  
‘Really?’

2) Creating a topical contrast

Definition: The speaker is talking to a referent or about a referent using a weak pronoun but two referents are present (e.g. Mother and Observer/ a blue pencil and a green one) so the speaker has to disambiguate which referent she is talking about.

Criteria:

a. **Two or more** referents that have been previously mentioned in the discourse

b. There can be a gaze or a gesture towards the specific referent

c. If we remove the dislocated element then it is ambiguous for the interlocutors to know what the child is actually referring to.

In this example, the child is making cupcakes with her father. He has just poured some white and black chocolate chips into a bowl. She is then marking through the use of a dislocation that she wants this type of chocolate as opposed to the other type of chocolate chip.
*FAT: right white chocolate dark chocolate or both?  
*CHI: both.  
*FAT: greedy.  
*CHI: +< can I have some?  
*CHI: this one, can I have a little bit of this?  
*FAT: yeah.

In this second example, the child is playing tea party with her mother. They need spoons for tea. The child who has two spoons in her hands establishes which spoon is for her mother and which one is for her.

*CHI: [-mix] Maman, tu peux share@e celle-là <pour moi> [/] avec moi.  
Mummy you can share this one for me with me  
‘Mum you can share this one with me’.
*MOT: tu veux dire partager celle-là.  
you want to-say share this one  
‘You mean share this one’.
*CHI: ouais <mais> [/] mais moi, je peux avoir celle-là et toi, tu  
yeah but but me I can have this one and you you  
peux avoir celle-là si tu veux.  
can have this one if you want  
‘Yes but I can have this one if you want to’.
*MOT: merci mon amour.  
thanks my love  
‘Thank you love’.

3) Maintaining referents: maintaining continuity.

**Criteria:**

a. **One** referent that has been **previously mentioned** in the discourse and especially in the preceding utterance with either a weak form or a full NP.

b. **No** specific gaze or gesture.

c. Dislocated element can be removed **without any loss of meaning**. It is redundant.

In this example, Sophie’s father is mentioning to her a snowman they once made when they were in France. He asks her whether she remembers him. She confirms and maintains the referent.
*FAT: Sophie, look, do you remember Thibault that we made in France?
*CHI: yeah.
*OBS: It had a name wow.
*FAT: It had a name.
*FAT: Do you remember Thibault?
*CHI: He was fun, Thibault.

In this example, the child is asking for her snail, a money-box she uses as a toy. She says something about her snail. The dislocation she uses, appears to be redundant for this highly accessible referent.

*CHI: Je veux mon escargot.
'I want my snail'.

*CHI: Il pleure, mon escargot.
'He is crying, my snail'.

*MOT: Il pleure oh.
'really he cries'

4) Switching referents: switching back to a referent that was previously mentioned in the discourse

Criteria:

a. A referent has been previously discussed in the discourse (up to last ten utterances) but the discussion has shifted to another referent.

b. No special gaze or gesture

c. Dislocation is used because the speaker needs to notify his interlocutor that she has switched back to this old referent.

The girl is doing play dough. The child directs the attention of the observer towards a knife. Then, the child mentions the fact that she has a pair of scissors. Finally, she switches referent and talks about her knife.
*CHI: Coralie.
   Coralie
   ‘Coralie’.

*OBS: le couteau.
   the knife
   ‘The knife’.

*CHI: <je> [/] j’ ai le ciseau.
   I I have the cissors
   ‘I’ve got the cissors’.

*CHI: <où est> [//] où il est [/] où il est, mon couteau [/] where is
   where it is where it is my knife

   où il est, mon couteau, Maman?
   where it is my knife Mummy

   ‘Where is my knife Mummy?’

5) **Clarifying the referent (afterthought)**

Criteria:
   a. the referent is known to the interlocutors because it has either been
      previously mentioned or it is present in the extralinguistic.
   b. No specific gaze or gesture towards referent
   c. Meaning: mentioned with a weak form and speaker realizes that she needs
      to disambiguate which referent she’s talking about.
   d. there is often a pause between the main clause and the dislocated NP.

In this example, the child is baking. She is mixing the sugar and the butter.
She asks a question about a discourse-old referent (i.e. the flour) but realises
at the end of her sentence that she needs to disambiguate the referent she is
talking about.

*CHI: it’s very sticky.
*FAT: yeah.
*CHI: are we gonna do it with our hands too, the flour after?
*FAT: no, not this one.

In this example, the child is playing ‘tea party’ but she is more interesting in
dancing. As she finishes dancing, she expresses her love for this activity.
6) **Pointer role: directing attention to an object present in the extra linguistics**

**Criteria:**

a. The referent has **not directly been mentioned** in the discourse but is nevertheless hearer-old or present in the extra-linguistic context

b. Speaker either **looks at or gesture** towards the object that is mentioned.

c. Meaning: the dislocation really accompanies the gaze or gesture

In this example, the child is making icing for her cupcakes. She wants her cupcakes to have green icing. Here, the dislocation is used to direct her father's attention to express her will to use green icing on a cupcake.

*FAT:* I once read Sophie that when they first made margarine in Canada they made it green for some reason.

*CHI:* can I do green, that one?

*FAT:* then they changed it to yellow.

*CHI:* xxx.

In this example, the child is playing tea party. She has just found a 'princess cake' in her tent. She shows it to the observer to tell her that she has found this toy.
*CHI:  [-mix] ça, c’est la princess@e cake@e à faire à la café.
      this it is the princess cake to do at the café
‘This is a princess cake to use at the café’.
*OBS:  quoi?
      what?
‘What?’
*MOT:  +< [-mix] chez Ikea, ça, ça s’appelle <> y’a des princess@e
       at Ikea this it REFL calls there is some princess
       cakes@e et c’est comme ça, rose, alors elle les appelle
       cakes and it is like this pink so she them calls
       comme ça aussi.
       like this too
‘At Ikea’s, there are some princess cakes, they are pink like this that why
she calls this like that’.

7) Explaining: adding information about the referent

Criteria:
a. only one referent is talked about/ present in the extra-linguistic (no
   ambiguity)
b. no specific gesture or gaze
c. Meaning: the main clause is giving detailed new information about the
   dislocated element (e.g. specifying the owner or a characteristic inherent to
   the referent)

In this example, the girl making a car race with her father. As she wins, she
explains that her car is fast.

*CHI:  nine, ten.
*FAT:  oh well done.
*CHI:  0 got my car.
*CHI:  it’s pretty fast, my car.
*FAT:  it’s pretty fast, is it?
*CHI:  yes pretty fast.
*FAT:  pretty fast.
In this example, the girl is playing with her baby. She explains that he needs to wee.

*CHI: [-mix] Il a besoin pipi parce qu’il veut aller sur le potty. he has need weewee because he wants to-go on the potty ‘He needs to wee because he wants to go on the potty’.

*MOT: il veut aller sur le potty. he wants to-go on the potty ‘He want to go on the potty’.

*CHI: [-mix] non <il veut> [/] <il veut> [/] il veut une nappy@e, lui. no he wants he wants he wants a nappy, him ‘No he wants a nappy’.

*MOT: ba elle est là, la couche. but it is there the nappy. ‘But the nappy is there’.

*CHI: xxx.

8) Highlight: emphasising a referent

Criteria
a. Referent is under discussion or the action is being done
b. No specific gaze or gesture
c. Meaning: the speaker dislocates the NP in order to insist on this information

In this example, the child is tidying up her bedroom. She is folding the mat on which she has been playing play dough. Her father congratulates her on doing so and she insists on the fact that she did fold the mat.

*FAT: that’s very well folded.
*CHI: that, I did it fold it.

In this example, the girl is doing some exercise in a book with her mother. While she is doing it, her mother picks up a biscuit. She sees that and asks for one as well. The dislocation emphasises the fact that she also wants one.
*MOT: Non maintenant, tu dois trouver le r@l.
    now you need to-find the r
    ‘No now you have to find the letter r’.

*CHI: Ou est le r@l?
    where is the r
    ‘Where is the letter r’?

*CHI: là.
    there
    ‘There’.

*MOT: Oui bravo.
    yes bravo
    ‘Yes bravo’.

*OBS: Oui très bien.
    yes very good
    ‘Yes well done’.

*CHI: Je veux, moi aussi.
    I want me too
    ‘I want some as well’.
Appendix B – Parental questionnaire to determine bilingual children’s language exposure

**Evaluation of the amount of exposure to English and to an Additional Language**

**INSTRUCTIONS**
*Each parent will take a different route through this part of the questionnaire. Can you write the answers in the last column next to the answer which is correct for this particular child.*

**SECTION A: LANGUAGE(S) SPOKEN IN THE HOME**

Do you and your partner…. ? *(Can you circle your situation and go to the section indicated)*

<table>
<thead>
<tr>
<th>a)</th>
<th>This child hears 1 language, English.</th>
<th>Go to Section D</th>
</tr>
</thead>
<tbody>
<tr>
<td>b)</td>
<td>This child hears 2 languages, because both parents speak to her using another language (for example, they both speak French).</td>
<td>Go to Section B</td>
</tr>
<tr>
<td>c)</td>
<td>This child hears 2 languages, because one of the parents speaks to her using another language (for example, Mum speaks French and Dad speaks English).</td>
<td>Go to Section C</td>
</tr>
<tr>
<td>d)</td>
<td>This child hears 3 languages, because each parent speaks a different language to the child (for example, Mum speaks Spanish and Dad French).</td>
<td>Go to Section D</td>
</tr>
<tr>
<td>e)</td>
<td>This child hears 3 languages, because Mum and Dad speak another language to the child, but also because another person (a grandparent or a childminder for example) speaks a third language (for instance, Mum and Dad speak French and the child has a Spanish nanny).</td>
<td>Go to Section D</td>
</tr>
</tbody>
</table>
### SECTION B: BOTH PARENTS SPEAK THE SAME ADDITIONAL LANGUAGE TO THE CHILD

1. Can you please write here what is the Additional Language?  
   **FRENCH**

2. Write the number of hours a week in average your child spends in an English speaking nursery/day-care/preschool/childminder/relative or friend.

3. Write the number of hours a week in average your child spends in the bilingual school.

4. Write the number of hours in average your child spends sleeping per 24 hours

5. Does the mother of this child ... (please write 1 in the corresponding cell)
   a) always speak French to your child
   b) usually speak French to your child
   c) speak English to your child about half the time
   d) usually speak English to your child
   e) always speak English to your child

6. Does the father of this child... (please write 1 in the corresponding cell)
   a) always speaks French to your child
   b) usually speaks French to your child
   c) speaks English to your child about half the time
   d) usually speaks English to your child
   e) always speaks English to your child

7. When you and your partner are together with this child, who speaks most to the child? (please write 1 in the appropriate cell)
   a) Mother
   b) Father
   c) we both speak to this child an equal amount

8. If there are certain days or parts of certain days in a typical week when only you or your partner are with your child (e.g. father always takes care of child on Saturday afternoons).
   Write the number of hours per week when your child is with her mother only.
   Write the number of hours per week when your child is with her father only

   **Percentage of exposure to English**
   Please go to Section D
**SECTION C: ONE PARENT SPEAKS ENGLISH, ONE PARENT SPEAKS FRENCH TO THE CHILD**

1. Can you please write here what is the Additional Language? **FRENCH**

2. Who speaks English? Please write 1 if it is the mother, and 2 if it is the father.

3. Write the number of hours a week in average your child spends in an English speaking nursery/day-care/preschool/childminder/relative or friend.

4. Write the number of hours a week in average your child spends in the bilingual school.

5. Write the number of hours in average your child spends sleeping per 24 hours.

6. The English speaking parent (please write 1 in the corresponding cell)
   - a) always speaks English to your child
   - b) usually speaks English to your child
   - c) speaks French to your child about half the time
   - d) usually speaks French to your child
   - e) always speaks French to your child

7. The French-speaking parent (please write 1 in the corresponding cell)
   - a) always speaks French to your child
   - b) usually speaks French to your child
   - c) speaks English to your child about half the time
   - d) usually speaks English to your child
   - e) always speaks English to your child

8. When you and your partner are together with this child, who speaks most to the child? (please write 1 in the appropriate cell)
   - a) The English speaking parent
   - b) The French-speaking speaking parent
   - c) we both speak to this child an equal amount

9. If there are certain days or parts of certain days in a typical week when only you or your partner are with your child (e.g. father always takes care of child on Saturday afternoons).
   - Write the number of hours per week when your child is with the English-speaking parent only.
   - Write the number of hours per week when your child is with the French-speaking parent only.

   **Percentage of exposure to English**
   Please go to Section D
SECTION D  ALL PARENTS, PLEASE FILL IN THIS SECTION

1  What is the mother's highest educational qualification? Please write 1 after the corresponding case.
   No qualifications
   Below standard for a pass on the school-leaving examination
   O-levels
   A-levels
   Tertiary vocational qualifications
   an undergraduate degree
   a postgraduate degree

2  What is the father's highest educational qualification? Please write 1 after the corresponding case.
   No qualifications
   Below standard for a pass on the school-leaving examination
   O-levels
   A-levels
   Tertiary vocational qualifications
   an undergraduate degree
   a postgraduate degree

3  What is the mother's occupation?

4  What is the father's occupation?

5  Does your child have older siblings? Please write the ages of the older siblings:
   Sibling 1
   Sibling 2
   Sibling 3
   Sibling 4

6  Please enter your child's date of birth:
   Please enter today's date:

7  Please enter your child's gender (1 = girl, 2 = boy):

8  Does your child have any identified hearing problem? (1 if yes, and please write more below)

9  Was your child more than 6 weeks premature? (1 if yes)

10 Does your child have any identified developmental delay? (1 if yes, and please write more below)

11 Where was your child born?

12 How long have you been living in an English-speaking country for?
Appendix C – Prime targets – Experiments

1. French experiment – NP+VP condition

Winnie l’ourson et ses amis lisent un livre. Que font Winnie l’ourson et ses amis maintenant?
Winnie l’ourson mange du miel.
Tigrou est sur un arbre.

Winnie, Tigrou et Porcinet sont sur l’eau. Que font Winnie, tigrou et porcinet maintenant?
Target: Porcinet fait du tambour.
Target: Tigrou dort sur un nuage

Dora, Babouche et Diego font une promenade. Que font Dora et Diego maintenant?
Dora fait du patin à glace.
Diego se tiend à une corde.

Procinet et Tigrou sont dans le potager. Que font Winnie et Tigrou maintenant?
Target: Tigrou joue du violon
Target: Porcinet porte des pommes.

Diego et Dora font du bateau. Que font Diego et Dora maintenant?
Diego joue avec un laceau.
Dora fait un bouquet de fleur.

Winnie, Procinet et Tigrou joue à saute-mouton. Que font Winnie et Tigrou maintenant?
Target: Winnie est/pilote un avion.
Target: Porcinet met son bonnet.

Winnie, Bourriquet et coco lapin peignent des oeufs de pâques. Que font bourriquet et coco lapin maintenant?
Bourriquet s’est attaché à l’arbre.
Coco lapin ramasse les feuilles

Dora et Babouche font une balade en voiture. Que font Dora et Babouche maintenant?
Target: Babouche joue au foot/à la balle.
Target: Dora est la plage.

Winnie, Coco lapin, kangoo et leurs amis font un pique-nique. Que font Coco lapin et Kangoo maintenant?
Coco lapin danse.
Kangourou sort de sa maison.
Winnie, Porcinet et Tigrou se baignent dans la rivière. Que font Winnie et Tigrou maintenant?
Target: Tigrou boit du thé.
Target: Winnie l'ourson porte un pot de fleur.

Dora et Babouche mangent? Que font Dora et Babouche maintenant?
Dora s’est déguisé en pirate.
Babouche est assis.

Dora et Babouche se baignent dans la mer. Que font Dora et Babouche maintenant?
Target: Dora fait de la peinture.
Target: Babouche lit un livre.

Winnie, Tigrou et Porcinet écrivent des lettres.
Porcinet porte une grosse carotte.
Tigrou fait de la boxe.

Digeo, Dora et Babouche se sont déguisés. Que font Digo et Dora maintenant?
Target: Digo conduit un hélicoptère.
Target: Dora fait du poney.

Winnie et Porcinet cueillent des fleurs.
Winnie met de la peinture partout.
Porcinet s’amuse avec les papillons.

Winnie, Kangourou et leurs amis dansent en ronde.
Target: Porcinet touche les papillons.
Target: Kangoo joue de la balancoire.

Coco lapin, Kangorou, et leurs amis regardent un spectacle.
Coco lapin fait des percussions.
Kangoo joue de la flute.

Dora, Digeo et Babouche font coucou. Que font Dora et Diego maintenant?
Target: Diego est accroché à branche au dessus de la rivière.
Target: Dora fait du snowboard.

Dora et Babouche font la fête. Que font Dora et Babouche maintenant?
Dora saute.
Babouche est déguisé en pirate.

Dora, Babouche et le père Noel sont dans le traineau. Que font Dora et le père Noel maintenant?
Target: Dora visite la tour Eiffel.
Target: Le père Noel écrit une lettre.
2. **French experiment – Left Dislocation condition**

Blu et Perla, ils sont allongés sur un baton.  
Perla, elle vole.  
Blu, il tient skateboard.

Blu et Linda, ils se serrent la main.  
Target : Linda, elle téléphone.  
Target : Blu, il lit un livre.

Linda et Tulio, ils sont au restaurant. Linda et Tulio, que font ils maintenant ?  
Linda, elle mange.  
Tulio, il imite un oiseau.

L’oiseau noir et l’oiseau jaune, ils sont dans une cage. L’oiseau noir et l’oiseau jaune, que font ils maintenant ?  
Target : L’oiseau noir, il est sur une pomme/noix de coco.  
Target : L’oiseau jaune, il vole.

Blu et Perla, ils sont attachés l’un à l’autre. Blu et Perla, que font ils maintenant ?  
Perla, elle dort.  
Blu, il regarde la mer.

Linda et le petit garçon, ils se donnent la main. Linda et le petit garçon, que font ils maintenant ?  
Target : Le petit garçon, il lit.  
Target : Linda, elle a un paquet de céréales dans la main.

L’oiseau rouge et l’oiseau jaune, ils sont au marché. L’oiseau rouge et l’oiseau jaune, que font ils maintenant ?  
L’oiseau rouge, il fait du karaté.  
L’oiseau jaune, il fait du tambourin.

Le gros monsieur et l’oiseau, ils se regardent. Le gros monsieur et l’oiseau, que font ils maintenant ?  
Target: L’oiseau, il ouvre la porte.  
Target: Le gros monsieur, il regarde avec une lampe torche.

Blu et Linda, ils reposent un livre sur l’étagère. Blu et Linda, que font-ils maintenant?  
Linda, elle est allongée dans son lit.  
Blu, il porte des lunettes.

Blu et le chien, il regarde en l’air. Blu et le chien, que font ils maintenant?  
Target: Le chien, il porte des fruits sur la tête.  
Target: Blu, il mange un cookie.
Linda et Blu, ils boivent de l’eau. Linda et Blu, que font ils maintenant ?
Linda, elle éternue.
Blu, il fait du skateboard.

Le policier et le gros monsieur, ils discutent. Le policier et le gros monsieur, que font ils maintenant ?
Target : Le policier, il sent/renifle un mouchoir.
Target : Le gros monsieur, il se gratte.

Blu et Perla, ils sont sur une branche. Blu et Perla, que font ils maintenant ?
Perla, elle traverse la route.
Blu, il est à la plage.

Linda et Tulio, ils sortent dans le jardin. Linda et Tulio, que font ils maintenant ?
Target : Tulio, il porte des feuilles.
Target : Linda, elle descend les escaliers.

Blu et Perla, ils se regardent. Blu et Perla, que font ils maintenant ?
Blu, il est enfermé dans une cage.
Perla, elle est devant un carton.

Tulio et Linda, ils sont déguisés. Tulio et Linda, que font ils maintenant ?
Target: Linda, elle conduit une moto.
Target: Tulio, il lève les bras.

Blu et Linda, ils se brossent les dents. Blu et Linda, que font ils maintenant?
Linda, elle regarde en l’air. Blu, est joue sur une voiture.

Le monsieur et l’oiseau blanc, ils conduisent. Le monsieur et l’oiseau blanc, que font ils maintenant?
Target: Le monsieur, il est assis sur une chaise.
Target: L’oiseau blanc, il regarde un poster.

Perla et l’oiseau noir, ils se font un clain. Perla et l’oiseau noir, que font ils maintenant?
L’oiseau noir, il sort de l’arbre.
Perla, elle tire une corde.

Tulio et Linda, ils sont en voiture. Tulio et Linda, que font ils maintenant?
Target: Tulio, il regarde une plume.
Target: Linda, elle se met de la crème sur le visage.
3. **English experiment – NP+VP condition**

Hippo, Lion and their friends are driving in town. What are Hippo and Lion doing now?
Hippo is climbing in a train.
Lion is preforming on stage.

The lion and the zebra are having some food. What are the lion and the zebra doing now?
Target: The zebra is blowing his birthday candle out.
Target: The lion is showing some pants.

The giraffe, the lion and the hippo are walking into the tube. What are the giraffe and the lion doing now?
The giraffe is coming out of the toilets.
The lion is licking his finger.

The hippo and the lion are arguing. What are the hippopotamus and the lion doing now?
Target: The hippo is swimming.
Target: Lion is holding his umbrella.

The zebra and the lion are scuba diving. What are the zebra and the lion doing now?
The zebra is opening a present.
The lion is blowing some air.

The zebra the lion and their friends are sitting on a plane. What are the zebra and the lion doing now?
Target: The lion is on the phone.
Target: The zebra is walking in the street.

The giraffe, the zebra and their friends are on a boat. What are the giraffe and the zebra doing now?
The giraffe is sitting on a couch.
The zebra is stretching his leg.

The zebra and the lion are hugging. What are the zebra and the lion doing now?
Target: The zebra is dancing as a clown.
Target: The lion is holding a trunk.

The penguins are sunbathing. What are the penguins doing now?
The penguin is looking at a map.
The penguin is writing.

The lion and the zebra are singing. What are the lion and the zebra doing now?
Target: The lion is scratching the tree.
Target: The zebra is cleaning his nose.
The giraffe, the zebra and their friends are escaping from the zoo. What are the giraffe and the zebra doing now?
The giraffe is setting a fire.
The zebra is making a present.

The zebra, the giraffe, the lion and the hippo are standing next to each other. What are the zebra and the giraffe doing now?
Target: The giraffe is walking on the escalator.
Target: The zebra is surfing.

The lion and the giraffe are on the train. What are the lion and the giraffe doing now?
The giraffe is blocked in a box.
The lion is roaring.

The lion and the zebra are fighting. What are the lion and the zebra doing now?
Target: The lion is hiding behind a bush.
Target: The zebra is reading a book.

The zebra and the lion are hanging by a rope. What are the lion and the zebra doing now?
The lion is offering some biscuits.
The zebra is waving.

The lion, the giraffe and their friends are sitting at a table. What are the lion and the giraffe doing now?
Target: The lion is going swimming.
Target: The giraffe is digging a hole in the sand with her head.

The zebra and the lion are running. What are the zebra and the lion doing now?
The zebra is looking at a plate of fruit.
The lion is standing by the door.

The lion the zebra and the hippo are getting warm by the fire. What are the lion and the zebra doing now?
Target: The lion is holding some flowers.
Target: The zebra is drinking.

The lion and the zebra are walking out of the jungle. What are the lion and the zebra doing now?
The zebra is jumping.
The lion is sucking his thumb.

The zebra and the hippo are looking at the stars in the sky. What are the zebra and the hippopotamus doing now?
Target: The hippo is carrying a clock.
Target: The zebra is flying.
4. **English experiment – Left Dislocation condition**

The girl and the cowboy are chatting. The girl and the cowboy, what are they doing now?
The girl, she is eating a burger.
The boy, he is hiding in a bush.

The boy and the girl, they are coming into the bedroom. The boy and the girl, what are they doing now?
Target: The girl, she is looking into a toy box.
Target: The boy, he is sitting on a chair.

Barbie and Ken, they are hugging. Barbie and Ken, what are they doing now?
Ken, he is clapping.
Barbie, she is tearing a jumper.

The cowboy and the astronaut, they are hiding behind a box. The cowboy and the astronaut, what are they doing now?
Target: The cowboy, he is carrying some scissors.
Target: The astronaut, he is running.
The dinosaur and mister potato head, are looking at each other. The dinosaur and mister potato head, what are they doing now?
The dinosaur, he is roaring.
Mister potato head, he is taking his ear off.

The Cowboy and the astronaut, they are shaking hands. The cowboy and the astronaut, what are they doing now?
Target: The astronaut, he is flying.
Target: The cowboy, he is typing on the computer.

Ken and Barbie, they are looking at some clothes. Ken and Barbie, what are they doing now?
Ken is doing judo.
Barbie, she is crying.

The mother and the girl, they are putting toys into the box. The mother and the girl, what are they doing now?
Target: The mum, she is throwing an apple in the bin.
Target: The girl, she is listening to music.

The astronaut and cowgirl, they are holding hands. The astronaut and the cowgirl, what are they doing now?
The astronaut, he is eating.
The cowgirl, she is holding a key.

Barbie and Ken, they are on holiday. Barbie and Ken, what are they doing now?
Target: Ken, he is putting on his sunglasses.
Target: Barbie, she is sitting on a stool.
Mister and Mrs potato head are waving. Mr and Mrs potato head, what are they doing now?
Mrs potato head, she is lifting her handbag.
Mr potato head, he is pressing on a red button.

The boy and the girl, they are playing on the computer. The boy and the girl, what are they doing now?
Target: The boy, he is driving.
Target: The girl, she is reading.

The cowboy and the cowgirl, they are riding a horse. The cowboy and the cowgirl, what are they doing now?
The cowgirl, she is dialing on the phone.
The cowboy, he is pulling some books.

The cowboy and the telephone, they are talking to each other. The cowboy and the telephone, what are they doing now?
Target: The telephone, he is looking at the window.
Target: The cowboy, he is writing.

The cowboy and the cowgirl, they are in the toy box. The cowboy and the cowgirl, what are they doing now?
The cowboy, he is standing on a chair.
The cowgirl, she is painting.

The cowboy and the teddy bear, they are arguing. The cowboy and the teddy bear, what are they doing now?
Target: The teddy bear, he is going up the stairs.
Target: The cowboy, he is kneeling on a toilet roll.

The girl and the white horse, they are sleeping. The girl and the white horse, what are they doing now?
The girl, she is drinking.
The white horse, he is resting in the grass.

The astronaut and Ken, they are walking around. The astronaut and Ken, what are they doing now?
Target: The astronaut, he is climbing.
Target: Ken, he is wearing a red suit.

The astronaut and the cowboy, they are running. The astronaut and the cowboy, what are they doing now?
The astronaut, he is holding a suitcase.
The cowboy, he is falling down.

The teddy bear and the cowboy, they are flying. The teddy bear and the cowboy, what are they doing now?
Target: The teddy bear, he is walking with a stick.
Target: The cowboy, he is putting his hat on.