The Nature of Two Trilingual Children's Utterances: Growing up with Croatian, English and German

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ABSTRACT

This thesis is an exploration of the nature of utterances produced by two children of the same family, who are growing up with three languages - Croatian, English and German - from birth. The period of study covers ten months, and the children are aged between 1;4 (one year and four months) and 2;1 and between 2;9 and 3;6 respectively. During this period, the children produce mono-, bi- and trilingual utterances. The focus in this thesis is on utterances involving more than one language. Such utterances involve two types of mixing: (i) whole-word mixing, in which whole words are contributed from at least two of the participating languages, and (ii) word-level mixing, in which individual words are made up of constituent parts belonging to different languages.

In order to gain an understanding of the occurrence of such utterances, a close account is provided not only of the circumstances in which these utterances are produced but also of the frequency with which they are recorded. Attention is also paid to the level of language development, which, it is thought, can have an influence on the production of mixed utterances.

The application of existing analytical frameworks (Myers-Scotton, 1993; 2006; Poplack, 1980) to the selected corpus of data from the present thesis demonstrates their limitations with regard to accounting for the reported variety of (mixed) utterances. A degree of modification is proposed in this context, but the thesis calls for additional empirical research in the search for more appropriate analytical frameworks for multilingual children's language productions.

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LIST OF ABBREVIATIONS

General		Relevant Word Classes		Noun Cases	
DIM	diminutive	**Adj**	adjective	**NOM**	Nominative
FEM	feminine	**Adv**	adverb	**GEN**	Genitive
IMP	imperative	**Adv P**	adverbial phrase	**DAT**	Dative
IMPF	imperfect	**Aux V**	auxiliary verb	**ACC**	Accusative
INF	infinitive	**Comp Part**	comparative particle	**VOC**	Vocative
INFL	inflection	**Conj**	conjunction	**LOC**	Locative
MASC	masculine	**Det**	determiner	**INST**	Instrumental
NEG	negative	**N**	noun		
NEUT	neuter	**NP**	noun phrase		
PAST	past tense	**Prep**	preposition		
PERF	perfective verb form	**Pron**	pronoun		
PL	plural	**V**	verb		
PTM	past tense marker	**VP**	verb phrase		
PRES	present tense				
RM	root morpheme				
SG	singular				

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CHAPTER 1

INTRODUCTION

This thesis is about the nature of the utterances produced by two children growing up with three languages from birth. The children are siblings, exposed to the languages of Croatian, English and German. The children's country of residence is England.

Research into how children acquire and use *three* languages is a relatively recent area of interest compared to that into children growing up with *two* languages. The latter, also termed Bilingual First Language Acquisition (BFLA) (De Houwer, 1990) emerged in the early 20th century (e.g. Pavlovitch, 1920; Ronjat, 1913), whereas research into the acquisition of three languages – known as Trilingual First Language Acquisition (TFLA) (Quay, 2001) – first manifested itself in the second half of the 20th century (e.g. Murrell, 1966). Irrespective of the chronology of their emergence, both areas of research have experienced an upsurge of interest over the past two decades (Meisel, 2008). The general outcome of this is the finding that children tend to acquire their multiple languages by going through the same major stages of acquisition as do monolingual children (e.g. Bhatia and Ritchie, 1999). In other words, the process of language acquisition is comparable for children acquiring one, two or three languages. However, bilingual children can choose to operate by utilising either one of their two languages (monolingually), or they can choose to operate by utilising both of their languages in combination (bilingually) (Grosjean, 1982; 1985). By extension, trilingual children can operate mono-, bi- or even trilingually (Hoffmann, 2001b). This is in contrast to monolingual children who have only one language at their disposal.

Hence, the difference between children acquiring one, two and three languages lies in the number of languages and language combinations available to them for communication. This, in turn, has implications for the children's language sensitivity: multilingual children, consequently, have to be able to adjust their speech (or language performance) according to the requirements of the communicative situations in which they find themselves. In the literature, it is generally agreed that children as young as two years of age utilise their

languages sensitively with regard to their interlocutor's language (Genesee and Nicoladis, 2007; Paradis and Nicoladis, 2007).

Other research interests in the bilingual and the trilingual literature include mixed utterances (e.g. De Houwer, 2009; Deuchar and Quay, 2000; Lanza, 1997b), that is, utterances which involve elements from more than one language. In the 1980s and 1990s, the search for principles or constraints which would explain the make-up of mixed utterances (e.g. Myers-Scotton, 1993; 2006; Poplack, 1980) was a common factor in this context. Poplack (1980) proposed the Free Morpheme principle and the Equivalence principle, while Myers-Scotton (1993; 2006) suggested several constraints under her Matrix Language Frame model. However, some studies concluded that children cannot be said to observe such rules or constraints because their grammatical development is not complete and has as yet not achieved the adult target (Meisel, 1994a). It was thought that the use of more than one language in an utterance requires grammatical knowledge and experience, and that children can observe rules and constraints in the context of mixed utterances only after they have access to certain grammatical principles (Meisel, 1994a). In other words, since grammatical elements may as yet be missing from the children's repertoire, children cannot be expected to observe the proposed rules and constraints in the same way as adults.

Nevertheless, Poplack's (1980) Free Morpheme and the Equivalence constraints and Myers-Scotton's (1993; 2006) constraints have been applied to some bilingual case studies involving children (e.g. Lanza, 1997a; Paradis, Nicoladis and Genesee, 2000; Vihman, 1998). However, their conclusions do not all agree. Put differently, although some principles and constraints have, reportedly, been observed (e.g. Lanza, 1997a; Paradis, Nicoladis and Genesee, 2000; Vihman, 1998), violations of the same have also been reported (e.g. Gawlitzek-Maiwald and Tracy, 1996; Romaine, 1986; Vihman, 1998).

Another complication with regard to the applicability of proposed constraints involves the number of participating languages which are accounted for by

Poplack's (1980) and Myers-Scotton's (1993; 2006) proposed rules. Only two languages are ever taken into consideration in an effort to explain the structure of mixed utterances, although Myers-Scotton (2002) suggests that her proposed framework covers the use of two *or more* languages. In this context, Myers-Scotton's (1993; 2006) Matrix Language Frame (MLF) model is based on the distinction between something termed the *Matrix Language (ML)* and something else called the *Embedded Language (EL).* The ML is said to provide the morphosyntactic frame of an utterance, while the EL supplies some lexical elements. In case studies involving trilingualism, on the other hand, up to *three* languages can be involved in an utterance. How are these three languages distributed within an utterance and accounted for by Myers-Scotton's (1993; 2006) MLF model? Can there be talk of one ML and two ELs, or of two MLs and one EL? Alternatively, the distinction between ML and EL according to Myers-Scotton's (1993; 2006) definitions may be less clear in this context. For this to be investigated and discovered, relevant trilingual data needs to be analysed. However, due to the general lack of 'truly trilingual' (Hoffmann and Widdicombe, 1999: 53) utterances in previous work, the applicability of Myers-Scotton's (1993; 2006) Matrix Language Frame model to trilingual data has yet to be tested. This is one of the main objectives in the present thesis.

Other tasks include assessing the children's language development. In the past, this was done in terms of calculating the Mean Length of Utterance (MLU) from the number of words per utterance and also by the number of morphemes per utterance. Both methods have been applied to child data in some existing (bilingual) case studies (e.g. Sinka, 2000), but only relatively recently has the correlation between these methods been calculated (Parker and Brorson, 2005). The main aim of this investigation was to explore whether the MLU values calculated in words (MLUw) have any relation to the MLU values calculated in morphemes (MLUm). It was found that the correlation between these values in monolingual English data from children aged 3;0 to 3;10 was high. The conclusion Parker and Brorson (2005) drew from their finding was that either measure can be equally effective in calculating children's language development.

The present thesis aims to explore this finding in the context of trilingualism. Are MLUw and MLUm calculations equally applicable to the three languages in the present case study? Are morphologically more complex languages at an advantage over morphologically less complex languages in the calculation of MLUm? And can either of these measures be utilised to calculate the MLU value of mixed utterances, which are a major concern in this thesis? These are some of the questions to which an answer is sought.

As stated at the beginning of this chapter, the main purpose of the investigations outlined above is to explore the nature of two trilingual children's utterances, in view of the exposure to each of the three languages, the children's language development and the recorded use of the languages. To date, the field of trilingualism has tended to work within the theoretical framework of bilingualism (Hoffmann, 2000). The reason for this may be the fact that trilingualism as a special field of research is chronologically younger than the field of bilingualism (see above), for which reason no specific theoretical framework has as yet been forthcoming. As a consequence, findings made in the context of BFLA have had an influence on the shape of studies of TFLA.

Due to the correlation which exists between these two areas of research, the literature review in Chapter 2 discusses the characteristics and findings of, initially, BFLA, followed immediately by essentials from TFLA research. Discussed are, among others, language competence and language performance, the issue of the terminology and the outcome of investigations involving previously proposed constraints. The chapter ends with a section on the contribution which the present thesis seeks to make to the field of TFLA.

Chapter 3, subsequently, presents and discusses issues to do with the study's research design, the subjects of the investigation, the investigator and the criteria for data collection, data selection and data presentation. A discussion of the analytical tools utilised in the present thesis completes the chapter.

Chapter 4 focuses on the languages to which the children in this study are exposed and their typology. The chapter continues by outlining habitual exposure to the languages and assessing the children's language development per participating language. It ends by describing and exemplifying actual language use between the children and other members of the family.

Chapter 5 sees a first step being made into exploring mixed utterances. This is done by quantifying the incidence of mixed utterances in the children's overall repertoire as recorded on audio tape and in written notes. In the case of bilingual utterances, the incidence of individual language pairs (Croatian-German, Croatian-English and German-English) is quantified. This calculation shows the children's preference for a particular language pair and, thereby, contributes to our understanding of the nature of these children's utterances.

Chapter 6 involves qualitative data analysis of mixed utterances. The analysis is split into two parts, depending on the level at which mixing is recorded. *Whole-word mixing* involves the insertion of whole words (consisting of lexical and/or grammatical morphemes) from one or more languages into an utterance in the third language.

Word-level mixing, on the other hand, involves instances in which an item (word) consists of morphemes from two (or more) languages. For ease of reference, the three languages in trilingual case studies are, in theoretical discussions, referred to by the present author as Language A, Language Alpha and Language Aleph (the Phoenician letter 'A'). This is done following De Houwer's (2009) use of the terms of Language A and Language Alpha for the purpose of denoting the two languages of a bilingual. These terms are designed to reflect the fact that there was no difference in the chronology of exposure to either language. In other words, exposure to both, or all three, languages was from birth or soon thereafter.

Theoretically, word-level mixing, in the bilingual context, may therefore involve an utterance in Language Alpha, with the lexical morpheme of an item in the

same language, language Alpha, and the grammatical morpheme in Language A. Alternatively, in the trilingual context, in an utterance in Language Alpha, the lexical morpheme may be supplied by Language A, while the grammatical morpheme comes from language Aleph.

Both whole-word and word-level mixing can be observed to occur bilingually and trilingually. The analyses in Chapter 6 will show whether the data from the children in the present study show evidence of this. This chapter also sees an exploration of the applicability of Myers-Scotton's (1993; 2006) Matrix Language Frame (MLF) model, and Poplack's (1980) Free Morpheme and Equivalence constraints.

Finally, Chapter 7 binds everything together. The chapter involves a discussion of the findings from this thesis, an exploration of the concurrence of the findings from the present thesis with relevant findings from existing literature, and an outline of the implications these findings have for future research.

CHAPTER 2

LITERATURE REVIEW

1. INTRODUCTION

This section of the thesis presents and discusses relevant issues from the existing literature. They include the areas of Bilingual First Language Acquisition (BFLA) (De Houwer, 2009; Genesee, 2001; Genesee, 2006; Meisel, 1989; Meisel, 1994b) and of Trilingual First Language Acquisition (TFLA) (Quay, 2001). Although the present study into the nature of trilingual children's utterances belongs to the area of TFLA, it is research into BFLA which paved the way for research into the acquisition of more than two languages.

2. BILINGUAL FIRST LANGUAGE ACQUISITION (BFLA)

As seen in Chapter 1, research into the acquisition of *two* languages from birth has had a relatively long history. The early BFLA case studies made significant contributions towards a better understanding of how two languages are acquired and what consequences BFLA has on a child's cognition. It was found that bilingualism in general and BFLA in particular is by no means an uncommon phenomenon in the world at large and that, by virtue of being such a widespread phenomenon, it was worth of analysis and explanation in its own right (Genesee, 2003). It contributed to "the development of a general theory of language acquisition" (Genesee, 2003: 205), the understanding of the language faculty (Genesee, 2001; Genesee, 2005) and of the human mind.

It was also noted in Chapter 1 that there is no chronological difference in BFL children's first exposure to their two languages. For this reason, the languages should not be referred to in terms of a 'first' or a 'second' language, but rather in terms of two first languages. De Houwer (2009: 2) proposes the participating languages to be termed *Language A* and *Language Alpha* respectively.

Research into BFLA, by means of direct observation in case studies, is characterised by several major areas of interest: (i) the distinction between language competence and language performance, (ii) the acquisition of two

languages and the effect this has on how the languages are represented in the child's brain (that is, whether the language systems are initially unified or not), (iii) the phenomenon of using more than one language within and across utterances, and (iv) the rules which, it has been proposed, govern such language use. Of the research areas listed here, (iii) and (iv) are particularly relevant because some of the solutions proposed in the context of BFL acquisition are applied directly to the data collected in the present study.

The areas of interest identified in the previous paragraph are discussed in more detail in this chapter, following a general outline of features which typically characterise BFLA case studies. The BFLA section concludes with a discussion of the difficulties encountered in bilingual child language research.

2.1 GENERAL CHARACTERISTICS OF BFLA CASE STUDIES

Generally, the existing empirical studies into BFLA share the following characteristics: (i) they are longitudinal investigations, typically involving a small number of children, between one and three (e.g. De Houwer, 1990; Saunders, 1988); (ii) the studies involve children from a high socioeconomic background; (iii) they are based on audio (and, occasionally, video) recordings and (parental) diaries; (iv) they record the simultaneous acquisition of two typologically related languages; and (v) of the two languages, one is spoken to the child(ren) by at least one parent as a native (e.g. Burling, 1959; Lanza, 1997b) or even as a non-native language (Saunders, 1988), while the other language is spoken in the wider community. Such case studies have been a feature of research into BFLA since its beginnings in the early 20th century. They provide insight into language development and, in the words of Döpke (2000b: 3), "it is the accumulative effect of many such studies which will eventually do justice to the full scope of the complexity of bilingual first language acquisition".

Investigations into BFL children's language use, as performed in existing BFLA case studies, implicate two strands of what is involved in language communication: language competence and language performance.

2.2 LANGUAGE COMPETENCE AND LANGUAGE PERFORMANCE

The distinction between language competence and language performance involves the distinction "between a person's knowledge of the rules of a language and the actual use of that language in real situations" (Crystal, 1997: 413). Language comprehension is a feature which is shared by both aspects of communication. *Language performance,* however, refers to the linguistic production of a speaker, while *language competence* refers to the grammatical aspect of the production, involving both linguistic knowledge and linguistic skills. The linguistic skills involve "the pragmatic aspect which acknowledges language as a means of establishing social relationships and communicating information" (Hoffmann, 2001b: 11). Put differently, the skills involve knowing which language or combination of languages to use in any given communicative situation. This ability to know the language but also "to know how to function in the language in a culturally appropriate way" (Saunders, 1988: 191) has also been referred to as *communicative competence* (cf. Saunders, 1988).

Because bilinguals may use two languages in communication, competence for them involves two linguistic systems and the skills to know which language(s) to speak to whom and when. In this context, Grosjean (1982; 1985) talks of a bilingual's *speech modes*, in that a bilingual may choose whether they will utilise one or more than one language in communication. Language competence and the ability to function in more than one language, therefore, distinguish bilingual speakers from their monolingual counterparts. This view is extended to trilingualism by Hoffmann (2001b: 11), who specifies that

> "trilingual language competence can [then] be said to contain the linguistic aspects, from the three language systems, and also the pragmatic component, consisting of sociolinguistic, discourse and strategic competences pertaining to the three languages involved."

Trilingual competence, equally, involves the ability to function in mono-, bi- or trilingual contexts, enabling speakers "to create their own linguistic means in order to master particular communicative situations" (Hoffmann, 2001b: 11).

According to Hoffmann (2001b), the need bi- and trilinguals may feel to make linguistic adjustments in their communicative situations does not affect their competence as such. Rather, the function of a language may be redistributed, reflecting the requirements of the communicative environment.

Both language competence and language performance are indispensable in communication, and both feature in the investigation into the nature of two TFL children's utterances described in the present thesis.

Also of importance in this context is how children deal with their multiple languages. As will be seen in the next section, it has been proposed that the languages are represented in the child's mind initially as a unified language, only to become separated as the child matures.

2.3   UNIFIED OR SEPARATE LANGUAGE SYSTEMS?

Volterra and Taeschner (1978) published an oft-quoted study suggesting that children acquiring two languages from birth initially go through a stage in which both languages are represented as one. According to the authors, the child initially "has one lexical system which includes words from both languages" (Volterra and Taeschner, 1978: 312) and only gradually starts to distinguish two lexicons and subsequently also the relevant systems of syntax. Volterra and Taeschner's (1978) premise was formulated on the basis of data collected from interactions in a mother-child dyad.

Since then, research has "convincingly shown that bilingual children predominantly produce language-specific structures at all stages of their development" (Döpke, 2000b: 1), underlining the observation that "the simultaneous acquisition of two languages proceeds within the structural scope of each of the target languages" (Döpke, 2000b: 1). This means that BFLA children are no longer believed to go through a monolingual stage of acquisition initially as suggested by Volterra and Taeschner (1978). This has also been the initial premise for the present study.

Volterra and Taeschner's (1978) suggestion that bilingual children initially go through a stage in which both languages are represented as one has been criticized in the literature for being "non-systematic" (Genesee, 2003: 214). Genesee (2003) finds fault with the fact that the findings were based on data from just one dyadic interaction. Rather than reporting on just one aspect of a child's language production, Genesee (2003: 214) suggests that "the child's entire output during observation sessions" be taken into account. The reason given for this is to provide a more complete account of a child's "language performance, and, by inference, their underlying language competence" (Genesee, 2003: 214). It was suggested that such an account should also include information about the circumstances in which children do and do not utilise more than one language either within an utterance or across utterances as well as the frequency with which both are observed.

Concordant with this, the present study investigates two TFL children's language performance in their interactions with various speakers, aiming to provide a more holistic picture of their communicative competence, that is, their "ability to use language appropriately in social situations" (Trask, 2007: 43). Communicative competence involves both the appropriate use of a language's grammatical features and the ability to be pragmatically appropriate, that is, to know the norms of an interaction (Jackson, 2007).

2.4 BFLA AND THE USE OF MORE THAN ONE LANGUAGE IN AN UTTERANCE

There is general agreement in the literature that BFL acquisition proceeds at a pace and in an order which does not differentiate greatly from monolingual acquisition, that is, the acquisition of only one language. Genesee (2003: 212) argues, for example, that:

> "… although bilingual children are exposed to and must systematise two sets of language input, they appear to do so within the same general timeframe and approximately at the same age as children learning only one language."

In addition, BFL acquisition is generally considered not to entail developmental costs, with BFL children exhibiting the same major stages of acquisition as monolingual children and generally following a parallel order of syntactic development (e.g. Bhatia and Ritchie, 1999). In the words of Extra and Verhoeven (1994: 17), no reason has been found " to believe that the process of language acquisition in bilinguals and monolinguals is different in its basic features". Rather, BFL children are found to differentiate their languages at a very early age (e.g. De Houwer, 1990; Deuchar and Quay, 1998; Genesee, 2003; Quay, 2001). According to Deuchar and Quay (2000: 110), "the ability to choose the appropriate language variety for the context may emerge as young as age 1;7 with an MLU of just over one word". (The MLU, or Mean Length of Utterance, is a calculation of the average number of words, or of morphemes (Brown, 1973), in a child's utterances.)

Overall, therefore, the acquisition of BFL children's two languages is thought to proceed along similar lines as the acquisition of a monolingual child's one language. However, because they have access to two languages, bilingual speakers in general are said to have "a unique linguistic and psychological profile" (Li, 2000: 17). In addition, bilingual speakers are able to adjust their language performance in accordance with the demands of the communicative situation, either choosing to operate in a monolingual or in a bilingual mode (Grosjean, 1982; 1985). In this respect, bilingual speakers cannot be considered as two monolinguals in one person (Grosjean, 1989). It has also been said that bilingual speakers' use of two languages occupies "a natural and central role in studies of language contact in general" (Bhatia and Ritchie, 2004: 351) and that the use bilingual speakers make of their languages should be seen as a sign of their linguistic creativity.

2.5 TERMINOLOGICAL VARIETY

This linguistic creativity can be seen in the use speakers of two languages make of their linguistic resources. It has been observed that in situations in which more than one language is utilised in speech, the languages may exert

influence upon one another, that is, they may interact with each other at the phonological, morphological, lexical, syntactic or semantic level. In situations in which whole societies and communities are concerned, this interaction is referred to as *language contact* (cf. Winford, 2003). It encompasses language borrowing and language shift, which may lead to the creation of new languages (e.g. pidgins, creoles). A field of study specialising in the manifestations of language contact at this level is called *contact linguistics* (e.g. Nelde, 1981).

In the case of *individuals* acquiring more than one language, the phenomenon of interaction between participating language systems is also reported. An example in this context involves children acquiring more than one language in the case of family bilingualism, where one of the languages spoken in the family differs from that spoken in the predominantly monolingual community. In the literature, the interaction between the participating language systems is referred to variously as *interference* (Grosjean, 1982; Haugen, 1953; Hoffmann, 1985; Mackey, 1968; Weinreich, 1953), *language contact* (e.g. Döpke, 2000b; Lanza, 1997a), *cross-linguistic influence* (e.g. Döpke, 2000b), *code mixing* (e.g. Meisel, 1994a; Slobin, 1973), *code changing* (McClure, 1977), *code switching* (e.g. Gardner-Chloros, 2009; Hoffmann and Widdicombe, 1999; Jacobson, 1990; Köppe and Meisel, 1995; Meisel, 1994a; Valdes Fallis, 1976), l*anguage mixing* (cf. Köppe and Meisel, 1995; Lanza, 1997b; Pfaff, 1979), *language mixing and switching* (Ritchie and Bhatia, 2004). The occurrence of more than one language in BFL children's speech has also been referred to as *cross-language influence* (Döpke, 2000b) or *cross-linguistic influence* (Paradis, 2007: 21). Generally, cross-linguistic structures are found to be "temporary, and concentrated between the ages of 2;0 and 3;6" (Paradis, 2007: 21).

This is reflected in the period of observation in the present study, which spans the children's ages of 1;4 (one year and four months) to 3;6 (three years and six months). In the present study, it is in this period in which the greatest incidence of multiple languages in a single utterance is recorded. The periods preceding and following the stated period reveal a siginificantly lower incidence of multilingual utterances.

It should be pointed out that the distinction made between the terms *language mixing* and *code switching* has contributed to the terminological variety in the literature. The former was used to indicate a BFL child's seemingly indiscriminate use of both languages (Vihman, 1985), while code switching is thought to require grammatical knowledge and experience (Meisel, 1994a) or, according to Vihman (1998), it requires linguistic maturation. To switch codes, therefore, is seen to be possible only after the child has access to functional categories such as inflection, while mixing is said to be the result of a still developing grammar (Meisel, 1994a). Utterances which involve a "combination of elements from two languages" (Lanza, 1997b: 124) are referred to as *mixed utterances* (e.g. De Houwer, 2009; Deuchar and Quay, 2000; Lanza, 1997b).

It was proposed that language interaction of this kind be considered "an enrichment of the bilingual's communicative repertoire" (Vihman, 1998: 76). A similar view is held by Genesee (2006), who recommends that mixing should not be viewed as a deficiency (on the grounds of the limitations of the bilingual children's developing linguistic resources), but rather as a reflection of the child's "linguistic resourcefulness and communicative competence" (Genesee, 2006: 58), especially in view of the reportedly sensitive and functionally correct use children tend to make of their languages (e.g. Genesee, 2006; Genesee, Nicoladis and Paradis, 1995; Genesee, Boivin and Nicoladis, 1996; Lanza, 1990; Quay, 1992). Children are found to "exhibit language-specific and target-appropriate patterns of morpho-syntax from the earliest stages of verbal development" (Genesee, 2006: 60) and to learn the relevant socio-pragmatic constraints for mixing (or what Genesee terms *code* mixing) from their homes and the community (Genesee, 2006).

Rather than being random (Labov, 1971), the recorded use of more than one language in conversation is said to be rule-governed (e.g. Vihman, 1998), and the appropriate rules (also called *constraints*) are acquired by the child from their linguistic environment (Genesee, 2006). The term *language socialization* (Lanza, 1997b) is used in the literature for the process of linguistic and social maturation over time.

2.6 TERMINOLOGY USED IN THE PRESENT THESIS

In the present thesis, two main terms are used: mixing and mixed utterances. *Mixing* refers to the use of more than one language system at the level of phonology, morphology, lexis, syntax and/or semantics. Of these types of mixing, lexical mixing is the most frequently used form of mixing reported in BFLA studies (e.g. De Houwer, 1990).

Mixed utterances, on the other hand, are, in the context of BFLA, utterances which involve elements from two participating languages. However, because the present thesis investigates T*rilingual* First Language Acquisition (TFLA), this definition requires a slight adaptation, as a mixed utterance could potentially involve combinations of elements from two *or three* languages.

The basic unit of analysis, for the purposes of the present thesis, is the utterance (as opposed to the sentence), because the focus is on language performance rather than language competence (cf. section 2.1). Identifying a sentence in spoken discourse, however, can be problematic (Bussman, 1996), as "actual language users plainly conceptualize speaking … as a process of using utterances to perform speech acts with real-life consequences, not as a process of producing grammatically correct sentences" (Strazny, 2005: 1149). The utterance, therefore, which, in this thesis is considered to be a length of speech which is bounded by silence (Crystal, 1992), is regarded as the more appropriate unit of analysis when investigating language performance. An utterance not only comprises the raw data of speech, that is, the data of what is actually said (Davies, 2005), but it also permits data analysis in terms of *inter-utterance* and *intra-utterance mixing* (which is discussed in the following section).

2.7 MIXING

Overall, mixing has been observed to occur on two levels: either between turns-at-talk (involving at least two speakers), or within one and the same turn-at-talk, involving only one speaker. In the case of the latter, one distinguishes change

of language across utterances (that is, between two utterances, where one utterance is in Language A, and the other in Language Alpha), or within a single utterance (which consists of elements from two participating languages). These phenomena have been referred to with separate terms as inter-utterance and intra-utterance mixing. I*nter-utterance* mixing refers to "shifting from one language to another between utterances" (Paradis, 2007: 22), while *intra-utterance* mixing involves "producing elements from both languages in one utterance" (Paradis, 2007: 22). Apart from Paradis (2007), the terms inter- and intra-utterance mixing are also used by Genesee (2006). Other authors have referred to the same phenomena as inter- or intra-sentential (code)switching (e.g. Hoffmann and Widdicombe, 1999; Müller and Cantone, 2009; Stavans and Swisher, 2006). However, as the basic unit of analysis in the present thesis is the utterance, the terms inter-utterance and intra-utterance mixing are felt to be the more appropriate terminology to be used in this context.

Judging from evidence in numerous multilingual case studies (e.g. Leopold, 1939-1949; Saunders, 1988; Stavans and Swisher, 2006), this mixing constitutes a frequently recorded and reported feature in the speech of children. Although children's language systems are still in the process of development, limitations in a child's lexical and grammatical resources do not mean that children do not utilise their languages sensitively and functionally correctly from a very young age (e.g. Genesee, 2006; Genesee, Nicoladis and Paradis, 1995; Genesee, Boivin and Nicoladis, 1996; Lanza, 1990; Quay, 1992). On the contrary, Genesee (2006: 60), for example, finds that children "exhibit language-specific and target-appropriate patterns of morpho-syntax from the earliest stages of verbal development" and that they learn the relevant socio-pragmatic constraints for mixing (or what Genesee terms *code* mixing) from their homes and the community (Genesee, 2006).

An increase in linguistic and social maturity (and, therefore, in communicative competence) reportedly reduces the incidence of mixing (e.g. Deuchar and Quay, 2000; Fantini, 1985; Genesee, 2000; Grosjean, 1982; Lanza, 2000; Redlinger and Park, 1980), which, it has been said (Paradis, 2007: 21), is

"concentrated between the ages of 2;0 and 3;6". However, both bilingual children and bilingual adults are reported to use mixing "at points of productive crises" (Döpke, 2000b: 3) and "as response to processing contingencies" (Yip and Matthews, 2007: 25). In other words, they fill lexical or syntactic gaps in their linguistic competence by using all the linguistic resources at their disposal in order to satisfy their communication needs (Genesee, 2006).

Typically, mixing by young bilingual children consist of "borrowings of one free morpheme (usually a noun) from Language A into an utterance in Language Alpha" (De Houwer, 2009: 41). According to De Houwer (2009), bound, that is, grammatical morphemes from Language A are rarely found in an utterance completely in Language Alpha. Evidence for this claim are made on the grounds of the findings by Genesee (2005), who reports that, in a data corpus of 10,000 utterances, only six instances were found in which a bound morpheme from Language A was utilised in an utterance in Language Alpha.

Based on some Dutch-French data (De Houwer, Bornstein and De Coster, 2006), De Houwer (2009) finds that the proportion of use of mixing in BFLA children differs from child to child, but that it is usually no higher than 35%. This means that mixed utterances make up about a third of the children's overall number of utterances. Mixed utterances, therefore, "represent a minority of BFLA children's total language repertoire" (De Houwer, 2009: 291).

It has already been mentioned in Chapter 1 that how the languages are combined in a mixed utterance is generally agreed to be rule-governed. However, "the particular rules proposed [for this purpose] differ between models" (Paradis, 2007: 23). Two models of rules, or constraints, proposed in the context of mixed utterances are presented in what follows. They form the backbone of data analysis in this thesis.

2.8 CONSTRAINTS

Although it is generally recognized that mixing between languages is influenced by such factors as the topic of conversation, the situation or the competence of

the participants in speaking the languages, it used to be regarded as random with regard to the linguistic aspect, or, the grammar (Labov, 1971). Put differently, it was thought that any word or series of words from one language was inserted haphazardly into an utterance in another language. However, closer scrutiny of discourse involving mixing between languages showed that "in many aspects it is rule-governed, despite the fact that there is little agreement on the precise nature of the rules involved" (Poplack, 2000: 227). Commonalities or regularities have been investigated about when and how participating languages interact (e.g. Lanza, 1997a; Lanza, 2000; 2001; Myers-Scotton, 1993; 2002; 2006; Poplack, 1980; 2000). This interest resulted in the positing of several frameworks for investigating and explaining multilingual utterances (for an overview, see Clyne, 2003), two of which (Myers-Scotton, 1993; Poplack, 1980) proved to be more widely applied in the relevant literature in the ensuing years than the remainder. It is important to stress, however, that these constraints were proposed on the basis of *adult* bilingual data. A mixing model for *child* bilingual data has, to the best of the present author's knowledge, yet to be proposed. Constraints generally serve the purpose of preventing "grammatically illicit or deviant constructions" (Genesee, 2003), but, again, to the best of the present author's knowledge, there is no consensus about the specifc nature of constraints.

2.8.a POPLACK'S CONSTRAINTS

Poplack's (1980) constraints seek to explain the grammatical aspect of switching between languages in Spanish/English bilingual communities. The proposed constraints are the Free Morpheme Constraint and the Equivalence Constraint.

The Free Morpheme Constraint stipulates that, what Poplack (1980) calls a 'switch' but the present thesis refers to as 'mixing', cannot take place between the root of a word and its affix (a bound morpheme) unless the root has been phonologically integrated into the language of the affix. In this context, the combined English (**bold**) and Spanish (*italics*) examples of '**run***eando*' and

'**eat***iendo*' are provided, which are said not to be permitted because the phonology of the root of the word and that of the affix does not belong to the same language.

Other instances of switching (or mixing), however, are permissible and depend on the type of integration. An element, or constituent, can be said to be integrated on the phonological (phon), morphological (morph) and/or syntactic (syn) level, or it can be "totally unintegrated" (Poplack, 2000: 225). For example, the following are examples of mixing involving different types of integration:

Table 2.1: Mixing involving levels of integration

Levels Of Integration			Code-switch	Example
phon	morph	syn		
✓	✓	✓	No	*Es possible que te mogueen.* ('They might mug you.') This is considered "an instance of monolingual Spanish discourse" (Poplack, 2000: 225) involving a loan word from English 'mug'.
-	-	✓	yes	*Las palabras* **heavy-duty**, *bien grandes, se me han olvidado.* (I've forgotten the real big, heavy-duty words.)
✓	-	-	yes	That's what he said. (utterance rendered wholly in Puerto Rican Spanish phonology in an otherwise entirely Spanish context)
-	-	-	yes	*No creo que son* **fifty-dollar suede ones**. ('I don't think they're fifty-dollar suede ones.')

According to this, "codes may be switched after any constituent in discourse provided that constituent is not a bound morpheme" (Poplack, 2000: 227).

The Equivalence Constraint applies to word order immediately before and immediately after a *switch point* (Poplack, 1980). Specifically, this constraint proposes that a change to another language can only take place at boundaries common to both languages. This is exemplified in Figure 2.1 below, in which the

speaker's actual utterance (**I told him that** *pa'que la trajera ligero*.) is contrasted with this utterance's equivalents in English and Spanish respectively. According to the Equivalence Constraint, mixing is possible at points which are common to both languages, that is, where "the surface structures of the two languages map onto each other" (Poplack, 2000: 228). In other words, mixing is not permitted at points at which the participating languages do not share relevant features. The example in Figure 2.1 shows that the switch point observes the surface structure of both languages.

Figure 2.1: Permissible switch points

CS	I	told him	that	pa'que		la trajera	ligero.
Eng	I	told him	that	so that	he	would bring it	fast.
Sp	(Yo)	le dije	eso	pa'que	(él)	la trajera	ligero.

APPLICATION OF POPLACK'S CONSTRAINTS

The equivalence constraint was found to be disregarded in some of the English (**bold**)-Estonian (*italics)* mixed utterances reported by Vihman (1998), who notes the use of prepositions from English in Estonian although "the corresponding form in Estonian is in most cases a postposition" (Vihman, 1998: 65): *Ta läheb teise inimese* **past**. ('He goes past the other person.'). Violation of Poplack's free-morpheme constraint is also observable in the occurrence of German (*italics*) inflectional morphology combined with English (**bold**) lexical items, as reported by Gawlitzek-Maiwald and Tracy (1996): '*ge***climbed**', '*ge***buy**' and '*ge***made**'.

According to some other research (e.g. Bentahila and Davies, 1983; Berk-Seligson, 1986; Romaine, 1986; Scotton, 1990), the constraints proposed by Poplack (1980) are not universally applicable. Indeed, Romaine (1986) concludes from a study of Panjabi-English switching that Poplack's (1980) Equivalence Constraint does not hold in cases where two typologically different languages are mixed. The idea that there might be universal constraints which could be applicable in a variety of language combinations was found not to be

fruitful, and more research was called for into typologically different languages (Clyne, 2000; MacSwan, 2004).

2.8.b MYERS-SCOTTON'S CONSTRAINTS

Just over a decade after the proposal of constraints by Poplack (1980), further constraints were proposed by Myers-Scotton (1993). This author created, and subsequently revised, the so-called *Matrix Language Frame (MFL) model* (Myers-Scotton, 1997; 2002; 2006). It is beyond the scope of this thesis to explain all the intricacies of the MFL model. However, the two main principles need to be outlined, as do the two premises on which these principles are based.

One premise is that languages participate unequally in mixed utterances involving intra-utterance mixing: only one of the participating languages, the so-called *Matrix Language (ML)*, furnishes the morphosyntactic frame of an utterance; the other language, that is, the *Embedded Language (EL)*, supplies lexical items. The second premise involves the distinction between two types of morphemes, the system (or grammatical) and the content (or lexical) morphemes.

The ML, therefore, supplies the required system morphemes, and this is formulated in the so-called *System Morpheme Principle*. The other principle, the so-called *Morpheme Order Principle*, stipulates that surface word (and morpheme) order will be that of the ML. In other words, the importance of the ML lies in supplying the grammatical scaffolding of an utterance, with the EL providing some 'flesh' in the form of lexical items. According to Myers-Scotton (1993), system morphemes can be supplied by the EL only in EL islands, that is, in constructs which are produced when morphosyntactic procedures of the ML are inhibited.

Only a very limited number of BLFA studies have tested the applicability of the posited constraints on *child* bilingual data (e.g. Lanza, 1997a; Paradis, Nicoladis and Genesee, 2000; Vihman, 1998). The findings produced as a result of this

effort are not fully conclusive, as some adherence to some constraints is reported (cf. Lanza, 1997a; Vihman, 1998), while note is also made of occasional violations (Paradis, Nicoladis and Genesee, 2000). This is discussed in more detail in the section which deals with the application of Myers-Scotton's (1993) constraints below.

Myers-Scotton's (1993) MLF model has, in more recent years, been refined because the constraints initially proposed do not cover all the possibilities of mixed utterances encountered in the literature. The refinement, under Myers-Scotton's (2006) 4-M Model, proposes four types of morphemes rather than the original two. However, it has also been suggested that "the additions have made the MLF model perhaps too sophisticated and uneconomical to be desirable as a model of bilingual competence" (Chan, 2009: 185).

Indeed, even the distinction between system and content morphemes is not completely clear-cut. System morphemes, according to Myers-Scotton (2006: 245), "overlap with those elements that some linguists call functional elements, but the overlap is not complete at all". For example, "free standing independent pronouns in languages such as English" (Myers-Scotton, 2006: 245) are said to be content morphemes "although they are also called functional elements" (ibidem). While all affixes and function words such as determiners and clitics are said to be system morphemes, adverbs and prepositions are described as straddling the content and system morpheme divide. The reason for this is that items such as degree adverbs (e.g. *very*) and some prepositions, do not receive or assign thematic roles. However, because unanimous agreement has not as yet been reached among linguists about thematic roles, not only in English but also in other languages, the present thesis adopts Myers-Scotton's (2006: 246) stance by "separating the main content words (nouns and verbs) from those elements that are clearly system morphemes, such as inflections".

According to Greenbaum (1991), adverbs can be categorized as open class and closed class items: adverbs which are made from adjectives and to which – *ly* is added belong to open class items, while adverbs with deictic meaning

(such as now, here) belong to closed class items, as do "degree adverbs, such as *very*" (Myers-Scotton, 2006: 245).

As for prepositions, some are said to be content morphemes (when they head prepositional phrases (e.g. outside, inside, down, up)), while others are termed system morphemes (e.g. prepositions which are satellites to verbs (e.g. '*up*' in '*look up the number*') (Myers-Scotton, 2006), but they mainly have content by adding content to the verb.

APPLICATION OF MYERS-SCOTTON'S CONSTRAINTS

In this section, findings are discussed made by the studies which investigated the applicability of Myers-Scotton's (1993) constraints in utterances produced by bilingual children.

LANZA'S FINDINGS

In her study of a single English-Norwegian bilingual child growing up in Norway, Lanza (1997b) finds that Myers-Scotton's (1993) proposal, according to which only one language supplies the morphosyntactic frame of mixed utterances, is compatible with her own finding, involving "an essentially Norwegian grammatical frame in her [child's] mixed utterances" (Lanza, 1997b: 188). In this respect, the child's mixed utterances are seen to be structurally similar to adult mixed utterances, although the utterances are less complex. However, Myers-Scotton's (1993) distinction between content and system morphemes "cuts across lexical categories, and … does not define them" (Lanza, 1997b: 188), suggesting, for example, that morphemes such as pronouns, modals and spatial prepositions are content (that is, lexical) rather than system (or grammatical) morphemes.

According to this, the mixed utterance reported by Lanza (1997b: 348), *jeg* **finish** ('I finish') – randomly selected by the present author – involves a Norwegian content morpheme in a mixed utterance which also contains an English content morpheme. In such a short utterance, the word order is ambiguous (because it is available in both participating languages), and, due to

no overt evidence of a system morpheme (if the null morpheme at the end of 'finish' is discounted), the ML is unidentifiable. In another example, *jeg* **new socks** ('I new socks', meaning that the child changed socks after walking around), a Norwegian content morpheme is followed by two English content morphemes and an English system morpheme. Due to the existence of an English system morpheme ('-s' in **socks**) and Myers-Scotton's (1993) suggestion that system morphemes can only ever be supplied by an utterance's ML, the ML in this instance is, arguably, English. A different criterion for determining the ML, could involve the word order, as this could provide an indication as to the source language of an utterance. However, it cannot be taken into consideration in this instance, because the child's utterance consists of a pronoun and a noun phrase, but lacks a verb. Due to the utterance's incomplete syntax, no definitive conclusion can be drawn regarding its word order.

However, depending on the context in which each utterance was produced, either with the English-speaking mother or with the Norwegian-speaking father, the '*jeg*' element of the two utterances could be interpreted either to be a mixed element in an English utterance, or it could form part of the expected Norwegian grammatical framework. In the case of the latter, the English lexical item(s) may then be considered a mix. It would thus appear that data analysis may become more revealing when the context in which the utterance was made is taken into account.

The importance of context in data analysis has previously been highlighted by Lanza (1997b; 2000) and De Houwer (1995). According to De Houwer (1995: 245), in the past, "little attention was paid to the contexts in which children grow up bilingually", and the children's "speech productions have often been studied without reference to the sociolinguistic situation in which they occurred, hence making it impossible to analyze the possible factors" (De Houwer, 1995: 245) underlying any form of mixing. For the purpose of addressing this shortcoming, BFLA studies are called upon to "study the interaction and socialising elements in the child's environment in order to trace the child's language choice and

development of code switching abilities" (Lanza, 1997b: 325). (Here, Lanza (1997b) uses the term 'code switching' for what in the present thesis is called 'mixing'.) The present thesis supports the need for data analysis to involve not only the data itself but also the context surrounding an utterance if a relevant interpretation is to be provided.

Three issues have been highlighted in this section so far which have a bearing on child mixing and its interpretation. They involve (i) the categorization of word classes as system and content morphemes respectively, (ii) the brevity of utterances, and (iii) the need for information on context. These issues are highlighted again in section 2.10 below.

VIHMAN'S FINDINGS

Vihman (1998) investigates the switching practices of two English-Estonian children growing up in a predominantly English-speaking country. For the most part, recordings were made in the "primarily Estonian-speaking home" (Vihman, 1998: 62), and it is observed that mixed utterances mainly involve "the use of English words and phrases within Estonian utterances" (Vihman, 1998: 60). In other words, what is involved in mixing in this study are "Estonian grammatical morphemes in combination with English content words" (Vihman, 1998: 62). The reverse (English grammatical morphemes in combination with Estonian content morphemes) is reportedly an "extremely rare" (Vihman, 1998: 62) occurrence.

This asymmetry in mixing is explained "in terms of a dynamic notion of context" (Vihman, 1998: 62), in that virtually all of the children's Estonian-speaking interlocutors were proficient in English, but their English-speaking interlocutors are reported to generally know no Estonian. Therefore, the use of Estonian in the English (community) environment was inhibited for communicative reasons, while the use of English in the Estonian (home) environment was freer.

The children in Vihman's (1998) study are, therefore, observed to be sensitive to language choice: they utilise Estonian with elements of English in a bilingual

environment, but English with no Estonian in a monolingual environment. With regard to Myers-Scotton's (1993) proposed constraints, Vihman (1998) finds that the System Morpheme Principle (specifying that the ML provides the morphosyntactic structure of a mixed utterance) is upheld. However, shifts of ML in mid-utterance and the inclusion of EL system morphemes in ML utterances are also reported (with Estonian content morphemes (in *italics*) followed by English system morphemes (in **bold**) *ilusa***st** – 'prettyest', *sooj***est** – 'warmest'). According to Vihman (1998: 75), shifts of ML in mid-utterance and EL system morpheme in ML utterances of children's speech suggest "immaturity in the formulation process".

PARADIS, NICOLADIS AND GENESEE'S FINDINGS

Paradis, Nicoladis and Genesee (2000), by contrast, analyse data from 15 French-English bilinguals by using Myers-Scotton's (1993) MLF model. According to this group's investigation, the ML supplies the utterance's structural (that is, its grammatical) elements in 19 out of 20 cases. However, the authors' definition of the ML differs from Myers-Scotton's own, in that the ML is said to be "the language from which the *majority* of the child's morphemes come" (Paradis, Nicoladis and Genesee, 2000: 251; present author's italics). By contrast, Myers-Scotton's (1993) definition of the ML stipulates that the ML supplies *all* the system (or grammatical) morphemes in a mixed utterance.

2.9 SUMMARY OF CONSTRAINTS

In summary, Polack's (1980) Equivalence Constraint is found not to be applicable in some child bilingual data. Myers-Scotton's (1993) premise that the ML supplies the morphosyntactic frame of a mixed utterance has also been found not to be observed universally by child bilinguals. Vihman (1998), for example, finds instances of EL system morphemes in ML utterances as well as shifts of ML in mid-utterance. Therefore, it is apparent that the notion of (universal) constraints in the context of (child) mixed utterances is at best complicated, if not wholly unsupportable. Indeed, more recently, Myers-Scotton (2006) has come to distance herself a little from her previous (1993) MLF

model, acknowledging that it has been found not to be universally applicable. Myers-Scotton (2006: 241) says that it "is not intended to apply to all types of [language] contact phenomena", but rather, to something which she calls *classic codeswitching*. This type of switching involves two or more languages or language varieties in an utterance, but only *one* of them is the source of the morphosyntactic frame of that utterance (as was seen above). By contrast, utterances "composed of grammatical projections from more than one [language] variety" (Myers-Scotton, 2002: 22) are said to occur in instances of *composite codeswitching* (Myers-Scotton, 2002). This type of switching can occur "when speakers do not have full access to the desired ML" or "when there is competition between languages for the role of ML" (Myers-Scotton, 2002: 22). According to Myers-Scotton (2006: 242), composite codeswitching is "less frequently described and its structure is less well explained just because its structure is less 'neat'". The author also adds the caveat that "the MLF model was not designed to explain" composite codeswitching (Myers-Scotton, 2006: 242).

The current position is that some child bilingual utterances may be explained by means of existing constraints, but some may defy explanation. The diversity and variation of mixed utterances has thus far defied "any economical, unified, and universal syntactic account" (Chan, 2009: 197). This suggests that more research is required specifically with regard to child mixed utterances and possible factors (constraints) which may have a bearing on them. This will be one of the topics of the present study.

Furthermore, it has been seen that children are generally noted to utilise their two languages in mixed utterances in similar fashion to adults, but that they are still in the process of acquiring adult-target grammatical and social (in other words, communicative) competence. Based on Myers-Scotton's (2002: 22) suggestion with regard to composite codeswitching that speakers may not have " full access to the desired ML" (Myers-Scotton, 2002: 22), some of the instances of mixed utterances produced by bilingual children could be classed as involving this type of 'codeswitching' (Myers-Scotton, 2002) (where

codeswitching implies "the use of two or more varieties in the same conversation" (Myers-Scotton, 2002: 44)). It is suggested that limitations of grammatical development may have implications for the applicability of constraints (Meisel, 1994a; Paradis, Nicoladis and Genesee, 2000).

2.10 COMPLEXITIES IN THE ANALYSIS OF CHILD LANGUAGE DATA

These are three major difficulties in the context of child language data: (i) the practicalities of collecting data (when, how, by whom, for how long), (ii) the complexity of identifying the source language of a child's utterance, and, not least, (iii) the identification of the Matrix Language (Myers-Scotton, 1993) in a child's mixed utterance.

In brief, with regard to data collection and the general aim of BFLA studies to collect naturalistic data, it is necessary that the child is recorded at a time when it best suits them, by a person who is not a complete stranger to the child (because such a situation could have a negative impact on the child's openness and their conversational spontaneity), and by means which are not overly obtrusive so as to be problematic (by drawing in too much of the child's attention). More on this topic can be found in Chapter 3, which discusses the methodology of the present study. However, variations between children in "how many words they know, how talkative they are, how easily they speak, how well they speak or how clearly they speak" (De Houwer, 2009: 40) may all have an effect on the size of the data corpus available for investigation.

According to Cruz-Ferreira (2006: 225), complexities with regard to child language data also involve children's non-sequiturs. The author argues that

> "just as we cannot say with certainty why a child's interest suddenly shifts from, say, jigsaw puzzles to finger painting, we cannot aspire to explain rationally everything that children say, and why. … Children, like adults, do not always make sense, or they make sense in their own idiosyncratic way".

The identification of the source language of some of the items in the children's utterances reportedly also presents difficulties in BFLA research (e.g. Döpke, 2000b). The difficulties involve the complexity of distinguishing between similar sounding words in children's mixed utterances For example, there is the issue of distinguishing between *that* and *there* in English and Norwegian (Lanza, 1997b), and the issue of the ambiguous use of [də] in German and English (Tracy, 2000). The children's non-target production of these words does not allow for an easy identification of the source language of such items, and the researcher is faced with limitations in the child's linguistic resources, such as are generally reported in the BFLA literature. Deuchar and Quay (2000: 112) argue that individual languages in a child's utterance can only start to be identified "when language-specific morphology appears", or, in the case of the examples listed by Lanza (1997b) and Tracy (2000), when language-specific phonetic production is available to the child.

In the matter of an utterance's Matrix Language (ML), difficulties may arise with regard to its identification. The ML has, in the literature, been identified by three main means: (i) by applying Myers-Scotton's (1993) MLF model; (ii) by means of "utterance-internal criteria, such as the language of the majority of words or morphemes" (Tracy, 2000: 18), which is also utilised by Paradis, Nicoladis and Genesee (2000); and (iii) by means of contextual information which should (ideally) accompany (child) mixed utterances (cf. section above entitled Lanza's findings).

As was seen, the applicability of Myers-Scotton's (1993) MLF model is not without its complexities, not least in cases involving typologically similar languages. ML identification by means of a majority word or morpheme count has also been utilised in the literature (Paradis, Nicoladis and Genesee, 2000; Tracy, 2000), but it was found that "additional aspects (such as word order, functional architecture)" (Tracy, 2000: 18) may "threaten to upset the count" (*ibidem*). Word order, for example, could be problematic with regard to language-specificity in cases in which the researcher is dealing with typologically similar languages. ML identification with the aid of contextual

information is also less than straightforward. Lanza (1997b: 190), for example, notes a general "lack of contextual information … for assigning the matrix language" in some existing BFLA case studies. For this purpose, Lanza (1997b: 190) "invokes the structural criterion for this assignment". However, in the early phases of language acquisition, children's utterances tend to be short, and ML identification in this context is complicated not only for the reason that the number of items from each participating language in a mixed utterance could be the same (wherefore no ML would be identifiable), but also because children typically have non-target language production (due to the level of language competence).

2.11 SUMMARY OF BFLA

We have, thus, seen that the existing literature on BFLA addresses a wide variety of issues, some of which are discussed in this section in more detail. In recent years, increased interest is noted in bilingual (that is, mixed) utterances and the form they take. This has led to research into how languages are used in interpersonal interactions (e.g. Lanza, 1997b) and the outcomes and possible constraints involving grammatical combinations of two languages (e.g. Döpke, 2000b; Myers-Scotton, 1993; Poplack, 1980). However, it can also be seen that the number of case studies which specifically deal with the grammar of bilingual utterances in children is limited (e.g. Lanza, 1997a; Paradis, Nicoladis and Genesee, 2000; Vihman, 1998). In applying some principles of Myers-Scotton's (1993) MLF model, they come to similar conclusions in that general observance of constraints is noted, however, violations are also reported. Some linguists argue, however, that young children are not found to observe proposed constraints because their linguistic systems are not yet fully developed (e.g. Auer and Li, 2007; Bhatia and Ritchie, 1999; Lanza, 1997b; Meisel, 1994a; Paradis and Nicoladis, 2007). In other words, it is deemed important to keep in mind the limits to applying adult end state grammar to child language data, as a child's grammatical knowledge "is only fragmentary in relation to the adult end state grammar" (Lanza, 1997b: 123).

The use of two languages in a bilingual child's utterance is termed mixing in this thesis. The main features of mixing relevant for the present case study are the following:

- mixing is a widespread phenomenon, practised by "virtually all bilingual children" (Genesee, 2006: 51);

- it is a linguistic behaviour which is, reportedly, tightly linked to the level of linguistic development of a *BFL learner* (Genesee, 2006): the higher the learner's linguistic competence, the lower the incidence of mixing;

- it is rule-governed rather than random, but the required rules (or constraints) are not universally applicable (Clyne, 1987; Romaine, 1986);

- in mixing, the grammars of the participating languages need to be accessible "simultaneously so that they can be co-ordinated during production" (Genesee, 2006: 52);

- mixing, previously viewed negatively, is nowadays considered a bilingual's resource and a highly creative feature of speech (De Houwer, 2009).

In what follows, attention is directed towards TFLA and conclusions which are of relevance to the present study.

3. TRILINGUAL FIRST LANGUAGE ACQUISITION (TFLA)

In the introduction to the section on BFLA (cf. section 2.1), it was said that research into BFLA has come to have an influence on research into TFLA by virtue of the fact that it has a longer history and the fact that similarities have been suggested between the acquisition of two as opposed to three languages (De Houwer, 2009). The present section looks at how this is manifested by

presenting an overview of existing research into TFLA. Because empirical research on trilingual acquisition has only relatively recently begun to receive serious attention, the number of TFLA studies to be considered is comparatively small.

3.1 TFLA VS. BFLA

Firstly, however, it must be remembered that the focus of attention in TFLA research is, specifically, on the (regular) exposure to and acquisition of *three* languages from birth, or, according to Quay (2001: 180) from a time "before the first words". Quay justifies broadening the time-span within which a child should be exposed to their relevant languages to the appearance of first words because her case study provides empirical support for this choice: the child in her investigation is observed and recorded to prefer to use the language to which he is exposed at age 0;11 "more often than the two languages to which he was exposed form birth" (Quay, 2001: 180). Quay concludes that "delayed input for one language up until the onset of speech does not necessarily make the acquisition of that language different from the acquisition of language(s) where input is from birth" (Quay, 2001: 181).

The notion of trilingualism as distinct from bilingualism was only defined at the beginning of the present century (Hoffmann, 2001a; 2001b). Until this time, children's acquisition of three languages from birth was treated as a form of bilingualism, as it was thought that there was no substantial difference between acquiring two and acquiring more than two languages. Haugen (1956: 9), for example, talks of "a kind of multiple bilingualism" when referring to the use of multiple languages. Equally, Oksaar (1983: 19) defines bilingualism as "the ability of a person to use here and now two or more languages as a means of communication". Paradis (2007) justifies the use of the term bilingual also to include multilinguals by virtue of the fact that "in most cases …, the issues raised and findings reported for bilingual children would also apply to multilingual children" (Paradis, 2007: 16). Furthermore, at the beginning of the new century, existing trilingual studies have, for example, shown that children

acquiring two and those acquiring three languages largely follow a similar path of linguistic development (Hoffmann, 2001b). A similar observation was made in section 2.2 above between BFL children and their monolingual counterparts. This leads us to conclude that the process of language acquisition in children is comparable, irrespective of how many languages are involved.

It is for this reason that "most studies involving trilingualism have been carried out within the theoretical framework of bilingualism research" (Hoffmann, 2001b: 1). This point can be seen in other sections in this chapter. Initially, however, some points shall be presented which Hoffmann (2001a; 2001b) raises in her discussion of trilingual competence and in her defence of the need for a definition of trilingualism.

In her investigation of trilingualism and its particular features, Hoffmann (2001b: 3) outlines "the circumstances and the social context under which they [individuals] become users of three languages" and distinguishes five groups of trilinguals:

(i)   trilingual children who are brought up with two home languages which are different from the one spoken in the wider community;

(ii)   children who grow up in a bilingual community and whose home language (either that of one or both parents) is different from the community languages;

(iii)   third language learners, that is, bilinguals who acquire a third language in the school context;

(iv)   bilinguals who have become trilingual through immigration, and

(v)   members of trilingual communities.

Many trilinguals are said to "straddle these categories" (Hoffmann, 2001b: 4) due to life's changing circumstances. A "recurrent pattern" (Hoffmann, 2001b: 5)

of trilingualism, however, is the fact that "it is seldom the case that three languages are of equal importance to the individual" (Hoffmann, 2001b: 5). This is reportedly the reason behind the fluctuating dominance observed in some trilingual case studies. Despite this, the children who were investigated in one of the early trilingual case studies (Hoffmann, 1985) are noted to have "developed sufficient competence in all three languages to fulfil their communication needs as they were at the time" (Hoffmann, 2001b: 5). The use of, specifically, *three* (as opposed to two) languages is highlighted by Hoffmann (2001b). In the words of Stavans and Swisher (2006: 193), "a 'language condition' that characterises an individual who commands three languages" is termed trilingualism.

In this thesis, the focus is on the first category of trilingual speakers, that is, on children who are exposed to two languages in the home and a third language in the wider community. In this context, the distinguishing features of trilingualism as opposed to bilingualism are found to be threefold, and they consists of (i) the number of languages involved, (ii) the *speech modes* (Grosjean, 1992) available to the speaker, as well as (iii) the ability to move between three languages in communication.

With regard to the number of languages available to a TFL speaker, there are three (rather than two as in a bilingual). Upon birth or within the time before the onset of speech, the child is exposed to all three of the languages, and, hence, the three languages are considered to be the child's *first* languages. Similar to De Houwer's (2009) proposal that the two first languages of a BFL speaker be termed Language A and Language Alpha, so it is suggested in this thesis that the *three* first languages of a TFL speaker be termed *Language A*, *Language Alpha* and *Language Aleph* (the Phoenician letter 'A') (cf. Chapter 1). By giving the languages names involving the first letter of an alphabet, no one language stands out as being in advance of the other two. In previous literature, the three languages were called languages A, B and C (Hoffmann, 2001b).

Mixed utterances, which are said to be a normal feature in the speech of BFL speakers, are also observed in TFL speakers. However, rather than involving a combination of just two languages, mixed utterances in a trilingual may implicate different combinations of up to *three* participating languages: from utterances involving a combination of two of the languages (involving Languages A and Alpha, Languages Alpha and Aleph, or Languages Aleph and A) to utterances involving all three languages (Languages A and Alpha and Aleph in any order).

It was pointed out above that bilinguals have three speech modes (Grosjean, 1992) in total from which to choose: a monolingual mode in Language A, a monolingual mode in Language Alpha, and a bilingual mode in both languages. Trilinguals, on the other hand, may operate in the monolingual mode in either Language A, Language Alpha or Language Aleph, in the bilingual mode involving a combination of two of the three languages (see previous paragraph), and in the trilingual mode involving all three languages. Trilinguals, therefore, command a greater total number of speech modes from which they can choose than do bilinguals. (The related psycholinguistc issue of the practicalities of (de)activation of one or more languages is beyond the scope of the present thesis, but can be found in the relevant literature (cf. De Bot, 1992; 2002; Green, 1986; 2000; Levelt, 1989; 1993)).

In their ability to move between the participating languages and make use of the available speech modes, bilinguals and trilinguals generally do not differ from each other, in that they make use of their languages according to their needs (Hoffmann, 2001a). Apart from the number of languages each commands, what distinguishes bilingual speakers from trilingual ones is the pragmatic aspect of the different quantity of speech modes (see above).

However, what has been noted in existing trilingual case studies is a virtual absence of evidence of a trilingual speech mode in recorded utterances. Nevertheless, it is generally agreed that "in terms of acquisition and language use trilinguals function in similar ways to bilinguals, except for differences which

can be attributed to an increased linguistic load in trilinguals" (Hoffmann, 2001b: 15).

Whilst acknowledging that bilingualism and trilingualism may differ "in terms of … procedural psycholinguistic demands" (Stavans and Swisher, 2006: 194), it has also been pointed out that the difference between these speakers may reflect upon "formal linguistic constraints" and "functional sociocultural communicative needs" (Stavans and Swisher, 2006: 194). For this reason, it is argued, more research in the area of trilingualism (and TFLA in particular) is required. The aspect of linguistic constraints in the area of TFLA is further discussed in section 3.9 below.

Tightly interwoven with the issue of the number and combination of languages in interactions involving TFL children are the issues of whether the children have unified or separate language systems, and the issue of communicative competence. These are discussed in the next sections, providing relevant background information on where TFLA research stands at present.

3.2 UNIFIED OR SEPARATE LANGUAGE SYSTEMS?

In the context of BFLA, it was seen (in section 2.3) that language-specific structures are produced by children at all stages of their linguistic development. Genesee (2000: 340), for example, suggests that children "are able to use their developing language systems differentially in contextually sensitive ways". What is more, "findings indicate that infants possess the requisite neuro-cognitive capacity to differentially *(sic)* represent and use two languages simultaneously from the one-word stage onward, and probably earlier" (Genesee, 2001: 153). Genesee's findings are corroborated by findings from other linguists (e.g. De Houwer, 1990; Genesee, Nicoladis and Paradis, 1995; Lanza, 1997b; Meisel, 1989).

Existing case studies of TFLA do not investigate the issue of separateness of language systems in young TFL children specifically, but, considering it has been found to apply to children acquiring *two* languages from birth, it is

reasonable to suppose that separate language systems are also available to children growing up with *three* languages simultaneously. This means that TFL learners do not go through a monolingual stage of acquisition (as was suggested in the late 1970s in the context of BFLA by Volterra and Taeschner (1978), for example), but that they differentiate their languages, relative to their level of development. The fact that TFL children differentiate their languages does, however, not mean that they do not mix languages. It is precisely mixed utterances produced by TFL children (involving elements of up to three languages) which are of central interest in this thesis. Before they are considered, however, more needs to be said about TFL children's communicative competence and about existing TFLA studies.

3.3 TRILINGUAL COMPETENCE

It was seen above that what distinguishes speakers of one language from speakers of two or more languages is the fact that the latter may "move between different languages" (Hoffmann, 2001b: 11) in their interactions and "make linguistic adjustments according to new situations, environments and perceptions" (*ibidem*). It is "the linguistic aspects from the three language systems, and also the pragmatic component, consisting of sociolinguistic, discourse and strategic competences pertaining to the three languages involved" (Hoffmann, 2001b: 11) which contribute to trilingual competence. In this respect, trilingual competence does not differ from bilingual competence.

The adjustments trilinguals may make in communication do not affect trilinugals' overall communicative competence. They just mean a redistribution of functions between the languages, which may imply changes in the proficiency in some of them. For example, a specific communicative situation may require the use of more (or less) of a particular language or language combination, but the TFL speaker's communicative competence permits these adjustments to be made. Trilinguals are by no means less competent participants in communication if they have to make adjustments. On the contrary, they "remain fully competent speaker-hearers within their linguistic environment and its communicative

requirements" (Hoffmann, 2001b: 11), despite what may be considered infelicities in their language performance (cf. section 2.3). It is important to stress that mixed utterances involving two or more languages should not be considered as a reflection of deficient language use (a view previously noted in the area of BFLA). Rather, the variety of mixing reported in existing literature could point to a greater level of linguistic sensitivity, competence and creativity (cf. also section 2.4) than previously considered. Due to a limited number of TFLA studies overall, however, Hoffmann (2001a; 2001b) calls for more research before any conclusive findings are made. Some research undertaken since this time (e.g. Barnes, 2006; Cruz-Ferreira, 2006; Stavans and Swisher, 2006; Wang, 2008) indicates that TFL children possess linguistic sensitivity and creativity. However, the level of sensitivity, competence and creativity has not yet been quantified.

3.4 CHARACTERISTICS OF TFLA STUDIES

As indicated in section 2 of this chapter, research into TFLA has a shorter history than research into BFLA. The first reported study into TFLA, by Murrell (1966) involved a child's acquisition of Swedish, English and Finnish. Murrel (1966) was a linguist-parent, and in this, Murrel's study is comparable to some early bilingual case studies, such as those by Ronjat (1913) and Pavlovitch (1920). Murrell's (1966) study focused on the child's language production, specifically on interference, word order and morphology. In this respect too, it was similar to the first studies into BFLA. Following this initial report, research was sparse in the next two decades (e.g. Hoffmann, 1985; Oksaar, 1977). Again, similar to research into BFLA, research into TFLA also apparently required time to get off the ground. Since the 1990s, TFLA has enjoyed an increase in both empirical (e.g. Barnes, 2006; Cruz-Ferreira, 2006; Hoffmann and Widdicombe, 1999; Mikes, 1990; Quay, 2001; Stavans, 1992; Stavans and Swisher, 2006; Wang, 2008) and theoretical studies (e.g. Hoffmann, 2000; Hoffmann, 2001a; Hoffmann, 2001b; Hoffmann and Stavans, 2007; Hoffmann and Ytsma, 2004). Despite the growing body of literature relating to trilingualism, the number of case studies into TFLA and the breadth of topics

discussed are still comparatively limited. For this reason, caution has been called for in evaluating the studies' results (Quay, 2001).

Table 2.2: Overview of TFLA case studies

Author (Year)	Children's Ages During Observation	Languages Involved (Maternal, Paternal, Community)	Country of Residence	Issues Addressed
Murrell (1966)	2;0 to 2;8	Swedish, English, Finnish	Sweden, UK	Morphology, word order, interference
Oksaar (1977)	3;11 to 5;8	Estonian, Swedish, German	Germany	Language acquisition, separation and interference
Hoffmann (1985)	First 5 and 8 years respectively	German, Spanish, English	UK	Phonology, morphology, syntax, interference, socio- and psycholinguistics
Mikes (1990)	0;11 to 1;11	Serbo-Croatian, Hungarian, German	present-day Serbia	Lexical development and differentiation
Stavans (1992)	2;6 to 3;9 and 5;5 to 6;8	Hebrew, Spanish, English	USA	Trilingual code switching
Hoffmann and Widdicombe (1999)	4;4 to 4;5	English, Italian, French	France	Trilingual code switching, coining and interference
Quay (2001)	0;11 to 1;10	English, German, Japanese	Japan	Language choice, parental discourse styles
Barnes (2006)	1;11 to 3;6	English, Basque, Spanish	Basque region of Spain	Acquisition of questions in English
Stavans and Swisher (2006)	2;6 to 4;2 and 5;5 to 7;1	Hebrew, Spanish, English	USA	Language switching and trilingual competence

Author (Year)	Children's Ages During Observation	Languages Involved (Maternal, Paternal, Community)	Country of Residence	Issues Addressed
Wang (2008)	birth to 11	Chinese, French, English	USA	Acquisition, language use, language awareness, identity formation

The empirical studies in Table 2.2 are, for the most part, investigations into TFLA by researchers who are linguist-parents. Only the study by Mikes (1990) is performed by a person other than a parent. In this case, the researcher is the children's maternal grandmother, who is also a linguist. The importance of this kind of researcher for studies into TFLA is discussed in more detail in Chapter 3, section 2.2 below.

The children's ages in TFLA case studies range between birth and eleven years. Apart from two longer longitudinal studies (Hoffmann, 1985; Wang, 2008), the period of observation in trilingual case studies has a time-frame of between one month (Hoffmann and Widdicombe, 1999) and seventeen months (Barnes, 2006).

The participating languages investigated in TFL studies to date involve seven Indo-European languages (English, French, German, Italian, Serbo-Croatian, Spanish, Swedish), three languages of the Finno-Ugric group of languages (Estonian, Finnish and Hungarian), one language of the Japonic group (Japanese), one of the Sino-Tibetan family of languages (Chinese), one language of the Afro-Asiatic family of languages (Hebrew), and the last remaining pre-Indo-European language in Western Europe, Basque. Only two of the nine studies listed do *not* include English as one of their languages (Mikes, 1990; Oksaar, 1977).

A variety of issues is addressed in the case studies, as can be seen in Table 2.2. The studies by Murrell (1966), Oksaar (1977) and Hoffman (1985) are quite broad in their scope, as is the later study by Wang (2008). The scope of the remaining studies is somewhat narrower, but, what concerns us in the following section is whether or not any conclusions can be drawn from this collection of TFLA studies.

3.5 COMPARATIVE ANALYSIS OF TFLA CASE STUDIES

The variety of circumstances involved in each case study and the heterogeneous nature of the issues addressed in TFLA case studies make cross-study comparison difficult. Another potential difficulty when comparing studies involves the morphological complexity of the participating languages. Nevertheless, some trends are discernible, particularly with regard to language mixing.

3.6 SOCIOLINGUISTIC SENSITIVITY

Language mixing is reported to occur predominantly in settings involving the TFL child(ren) and other bi- and trilinguals who share the same languages, whereas in settings involving monolinguals, mixing is observed to occur minimally (e.g. Stavans, 1992). It would appear, therefore, that the children in TFLA case studies display a good degree of sociolinguistic sensitivity in their language use. In this, TFL children do not differ from their BFL counterparts, who are also reported to make use of their languages in a functionally sensitive manner (see 2.3 above).

3.7 NUMBER OF LANGUAGES INVOLVED IN MIXING

Mixing in TFLA studies to date is reported to occur predominantly between two languages (e.g. Hoffmann and Widdicombe, 1999; Stavans, 1992; Stavans and Swisher, 2006), even in contexts where the use of all three languages would have been possible (as in settings with trilingual parents). Rare examples of trilingual utterances are reported by Hoffmann and Widdicombe (1999) in the

case of an English-Italian-French child. Three examples of trilingual utterances are presented here, two of which involve duplication of meaning:

(2.1)   *mais* <u>pero</u> '**pa, you forgot to do**
         but   but

(2.2)   **I can't see you behind this and then** <u>anche</u> *comme ça* **I can't see you,** you see?
                                                          like   like this

Example (2.3) is a trilingual utterance which does not involve duplication. The other speaker, the mother, is addressed in English, whereupon the language changes first to Italian and then to French.

(2.3)   **Mum**, <u>devo fare</u> *des boucles d'oreilles.*
         'Mum, I've got to make some earrings.'

This is a controversial example of a trilingual utterance because one of the languages involves a term of address ('**mum**'). In some literature (Gawlitzek-Maiwald and Tracy, 1996; Stavans and Swisher, 2006) terms of address are not coded for language and are excluded from the analysis because they are seen to function as proper names, and proper names do not give an indication as to language choice. This issue is also discussed in Chapter 3.

The use of all three languages is reported anecdotally by Stavans and Swisher (2006: 207) "at the discursive and pragmatic level", that is, between turns-at-talk. At the lexical, morphological and sentential level, however, it is reported that "most of the combinations involve *two* languages" (Stavans and Swisher, 2006: 207) . The use of 'most' here implies that some of the combinations involve three languages. Indeed, four examples are provided of utterances involving all three languages (**English-bold**, <u>Hebrew-underlined</u>, *Spanish-italics*):

(2.4)   Ima, **look for it in the** <u>aron</u>*es.*
         'Mum, look for it in the closets.'

(2.5)	Ima, **in the** *calle* **there was three** <u>xatuls</u>.
	'Mum, in the street there were three cats.'

Two additional examples involve, respectively, a trilingual verb phrase (VP) and a trilingual word:

(2.6)	*está* <u>mitlabesh</u>**ing**
	she is getting dressed

(2.7)	**gar***d*<u>i</u><u>na</u> (**E: garden**, Sp: jardin, <u>Hebrew:</u> <u>gina</u>)
	garden

There is a likelihood that further relevant data are present in the data corpus collected by Stavans and Swisher (2006). However, these are the only instances of trilingual utterances reported in their study.

The rarity of reported trilingual utterances is a feature of existing TFLA studies. The present thesis hopes to make a contribution towards a better understanding of trilingual utterances by presenting relevant examples from its own data corpus. An initial analysis of the audio recordings involving the two children in this study shows evidence of the use of two *and three* languages per utterance.

3.8 DIRECTION OF MIXING

If it is remembered that three languages are reported to be rarely of equal importance to the speaker (Hoffmann, 2001b) and that this results in fluctuating dominance between the participating languages, it is reasonable to assume that the languages vary in terms of their weakness or strength in a particular setting. Hoffmann (1985) suggests that language mixing proceeds in the direction from strongest to weaker languages. In other words, the strongest language provides elements which are utilised in an utterance produced in the weaker language. However, which language is considered to be stronger or weaker depends on the setting, and specifically on two factors: (i) on language development, and (ii) on the circumstances accompanying a specific instance of communication.

With regard to language development, it is undisputed that a language's "grammatical development will follow after the appearance of a critical lexical base" (Kovačević, Jelaska and Brozović, 1998: 381). However, depending on the type and quantity of inflectional morphology involved in a particular language, lexical development may be slowed for a period. Kovačević and colleagues (1998) cite the example of children acquiring Croatian as opposed to those acquiring English, explaining that "Croatian speaking children have to acquire much more morphology for an effective use of their lexicon than their English speaking peers" (Kovačević, Jelaska and Brozović, 1998: 373). A similar finding was made in the case of a Latvian-English child, who was found to use comparatively more bound morphology in her morphologically more complex Latvian than in her English (Sinka and Schelletter, 1998).

For this reason, the size of the children's vocabulary in Croatian may be negatively affected, that is, it may be seen to be smaller compared to that of the children's English peers. However, this is a transitory state of affairs as vocabulary development in the Croatian children was reported to catch up subsequently. Therefore, morphological complexity in a language may influence not only the development of another aspect of language (such as the lexicon), but it may also play a role in deciding the degree of development of a language. Invariably, though, as language develops, so the notion of stronger, or *dominant language* (e.g. Quay, 2001) changes. It is a dynamic phenomenon, which changes depending on the circumstances involved.

The other factor which has a bearing on the strength or weakness of a language involves life's circumstances. Hoffmann (1985), for example, notes in her study of two German-Spanish-English children growing up in England that Spanish is her daughter's strongest language until the child enters primary school, when English becomes more dominant. Similarly, German is her son's strongest language for a while (due to the presence of a German *au-pair*), but, again, this changes in favour of the community language English when the boy starts nursery. Once more, it can be seen that a language's dominance is tightly

connected to accompanying circumstances and must, therefore, be regarded as variable and dynamic.

The outcome of this language dominance can be seen in mixed utterances. As was seen in section 2.5, the use of multiple languages in an utterance is thought to be rule-governed, a belief which led some linguists to propose constraints on mixing. Whether some of the proposed constraints are applicable to trilingual data concerns us not only in the following section, which provides an overview and discussion of relevant literature, but it also constitutes a major focus of the present thesis.

3.9 CONSTRAINTS

We have seen in section 2.8 that constraints have been proposed with regard to possible rules which may govern the use of multiple languages in an utterance. The two more widely used proposals were presented at that point, those of Poplack (1980) and of Myers-Scotton (1993; 2006). In the context of TFLA research, however, only one of the case studies presented in Table 2.2 makes mention of these constraints: Stavans and Swisher (2006) comment on the inappropriateness of utilising models developed to study bilingualism for the analysis of trilingual utterances. Such models, it is said, "lack a suitable account of trilingualism" (Stavans and Swisher, 2006: 200). Not only are they based on *bi*lingual productions, but their suggested make-up makes them unsuitable to account for trilingual utterances, as will be seen subsequently. In addition, however, it should be pointed out that the data which served the formulation of the proposed constraints involved exclusively adult speech, while the central focus of BFLA and TFLA studies are children and their use of languages.

3.9.a *APPLICATION OF MYERS-SCOTTON'S CONSTRAINTS*

The previous comment that the formulation of constraints based on *bi*lingual production makes it inappropriate for the analysis of *tri*lingual data can be seen in the case of Myers-Scotton's (1993) MLF model: the so-called Matrix

Language (ML) is said to supply the morphosyntactic frame of an utterance, while the Embedded Language (EL) provides some elements which are inserted into the ML frame. This explanation accounts for only two languages. However, in a trilingual utterance, elements are contributed from *three* participating languages. In such a setting, it is, reportedly, "very difficult to scientifically establish *(sic)* which role each language plays even if we attribute the same role to two of the three languages" (Stavans and Swisher, 2006: 202). So there is a very basic difficulty involved in applying Myers-Scotton's (1993) model of constraints on trilingual data.

3.9.b APPLICATION OF POPLACK'S CONSTRAINTS

Stavans and Swisher (2006), consequently, propose that their analysis be restricted "to the boundary where the switch is formed" (Stavans and Swisher, 2006: 202), so that constraints like those proposed by Poplack (1980) might be applicable in such instances. Poplack's (1980) *Free Morpheme Constraint* stipulates that languages cannot be switched between the root morpheme and its affix, while the *Equivalence Constraint* suggests that languages can only be switched in structures which share the same word order immediately before and after a switch. However, it was seen in relevant BFLA studies (e.g. Bentahila and Davies, 1983; Berk-Seligson, 1986; Romaine, 1986; Scotton, 1990) that the applicability of these constraints is limited.

Stavans and Swisher (2006) then proceed to present their own relevant data and show "the linguistic features of morphosyntactic violations" (as evidence of trilingual competence development) and "the linguistic-interactional frame of trilingual development" (Stavans and Swisher, 2006: 203). Testing Poplack's (1980) constraints on a trilingual Hebrew (<u>underlined</u>)-Spanish (*italics*)-English (**bold**) utterance, the authors make an interesting observation. In the prepositional phrase **in the** <u>aron</u>*es* ('in the closets'), the English determiner 'the' is said to comply "with the grammatical requirement of both English and Spanish" (Stavans and Swisher, 2006: 203). However, it is seen to violate "the bound morpheme constraint imposed by the Hebrew system" (Stavans and

Swisher, 2006: 203). The problems encountered in applying the constraints produced for bilingual utterances to trilingual utterances are seen to involve "the nature of language processing in terms of acquisition and development (age, acquisitional sequences, language exposure)" (Stavans and Swisher, 2006: 203) and the language typologies involved.

From a total of 235 instances of what are referred to as intrasentential switches (i.e. intra-utterance mixing), 71 instances of morphosyntactic boundary violations are counted by Stavans and Swisher (2006). These violations predominantly involve the base form of a noun or a verb and its bound morpheme (for example, *rove***s** 'guns'; <u>vistete</u>**ing** 'getting dressed'). Only one example is reported of word-level mixing involving neither a noun nor a verb: a Hebrew adjective is supplied with an English adverb ending (*besheket***ly** 'quietly').

The data analysis performed by Stavans and Swisher (2006) suggests that the children in this study utilise all three languages in utterances either singly or jointly. It would appear, however, that the majority of instances of mixing involve a Hebrew or Spanish lexical morpheme and an English grammatical morpheme (or, what Myers-Scotton (1993) refers to as content and system morphemes respectively). It is interesting to note that the children in Stavans and Swisher's (2006) study "for the most part… responded in English" to their parental remarks in either Hebrew or Spanish, with "the most frequent pattern of the children's switches … that with English as the frame" (both quotes from Stavans and Swisher, 2006: 204). Therefore, English, the language of the wider community, is apparently the children's preferred language for supplying the morphosyntactic structure of a mixed utterance.

On the basis of the observation that English forms the (morphosyntactic) frame of the utterances recorded by Stavans and Swisher (2006), it would be English which could, consequently, be considered the children's ML, while Hebrew and Spanish perform the function of the ELs. Nevertheless, as was seen above,

Stavans and Swisher (2006: 202) encounter difficulties when trying "to scientifically establish which role each language plays".

In sum, then, after applying Myers-Scotton's (1993) MLF model to some of their data, Stavans and Swisher (2006) chose not to apply it to the remainder of their data due to major complexities in identifying which of the languages in a trilingual mixed utterance plays the role of the ML(s) and which of the EL(s). The application of Poplack's (1980) constraints also poses difficulties as, according to Stavans and Swisher (2006: 203), "the Free Morpheme Constraint has been proven to be less stable, especially when dealing with not only typologically different languages but also at different ages or stages of language development/acquisition". Stavans and Swisher (2006) report precisely this sort of language use in some of their own examples of mixed-language words (see above). Therefore, the difficulty in applying existing analytical frameworks to trilingual mixed utterances lies in the fact that they do not account for more than two languages. At best, the models need to be re-worked to account for three languages in a mixed utterance. At worst, there is an urgent need to produce, in the words of Stavans and Swisher (2006: 203), "a comprehensive and multilingual theory or model", which would account for trilingual mixing. The present thesis hopes to make a contribution towards such efforts by performing an analysis of a novel data corpus and thereby both highlighting the appropriateness of previously proposed constraints and suggesting improvements.

3.10 COMPLEXITIES OF CHILD LANGUAGE DATA

In the discussion of complexities with regard to BFL data in section 2.10, three were identified: (i) the practicalities of recording child data (which are also discussed in Chapter 3), (ii) the identification of the source language of a child's utterance, and (iii) the identification of the ML (Myers-Scotton, 1993) in a child's mixed utterance.

In the context of TFLA studies, the complexities remain the same, except for the fact that three rather than two languages are involved. The number of languages does not, however, have an impact on the practicalities of recording child data (involving decisions about who is best suited to act as a child's investigator, or which data collection methods are most appropriate). On the other hand, tracing the source language of an utterance is made more difficult given that two, or even all three, languages may have parallel structures (cf. Stavans and Swisher, 2006). The same also holds true for the identification of the ML: if an utterance consists of elements of three languages, it is theoretically possible that two of them may contribute to the morphosyntactic structure of that particular trilingual utterance (even though Myers-Scotton's (1993) MLF model involving bilingual data does not permit such an occurrence).

Another complexity with regard to child language data involves the drawing up of a transcript. It is a question of the correct interpretation of the acoustic signal recorded, especially when having to contend with the background noise level which is inevitably present in any recordings of normal household goings-on (cf. Cruz-Ferreira, 2006). The interpretation of the acoustic signal in the present audio recordings was based on the phonetic similarity of a child's utterance with forms in the adult lexicon (cf. Lanza, 1997b). If this was not possible, then reliance was on the recurrent usage of a particular form with a given meaning: for example, in the early stages of the period of observation, the syllable *de-* was repeatedly used by IF to denote the German word *Deckel* 'lid'. Utterances which could not meet either of these criteria were transcribed as 'unintelligible' and were not considered in the analyses of the children's language samples.

Other complexities identified in the context of child language data, involving the investigator and data collection remain pertinent in the context of TFLA (and are discussed in more detail in Chapter 3).

4. SUMMARY OF CHAPTER 2

The present chapter shows that similarities exist in the issues which are raised in both TFLA and BFLA research. They concern mixed utterances, their incidence and the observance of constraints. It generally appears that most findings from BFLA studies are relevant to TFLA, including the issue of the applicability of constraints.

Firstly, as in the case of bilingual mixed utterances, trilingual mixed utterances are also seen not to be "accidental or random but rather systematic" (Stavans and Swisher, 2006: 215) occurrences. What is more, they are seen to reflect "unique trilingual sentence processing" (Stavans and Swisher, 2006: 215), of a kind which, to date, has only been reported sparingly in TFLA investigations. Instances of mixed language use in the area of BFLA are reported to be in greatest evidence between the ages of 2;0 and 3;6 (Paradis, 2007). In another study, the age range for the peak number of mixed utterances is said to lie between the ages of 2;2 and 2;4 (Gawlitzek-Maiwald and Tracy, 1996). Both of these age ranges indicate that mixed utterances occur at a time when morphosyntax in the participating languages is still in the process of being acquired, which may have implications for the reasons for their use. Mixed utterances are in evidence despite the fact that languages are considered to generally develop autonomously, but with a degree of interdependence (cf. Döpke, 2000b; Yip and Matthews, 2007). This development may explain the degree of language sensitivity found in both BFL children (Genesee, 2000; 2001) and TFL children (e.g. Stavans and Swisher, 2006).

With regard to mixed utterances in existing TFLA case studies, they are reported to occur in the age range of between 2;4 and 3;11 for two children in Hoffmann's (1985) study. Stavans and Swisher's (2006) study reports them to occur between the ages of 2;8 and 4;0 for child M and between 5;5 and 6;11 for the child E.

Hoffmann's (1985) study is longitudinal (between birth and ages 5 and 8 respectively) and descriptive in nature, and only a limited number of mixed

utterances involving lexical and grammatical items (words and morphemes) is reported. No mention is made of their overall incidence.

Stavans and Swisher's (2006) study, by contrast, is more detailed with regard to both the incidence of mixed utterances during the period of observation and the number of exemplified mixed utterances. The highest incidence of mixed utterances during the reported period of observation is at age 3;1 for the child M and at age 5;11 for the child E. The recordings in both instances are said to involve trilingual settings (that is, the children's interlocutor(s) is (are) trilingual in the same three languages). This means that the younger child M's greatest number of mixed utterances in a recording falls within the period suggested by Paradis (2007) above. Regrettably, no such information is available for child E at a comparable age. However, because Stavans and Swisher (2006) provide a tabular overview of the incidence of mixed utterances (or what the author calls 'intra-CS'), it is observable that mixed utterances are a feature throughout the period of observation. The incidence of mixed utterances in Stavans and Swisher's (2006) study is seen to vary from one recording to the next and to range between 0 and 24 in number. Variability of the incidence of mixed utterances is something which is discussed in the present thesis.

The benefit of studying children longitudinally and across age-ranges means that more information is available as to the pragmatic aspect of language use. Specifically, based on the reports above, mixed utterances appear to be a regular feature of TFL children's production. Of the ten TFLA studies listed in Table 2.2 above, only the study by Stavans and Swisher (2006) discusses and quantifies mixed utterances in more detail. It is, therefore, necessary that additional research into TFLA is performed, with some emphasis on the issue of incidence of mixed utterances, before a more conclusive answer can be provided, not least, as to the period of their highest incidence (which, as was seen in the context of BFLA, is suggested to lie between the ages of 2;0 and 3;6, and in the context of TFLA (cf. Hoffmann, 1985) between the ages of 2;4 and 3;11). Again, the present thesis hopes to make a contribution in this area.

Secondly, several reasons are provided for the occurrence of mixed utterances. Multiple languages are seen to be used in an utterance more readily when the child perceives a gap in his or her knowledge (Hoffmann, 1985; Paradis, 2007) or a lack in their ability to communicate. It was suggested in the field of BFLA that another reason for utilising more than one language in an utterance may be the fact that the children pattern their linguistic behaviour on what they encounter in their environment (cf. Lanza, 2001; Paradis, 2007). The opposite, however, has also been suggested, that is, that children are reported not to follow anyone's example (as none was available), but to produce mixed utterances spontaneously (Stavans and Swisher, 2006). Similarly, Hoffmann and Widdicombe (1999) observe that the child in their study occasionally uses two or even three languages in an utterance although no such language use is patterned by the child's carers: the child is said to have "grasped the communicative possibilities and mechanisms" of the use of multiple languages in an utterance "notwithstanding the lack of a reliable model for such behaviour in his family and social context" (Hoffmann and Widdicombe, 1999: 56). Stavans and Swisher (2006) observe that, in their language use, the children are led by factors of immediate necessity, that is, by any shortcomings in their language competence and performance. The quantitative and qualitative analyses of data from the present case study may shed some light on this.

Thirdly, with regard to the observation of constraints on the part of children, it has been suggested, in literature on BFLA, that children cannot be expected to observe constraints until such a time as their grammatical systems are sufficiently developed (Meisel, 1994a). According to Genesee (2001: 162), children tend to demonstrate knowledge of verb tense and agreement "usually around 2;6 years of age and older", while knowledge of word order is evident even earlier in development, from the two word/morpheme stage onward. The field of TFLA has still to produce relevant evidence which would support Meisel's (1994a) proposal. However, based on Stavans and Swisher's (2006) finding that the children in their study contravene Poplack's (1980) Free Morpheme Constraint, Meisel's (1994a) suggestion that a degree of

grammatical ability is a precondition for observing constraints could be a reasonable one.

In support of this suggestion comes Paradis' (2007: 24) finding in the area of BFLA concerning children aged 2;0 and older: it is found that while 90% of mixed utterances produced by the study's children observe the constraints proposed by Myers-Scotton's (1993) MLF model, violations are also in evidence. The violations are attributed to insufficient morphosyntactic development. Based on this and some other findings, Paradis (2007) concludes that BFL children's mixed utterances show evidence of generally observing constraints by the time the children are three years old.

As such investigations have not, to date, been performed in the context of TFLA, no statement about it can be made with any certainty. However, because the observation of constraints is reported to be closely intertwined with morphosyntactic development, it is not unreasonable to expect a similar finding (involving the interconnection between grammatical ability and observance of constraints) to be made in the context of TFLA.

In the area of BFLA, Genesee (2001: 163) suggests that different mixing strategies are adopted by children (and also adults) "in accordance with the typological characteristics of their languages" even during on-line production. The language faculty, however, is "unperturbed by the complex grammatical challenges" (Genesee, 2001: 163) posed by mixed utterances. In TFLA, research has, generally, not been abundant, but it would appear, judging from the mixed utterances reported by Hoffmann and Widdicombe (1999), and Stavans and Swisher (2006), that on-line production is not hampered by the fact that *three* languages participate in an utterance's production. Consider, for example, the trilingual utterance produced by the child in Hoffmann and Widdicombe's (1999) study (**English** – **bold**, Italian – underlined, *French – italics*):

(2.8)   **I can't see you behind this and then** <u>anche</u> *comme ça* **I can't see you, you see?**

                                                                    like   like this

There is no indication of any hesitation on the part of the child producing this utterance.

Generally, TFL children are reported to be sensitive to the sociolinguistic factors of language choice, utilising only those languages in their speech which are known to their interlocutor. In view of the finding that the use of mixed utterances in communication is considered to decrease with advancing linguistic development (Redlinger and Park, 1980), children's production of utterances involving multiple languages presents a temporary stage of the children's linguistic development. Also of importance is the general observation in both BFLA and TFLA studies that individual differences in language use are observed, not only between children with different backgrounds, but also between siblings from one family (Hoffmann, 1985; Stavans and Swisher, 2006; Vihman, 1998).

All of these findings point towards the need for more research in the area of TFLA. The focus of the present thesis will be on investigating mixed utterances produced by the two TFL children in its case study and on checking the applicability of the proposed constraints by Poplack (1980) and Myers-Scotton (1993). The proposed work will build on existing findings in TFLA and, on the basis of more plentiful evidence of actual trilingual utterances in the novel data corpus, make a substantial contribution towards the expansion of understanding of TFLA.

5. CONTRIBUTION OF THE PRESENT CASE STUDY

In view of what has been said in this chapter so far, the main issues analysed in the present thesis concern mixed utterances produced by the two TFL children and the applicability of some proposed constraints which, it is suggested in the literature, govern the make-up of utterances involving elements from more than

one language. It was seen that mixed utterances are a feature which is reported in the area of both BFLA and TFLA, but uniform applicability of the proposed constraints is not reported. By analysing mixed utterances in the language production of the children in this study, a better understanding will be gained of the nature of their utterances and their overall language production. In addition, a contribution will be made towards a more refined comprehension of TFL children's productions generally. The appropriateness of this approach has previously been confirmed by De Houwer (2009: 14), who says that "it is only by studying language acquisition in crosslinguistic contexts that we will be able to gain full insight into the features of acquisition that are universal and those that are specific".

One of the concerns with regard to mixed utterances involves their incidence, not only with regard to a child's age, but also with regard to each recording session: Stavans and Swisher (2006), for example, suggest that the incidence of mixed utterances in their case study is highest between the ages of 2;4 and 3;11, but that it is seen to fluctuate from one recording to the next, presumably depending on the communicative situation in which the subjects find themselves. Although it is suggested in some literature involving BFLA that children generally pattern their utterances on utterances produced in their environment (e.g. Lanza, 1997a), existing TFLA literature considers the possibility that children produce mixed utterances spontaneously, dependent on their particular need at a specific moment in an interaction (cf. 3.8 above).

The period of observation in the present study spans 10 months in all, between the ages of 2;9 and 3;6 for the elder child EK and between 1;4 and 2;1 for the younger child IF. This period is selected first and foremost for the fact that there is evidence of mixed utterances involving up to three languages. Based on the collected data, it will be possible to make claims about the incidence of mixed utterances.

With regard to the constraints, the literature has suggested severally (e.g. Meisel, 1994a; Stavans and Swisher, 2006) that, because children are not yet in

full possession of grammatical competence, they cannot be said to observe constraints. Evidence for this is seen in the finding that constraints are reported to be occasionally violated (e.g. Paradis, 2007; Stavans and Swisher, 2006). This issue is investigated on this study's own bilingual and trilingual data.

The aims of the present thesis, therefore, are the following:

1. to describe the present case and its circumstances,

2. to present relevant speech data (i.e. mixed utterances), and

3. to investigate the appropriateness of existing analytical frameworks.

The relevant research questions are the following:

1. In the case of comparable exposure to three languages from birth, how are the languages made use of?

2. How many languages are in evidence in the children's utterances?

3. How are the languages distributed in mixed utterances?

4. Is a pattern observable?

5. Do existing analytical frameworks account for the diversity of utterances encountered in the present speech data?

Broadly, the present thesis investigates the relevant issues and finds answers to the research questions on the basis of data collected from two children from the same family growing up with three languages in a predominantly English-speaking community. The methodology which guides the investigation is presented in the next chapter, Chapter 3.

CHAPTER 3

METHODOLOGY

1. INTRODUCTION

This chapter presents the methodology which underlies this case study. It documents the process of investigation undertaken in view of the research questions posited in the previous chapter. The research design is structured to address various relevant issues, from the children in this study and the investigator to the methods used, their strengths and weaknesses. Such a structured and detailed discussion is intended to enhance this study's methodological criteria of objectivity, replication and validity.

2. RESEARCH DESIGN

Case study research is the tool selected to study the nature of trilingual children's utterances described in this thesis. The justification for such an approach in the present study is primarily the small number of participants (just two). However, a case study approach also has a long-standing tradition in both BFLA and TFLA research (e.g. Barnes, 2006; Cruz-Ferreira, 2006; De Houwer, 1990; Hoffmann, 1985; Leopold, 1939-1949; Saunders, 1988; Stavans, 1992; 2001; Yip and Matthews, 2007).

A mixture of a quantitative and a qualitative approach is selected for this research: data in this thesis is first quantified with regard to the frequency of occurrence of the relevant languages, and is then subjected to a qualitative analysis. A combination of quantitative and qualitative methods is generally said to contribute towards a study's validity (Foster, 2006). However, because "there are no set procedures in qualitative research for conducting research" (Seliger and Shohamy, 1989: 245), it is essential to document the whole research process minutely, as this will help validate the results. Methodological transparency, furthermore, assists replication.

Qualitative research works towards uncovering information "from information-rich samples" (Perry, 2005: 75) by analysing data gathered in natural settings

without experimental manipulation. For this reason, naturalistic data are, not infrequently, also termed "untidy data" (Cruz-Ferreira, 2006: 45), a "jumbled-up type of data" (Cruz-Ferreira, 2006: 45) collected through concentrated contact over time which needs to be analysed for patterns, comparisons and contrasts (Perry, 2005; Seliger and Shohamy, 1989).

A clear presentation of the research design is undertaken in the following sections, starting with information about the children involved in this case study, the investigator, and the methods of data collection, selection and presentation. Inherent strengths, but also weaknesses, of the applied procedures are also discussed as they are deemed pertinent for the subsequent data analyses and related discussions.

2.1 THE CHILDREN

The children selected for research into the nature of trilingual children's utterances are Eleanor Kira (forthwith EK, born in December 1997) and Irene Franka (forthwith IF, born in May 1999). They were born into the same family, to an English father, who also speaks German (as a non-native speaker) and some French, and to a mother, with a degree in languages, who grew up bilingually with Croatian and German in present-day Croatia. The mother is fluent in English and also speaks some French. The family lives in England.

As indicated in Chapter 2, the children were selected primarily for the fact that they produced mixed utterances involving up to three languages. They also produced monolingual utterances in each of the participating languages, but these are not the focus of the present study. Also of importance for the selection of these two children in particular are the facts that they were exposed to three languages from birth and that all three languages were maintained throughout the time of observation (and beyond). The period studied covers ten months in all: the elder child EK is aged between 2;9 and 3;6, while the younger child IF is aged between 1;4 and 2;1. At this stage of their lives, the children are observed

to produce multiword utterances, in contrast to previous babbling and ambiguous child talk.

The pattern according to which the children in this study are exposed to their three languages is generally the following:

- Croatian is spoken by the children's mother;

- German is spoken by the children's father;

- German is also the language spoken (i) between the parents themselves and (ii) among the assembled family;

- English is spoken among the family members only in the presence of monolingual English speakers. However, the children are also regularly exposed to English through the medium of radio during breakfast-time. In addition, from the age of 3;3, EK is exposed to English at nursery.

Schematically, exposure to the three languages works out as noted in Figure 3.1:

Figure 3.1: Schematic presentation of language exposure
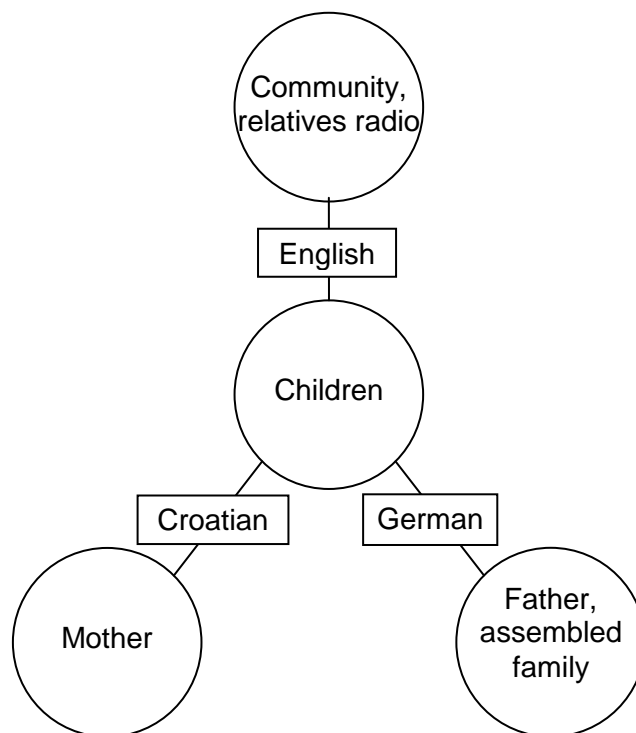
More detailed information about exposure to the participating languages, their occurrence in interactions with other members of the family and the children's language sensitivity can be found in Chapter 4.

The fact that children are the focus of the investigation in the present study has implications for all aspects of a study's methodology, not least, with regard to data collection: large differences between children are reported in the literature in respect of "how many words they know, how talkative they are, how easily they speak, how well they speak or how clearly they speak" (De Houwer, 2009: 40). This means that recordings of children's utterances can result in a widely varying size of dataset between individual recordings. It can also mean that the child's talkativeness is reflected in utterance length, which, in turn, could provide an investigator's skewed perception of the child's language development. Children's knowledge, their ability and their willingness to speak will need to be taken into consideration in selecting the appropriate methods applied in a case study. How this is done in the present study is described in what follows.

2.2 THE INVESTIGATOR

The investigator in the present study fulfils the double role of investigator and parent. Existing BFLA and TFLA case studies show that it is by no means rare to have a investigator who is also the parent of the children studied (e.g. Barnes, 2006; Cruz-Ferreira, 2006; Hoffmann, 1985; Saunders, 1988; Stavans, 1992; 2001; Yip and Matthews, 2007). It is said that being a parent-investigator provides greater access "to a potentially much larger sample of utterances in a wider range of situations" (Barnes, 2006: 94). In addition, a parent-investigator has the advantage over an outside investigator of better understanding the children's utterances, due to prolonged contact with the children (Barnes, 2006; Saunders, 1988). Saunders (1988: 29) writes succinctly:

> "I think that studies by parents are virtually indispensable in any thorough investigation of children's language development. Only parents, in their unique position of being in continual close contact with their children, can ensure a reasonably accurate picture of their language, particularly in the period before they start school."

Familiarity between the parent-investigator and the children also plays a positive role in preventing inhibition a child may feel towards an outside investigator: the child will communicate much more freely with their own parent than with an outsider.

However, this double role of parent-investigator could also be interpreted as posing a threat to the study's objectivity, as the investigator can be thought of as influencing their investigation subjectively by being biased towards their child(ren). This is known in the literature as *observer bias* (e.g. Foster, 2006) and is something of which the investigator needs to be aware.

Although parental reports on language development and use have in the literature been found not to be completely reliable (an issue discussed by Goodz (1989), who finds a discrepancy between reported language use and actual production), they are still considered the best sources for estimates about

their children's exposure patterns and for descriptions of sociolinguistic background (e.g. De Houwer, 1995).

Another reservation reported with reference to parents acting as investigators is the issue of the effect the investigation itself, the constant observations and note-taking have on family relationships and the child(ren)'s upbringing. Saunders (1988) dismisses the fear of family life revolving around the acquisition of multiple languages. In his case study, Saunders (1988) observes the linguistic development of his three children, who are raised bilingually in English and German. Saunders takes into consideration the apprehension which observing one's own children might bring about, but argues that if observations and note-taking are kept low-key, then they are "a *by-product*, not the purpose, of the parents' normal interactions" (Saunders, 1988: 29). This author also says that "whilst there is no denying that bilingualism is an important part of my family's life, it is not something pursued fanatically, at all costs" (Saunders, 1988: 33).

From the above discussion, it transpires that despite some reservations (with regard to the study's objectivity), parental investigations and record-keeping of children's language development and use may be more productive that an outside investigator's. As a matter of fact, it is said that "there is no 100% purely objective or subjective observation" (Perry, 2005: 116), be it by parents acting as investigators or by outside investigators. And observer bias can be counteracted by means of a detailed account of data collection procedures as well as of data selection and data presentation procedures. These are discussed in turn below.

2.3 DATA COLLECTION

This section outlines the forms in which the data were collected and it discusses their suitability for the research at hand. In addition to setting out the circumstances surrounding the recordings, this section also describes the

procedure followed during recordings and the implications this process has for the recordings themselves.

The data in the present thesis were collected in two forms: in the form of audio recordings and in the form of written notes. Audio recordings were made in the family home, predominantly in the living-room, which doubled as a children's playroom. Data recorded in the written notes involved the children's utterances at times when making audio recordings was not possible, either because the recording equipment was switched off or because the data to be recorded was uttered outside the range of the microphone, or even outside the home, when the family was going about their business in the wider community. The appropriateness of these two recording tools speaks for itself: audio recordings were made where it was practicable (i.e. at home), and written notes were utilised when the audio recording equipment was not accessible. Similar procedures are followed by Cruz-Ferreira (2006), for example, with audio and video recordings made predominantly in the home and diary notes more on outings.

Additional support for these research tools comes from the fact that they are established means of data collection in BFLA and TFLA research in general.

2.3.a AUDIO RECORDINGS

For the purpose of audio recordings, a free-standing omni-directional microphone connected to a portable cassette recorder was used (similar to Lanza, 1997b). The microphone's recording range was a radius of approximately four metres, which was a little beyond the boundaries of the living room, the room in which the majority of the audio recordings in this study were made. The recorder itself and the microphone were outside the reach of the children in this study.

Audio recordings with one-month intervals were the goal for the data collection in this thesis. Regular sampling of children's speech makes quantitative analysis more reliable (Yip and Matthews, 2007). However, a strict one-month

interval could not always be observed due to the dynamics of everyday life. Audio recordings were, therefore, made as soon after the passage of one month as circumstances permitted (cf. Cruz-Ferreira, 2006). Some recordings involved slightly shorter intervals for the same reason. The duration of each recording was at least 30 minutes. However, it is necessary to point out here that recordings sometimes involved long stretches of silence, singing or incomprehensible gibberish, depending on the theme of the children's play, on the children's mood and on their willingness to make conversation. Such data was not considered for analysis as it either involved recitation or incomprehensible speech. For this reason, the number of utterances per recording differs widely. In addition, not every one of the children's comprehensible utterances was relevant for the analyses in this thesis. A selection was made of the data to be included. Criteria for the selection of data are presented in the relevant section further below.

The audio recordings in this thesis involved interactions between all four members of this family, but, due to the father's work commitments during the children's waking hours, taped interactions predominantly involved the children and their mother or the children by themselves. For a more detailed account of the family's circumstances, see Chapter 4.

The audio recording procedure itself involved the mother switching on the recording equipment and recording the date, the participants and the activities in which the participants were involved at the time. Frequently, this was followed by the children saying something in jest or 'performing' for the benefit of the recording. The fact that the children knew they were being recorded (the equipment used here did not permit more unobtrusive recording), prompted behaviour which would otherwise not have been observed. This change in behaviour is also termed *procedural reactivity* (Foster, 2006), and the relevant comments by the children in this study were ignored in the overall analysis because they were staged and frequently involved the language in which the mother's announcement was made. The procedural reactivity only ever lasted quite briefly (generally for the duration of one or two utterances), after which the

children were once more engrossed in their original activities and interacted naturally.

Procedural reactivity has previously been reported by Vihman (1998), who reports awareness of a tape recording triggering Estonian in the case of her daughter, in the child's effort to conform to parental expectations. Therefore, parental recording had an observable impact on the composition of the individual recordings in the present case. However, awareness of this meant that such data could be ignored for the purposes of analyses of naturally-occurring data, the main focus in this thesis.

2.3.b WRITTEN NOTES

Written notes were the chosen data collection method for situations, mostly outside the home, in which audio recordings could not easily be made (cf. Cruz-Ferreira, 2006). These situations involved interactions between the members of this family while out and about in the wider community. Not only would it have been cumbersome to carry recording equipment around at all times for the purpose of recording these interactions, but it would also be necessary to inform the other parties in the interaction of the investigator's intent and to request their permission for the recording. This would then no longer be a naturalistic but rather an experimental setting for an interaction. However, as the present study aims to record naturalistic interactions, recording interactions on audio tape in the wider community was deemed an inappropriate tool. Instead, use was made of written notes. Usually, notes were not written down at the time of the interaction (in order not to disturb the natural flow of conversation) but from memory as soon as was practicable. Obviously, the weakness of this is in the reliance upon memory for recording such utterances (Foster, 2006). The outcome of recordings from memory was also the fact that only brief interactions were recorded, as longer stretches of conversation could not be recalled from memory.

In a recent TFLA study, which focuses on the acquisition of Portuguese in a trilingual environment (Cruz-Ferreira, 2006), it is reported that a Dictaphone was made use of outside the home rather than written notes. The Dictaphone reportedly fulfilled the role of *aide-memoire* to the investigator in situations in which no other means of recording was available (for example, during a car journey). Although, as with pen and paper, the recording equipment (in this case a Dictaphone) needs to be close to hand for the investigator to use, recording an utterance in spoken form may be less time-consuming than writing it down. The use of a Dictaphone is, therefore, an apparently sensible solution. Handy portable recording equipment presents a piece of data collection equipment which should be taken into consideration by future investigators. For example, an iPod MP3 player (cf. http://en.wikipedia.org/wiki/IPod) fitted with an appropriate microphone can serve as a digital voice recorder, as can a mobile phone. This technology was not available at the time of the recordings for this thesis.

In the present case study, written notes were used for recording interactions outside the home, but they were also used in some situations inside the home (cf. Yip and Matthews, 2007), either because (i) the audio recording equipment was unavailable (that is, switched off), or because (ii) an utterance was outside the range of the microphone. Utterances recorded in the written form mostly included mixed utterances or utterances which featured a previously unrecorded item of vocabulary or element of grammar.

Because utterances recorded in the written notes were made at times when no audio recording was possible, these utterances often differ in form and content from utterances in audio recordings. As such, the utterances recorded in the written notes are to be considered as a useful source of supplementary data rather than as a confirmation of what was recorded on tape. By contrast, Yip and Matthews (2007), for example, regard their diary notes as a complement of their audio and video recordings, which means that they confirmed what was recorded by audio and video means.

Until recently, it was thought that a multiprocedural approach to data collection, also termed *triangulation* (Perry, 2005: 118; Seliger and Shohamy, 1989: 105), might guard the investigation from the weaknesses of only one approach by confirming any findings from different sources (and thereby increasing the study's objectivity and validity). However, Seliger and Shohamy (1989: 105) also note that "while in theory, triangulation sounds feasible, it is not always possible to collect the same data using different sources". More recently, this was found to apply in a study, in which a multiprocedural approach to data collection produced unequal results (Quay, 2001). In such a situation, caution is advised when drawing conclusions (Quay, 2001). Obtaining unequal data, however, does not necessarily reflect negatively on the study itself. On the contrary, it increases the breadth of situations in which linguistic interactions are recorded by a specific means of data collection rather than not at all, and it provides the investigator with access to a greater number and variety of utterances.

Concluding this section, it is essential to point out that although two data collection tools were utilised in this thesis and a large quantity of data was collected, the recorded material presents only a segment of the children's actual language use. However, because naturalistic audio data is available, it can be argued that the data is typical of the children's everyday language production. Due to the sheer size of accumulated data, it was not possible to present the whole data corpus. A selection had to be made of the data to be included. Which criteria were utilised to choose the data for presentation concerns us in the following section.

2.4 DATA SELECTION

Data selection in the present case study involved a two-fold process. Firstly, it was decided which recordings were to be used for the research, and secondly, criteria needed to be formulated for the selection of utterances from these recordings which are relevant for the discussion of the research questions. Both selections needed to be made because the data corpus accumulated over the

ten-month period of observation was too substantial to be presented in its entirety. Data selection, therefore, was inevitable and necessary (cf. also Foster, 2006), and it resulted in a database whose relevance and size was sufficient for the analysis.

2.4.a NATURE OF THE RECORDINGS

The first recordings of the children's utterances in the present case study were made when the elder of the two children was just over two years old and started stringing syllables and short words together in an utterance. The younger child was barely six months old and not yet producing understandable speech. Therefore, these recordings do not form part of the observations because the children's utterances were ambiguous (as when EK's use of the syllable 'ma' could have the meaning of 'Grandma', 'mummy' or 'Marmite') and not always easily understandable due to the children's developing phonology, lexis and syntax.

Recordings following on from this period form the source of the data analysed in this thesis. The recordings involve utterances produced by the children in interactions between themselves, or between one or both of them and one or both of the parents. The children are aged upwards of 2;9 (EK) and 1;4 (IF) and starting to produce utterances involving multiple words. In the early stages of the period of observation, the parents interacted with their children during recordings. Had a parent not been present during the recordings in order to initiate a conversation or to respond to a child's utterance, there would possibly not have been much speech available for recording. After the elder child EK reached about three years of age (and the younger about 1;7), interactions between the children were spontaneous and did not need prompting. For this reason, utterances from recordings with and without the parents are utilised in data analysis.

Once the children interacted spontaneously between themselves in understandable spoken speech, recordings were made in situations of play with

predominantly only the two children present. Contributions from the parents were kept to a minimum at this stage as it was felt (and observed) that any contribution from the parents influenced the children in their language choice and actual language use: the mere presence of a parent or other adult was sufficient to influence the language utilised by the children (that is to say, the children generally switched to the parental language). This shows the children's sensitivity to language choice and is discussed in more detail in Chapter 4.

2.4.b *PERIOD OF OBSERVATION*

In view of the aims formulated in Chapter 2 and with an understanding not only of the nature of the multilingual utterances produced by the two children in this case study but also of the nature of their production more generally, the period of observation was selected to encompass a period including utterances involving elements from two and three languages.

Although bilingual utterances formed part of the children's productions both prior to and following this period, trilingual utterances were limited to a ten-month interval, in which EK was aged between 2;9 and 3;6, and IF between 1;4 and 2;1.

Having selected the period of observation, it was then necessary to formulate criteria on the basis of which relevant data were to be selected for presentation and analysis. The following criteria were drawn up:

- The data need to fall within the specified period.

- The data need to be of good quality, which means that, in the case of audio recordings, the data need to be audible, understandable and not overpowered by too much background noise.

- The data must include accompanying contextual information, as this facilitates subsequent analyses by providing relevant clues.

- The data need to be relevant for the discussion of the nature of the children's mixed utterances. Monolingual utterances were, for this reason, ignored in the qualitative analysis, but they do feature in the quantitative analysis (see Chapters 4 and 5 respectively).

2.4.c CONTEXTUAL INFORMATION

Of these criteria, the importance of providing contextual information for the recordings requires further elaboration. For the purpose of clarification, an example is presented at this point. The languages are coded as follows: Croatian – underlined and *German – italics*. The English translation is supplied underneath.

(3.1)   EK (2;9): *Guck, mama,* <u>to</u> *macht*<u>ala</u>!
                   'Look, mummy, I did it!'

The child is observed to address her mother in a mixture of German and Croatian. The word 'mama', which exists in both German and Croatian with a closely similar pronunciation, is of no assistance in this case in determining whether this is a predominantly Croatian utterance with elements of German, or a predominantly German utterance with elements of Croatian. The father may have been present in this situation, which could have prompted the child to utilise German when addressing her mother (although the habitual language of conversation between mother and daughter is Croatian). However, a lack of contextual notes for this example means that this potentially useful information is unavailable to the investigator. It is, therefore, impossible to deduce what motivated EK to express her thoughts in the way she did. Language choice in this family is strongly determined by the other speaker: had the father or some other German-speaking person been present in this situation, EK would have chosen German for her communication. However, if only the mother were present, it is possible that EK would have chosen Croatian and facilitated the expression of her thought by utilising German (the child is exposed to her mother's use of both languages, depending on the communicative setting).

The lack of contextual notes in (3.1) means that the interpretation of this utterance cannot be resolved unequivocally. Nevertheless, such examples are retained in the relevant analyses because they show the use of multiple languages in a single utterance and how, practically, such utterances are produced. Both aspects are relevant in the discussion of the nature of these children's utterances.

2.4.d ANECDOTAL EVIDENCE

Data selected for presentation sometimes also include observations made by the parents but not recorded either by audio or any other means. These observations are recalled from memory and are utilised in the present study to assist in the presentation and analysis of the children's linguistic behaviour. A case in point is the parental observation that the children in this study utilise English almost exclusively when speaking with monolingual speakers of English. Only very rarely do elements from another language slip into an English utterance. Due to their rarity, such instances of language use can be attributed to performance errors.

Because data from interactions with monolingual speakers of English - as a rule taking place outside the home, in the wider community - were recorded neither on audio tapes nor in written form, the study relies on parental observations without the support of data. Such accounts may affect the objectivity of this case study, but despite its implicit weakness - not least with regard to the distortion that can occur when the investigator relies upon memory (Foster, 2006) - this type of evidence should not be rejected out of hand as it benefits the investigation by providing additional relevant information.

2.4.e EXCLUDED DATA

Specifically *not* selected for presentation are non-spontaneous (in other words, elicited) utterances, such as prompted repetitions of corrections. Two examples

are provided to illustrate this. (<u>Croatian</u> – <u>underlined</u>, **English** – **bold,** *German –*
italics)

(3.2)   IF (1;10) and her mother are sitting in the living room very early one
        morning because IF could no longer sleep. IF asks her mother to
        read to her.

IF: *Lese!*
        read

MUM: <u>Molim čitaj mi</u>!
        please read (to) me

IF: <u>Molim čitati</u>!
        please (to) read

While IF's first utterance forms part of our selected data for the purpose of
quantitative analysis, her second utterance, a prompted response, does not.

It needs to be pointed out at this stage that no elicited data forms any part of the
analyses. For example, the mother in the present case study frequently corrects
the children's language choice when they speak English in the mother's
presence rather than Croatian, the chosen language for interactions between
the mother and the children. For instance, in a situation involving both children
and the mother, EK spontaneously exclaims:

(3.3)   EK (3;2): **Look!**

        The mother translates this utterance into Croatian and says

MUM: <u>Pogledaj</u>!
        look

        This is followed by

EK: <u>Pogledaj</u>!

EK's use of <u>pogledaj</u> ('look') in response to her mother's prompt is disregarded
in the (quantitative) analysis because it was an elicited response. (In the

present case study, both children are observed and recorded to repeat parental prompts of this nature.)

In conclusion, it should also be pointed out that at no time was the children's attention drawn to the data. In other words, although the children were at times aware of the audio and orthographic recordings their parents made, they were unaware at all times of the study itself and of the kind of data collected for it. This means that the quality and validity of the data was kept intact rather than being threatened by such influences (cf. Seliger and Shohamy, 1989). If ever the children questioned the audio recordings, they were told it was for the purpose of having a record for when they are older of how they played together when they were younger. It could be argued, therefore, that the children were unconcerned about the recordings and were never aware of any ulterior motif for them.

2.5 DATA PRESENTATION

The data in this study is presented by orthographic transcription throughout (e.g. Hoffmann, 1985; Stavans and Swisher, 2006). Where required, reference is made to the children's phonology.

The transcription of tape-recorded naturally occurring turns-at-talk is a step in performing data analysis. The focus is on the transcribed data, taking into consideration the setting in which it is recorded. This is in contrast to conversation analysis (CA), whose focus is on using the transcription as a convenient reference tool for focusing on the *organization of talk* (Hutchby and Wooffitt, 2008). Organization of talk is important in the present thesis only in as much as a child's turn-at-talk may come in response to another speaker's prompt, which is of relevance in the discussion of the children's language use in Chapter 4.

Throughout this thesis, examples of child data are numbered consecutively, according to the chapter in which they are included ('chapter'.'example number') (cf. Cruz-Ferreira, 2006). The initials identifying the child in question are given

as 'EK' or 'IF', followed by the child's age in the standard format ('year;month'). For example, (3.1) EK (2;9) means that this is the first example in Chapter 3, uttered by the elder child EK, who was aged two years and nine months at that time.

The languages themselves are coded in different fonts for ease of reference:

<u>Croatian</u>- <u>underlined</u>   **English – bold**   *German- italics*.

Proper names and some Croatian terms for family members (mama (=mummy), tata (=daddy), deda (=Grandad), baka (=Grandma)) are not coded for their language (cf. Gawlitzek-Maiwald and Tracy, 1996) as the present family utilises these Croatian terms even when speaking German. As for English, the children address their parents with the English equivalent but refer to their maternal grandparents with their Croatian equivalents in order to differentiate the maternal grandparents from their English paternal grandparents. Equally, the English terms 'Grandma' and 'Grandad' are not coded for language because they are treated as proper names and stay in the same form irrespective of what language the children choose to speak. For example, the following utterance is, therefore, ignored in our data of trilingual utterances:

(3.4)   The younger child IF (1;11) explains to her mother the reason for the sudden appearance of a cardigan for which they had been searching unsuccessfully for some time.

          IF: Grandma bring<u>ela</u>.
                Grandma brought (it).

This utterance could be coded as trilingual if 'Grandma' were considered an English word. However, because 'Grandma' is treated as a language-non-specific *name*, this utterance is considered to be bilingual, with an interesting English-Croatian, or even German-Croatian, verb formation.

Exclamations such as 'Oh!' and fillers (such as 'mm', 'uh-uh') are also not coded for language because they cannot be specifically attributable to any of the three languages.

2.6 DATA ANALYSIS

Several forms of data analysis are performed in the present thesis. The rationale for the selection of these methods of data analysis is to answer the research questions set out in section 5 of Chapter 2. The wider aim is to investigate the nature of utterances produced by the two children under study in this thesis.

The chosen *unit of analysis* is an *utterance*, although smaller elements (phrases, words, morphemes) are also considered individually. Here, an utterance is viewed as the result of speech acts performed in real-life situations (Davies, 2005; Strazny, 2005), as opposed to grammatical sentences. The thesis analyses mixing which occurs within an utterance (i.e. intra-utterance mixing), but, herein, distinguishes between utterance-level and word-level mixing. Whole-word mixing involves the use of whole words from participating languages in an utterance. Word-level mixing, on the other hand, involves the use of more than one language in individual words set within an utterance.

The reasons for this selection of utterances as the main unit of analysis are twofold. Firstly, and most importantly, an utterance involves the raw data of speech, that is, the data of what is actually said (Davies, 2005). The data corpus in the present study involves just such data. Secondly, this classification permits data analysis in terms of *inter-utterance* and *intra-utterance mixing*.

The forms of data analysis carried out here involve (i) the identification of the source language of the children's utterances, (ii) the calculation of Mean Length of Utterance (MLU), (iii) the the calculation of Pearson's correlation, and (iv) the application of Poplack's (1980) and Myers-Scotton's (1993) proposed constraints. These are illustrated in turn below. Each of these analyses is performed for a specific purpose: (i) identification of the source language is

essential in the case of the present thesis as multilingual utterances are recorded in the data corpus; (ii) calculation of the MLU is performed for the purpose of illustrating the degree of language development in the children under study; (iii) by calculating Pearson's correlation, it is hoped that insight can be gained into the appropriateness of each of the two ways in which the MLU is established; and (iv), an investigation is undertaken into the appropriateness of some existing constraints proposed in the context of mixed utterances.

2.6.a *SOURCE LANGUAGE IDENTIFICATION*

The identification of the source language of elements in utterances produced by the children in this thesis was, for the most part, unproblematic. The ease of attribution was the result of a combination of two factors: (i) the participating languages each have specific features of pronunciation, and (ii) the children's pronunciation in each of the languages was differentiated at the time of observation. Homographs such as 'zebra', for example, have distinctive pronunciations in each of the three languages. When IF (1;10) is recorded on audio tape as saying *Viele* <u>zebra</u> ('many zebra'), then her pronunciation of this homograph is clearly Croatian.

Problematic were some near-homophones, however, such as the Croatian and German equivalents for car ('auto'), mother ('mama'), wee ('pipi') and cocoa ('kakao'). This is illustrated in the following examples:

(3.5)   IF (1;4):   Auto.
                            car

(3.6)   IF (1;9):   Mama, pipi!
                            mummy wee

(3.7)   EK (2;11):   *Ich **lik**e* [laike] kakao.
                            'I like cocoa.'

Utterances (3.5) and (3.6) were excluded from analysis because of their brevity: as the only item(s) in these utterances were Croatian-German near-

homophones, uttered in isolation, the source language of these items (and, therefore, of the utterance) could not be determined. In utterance (3.7), however, the Croatian-German near-homophone *kakao* is only one item of three. The source language(s) for the two other items can clearly be identified. This utterance is, therefore, retained for analysis in terms of a bilingual utterance, but the near-homophone is not coded for language. An instance of an English-German homograph and near-homophone involves the preposition 'in' in the following example:

(3.8)   EK (3;1):   **Come on** *in Wohnzimmer lesen eine* <u>lijepu</u> *Geschichte*, <u>molim</u>.
                          come on in living room (to) read a nice story please

This element is not coded for language due to the ambiguousness involving the participating languages. However, the elements of the remainder of the utterance are individually language-specific, which is why this utterance is retained for analysis.

Support for this kind of approach to ambiguous data is found in some of the literature. Lanza (1997b) and Petersen (1988), for example, exclude from analysis any language elements for which it is impossible to determine the source language on the basis that they are found to be in common to at least two participating languages.

2.6.b *CALCULATING MLU*

Calculation of the Mean Length of Utterance (MLU) is deemed to be a relatively quick (De Houwer, 2009) and widely-utilised (cf. Lanza, 1997b) measure of child language development. This method was developed based on the idea that the longer children's utterances become, the more skilled they are in a particular language. The measurement of MLU was first developed in the 1920s (cf. Parker and Brorson, 2005) and initially referred to as Mean Length of Response (MLR) (Nice, 1925). It was subsequently refined by Brown (1973) in an investigation of several children's linguistic development which involved morphemes rather than words. In this measurement, the total number of

morphemes from a sample was divided by the total number of utterances from the same sample, resulting in a calculation abbreviated as MLUm, or Mean Length of Utterance in morphemes (cf. Brown, 1973). Because speech development in children involves increasingly complex elements of vocabulary and grammar, Brown (1973) thought that MLUm better reflected this aspect of acquisition than did a calculation of MLU in words. Brown (1973) found that although children vary greatly in the speed at which their speech develops, the order of acquisition is almost identical across children. For this reason, Brown (1973) believes that better than measuring children's grammatical development by chronological age, it should be measured by MLUm.

Both measurements have been utilised in BFLA studies previously (e.g. Lanza, 1997b; Sinka, 2000), but they have not been reported in the TFLA literature which was consulted for the purpose of the present thesis. Interestingly, one BFLA study indicates that there exists a difference between the MLUw and MLUm values calculated for the same speech sample (Sinka, 2000): the MLUm values for English are reportedly higher than the MLUw values for the same utterances. Although not explicitly stated by Sinka, this observation is likely to be attributable to the fact that words often consist of more than one morpheme, frequently involving morphemes which perform a grammatical function (such as the suffix –ly, which turns an adjective into an adverb) (Trask, 2007). Therefore, a single word can, for example, consist of two morphemes: a lexical morpheme (with a dictionary meaning) and a grammatical morpheme (with a grammatical function) (Trask, 2007). For this reason, the MLUm value will inevitably be higher than the MLUw value.

Judging from previously reported experience, the value of MLU can fluctuate between recordings (e.g. De Houwer, 2009; Sinka, 2000), depending on the talkativeness of the child. This variation has to be factored in when reporting on MLU values as the degree of talkativeness in each language is not necessarily an indication of that child's language development (De Houwer, 2009).

Caution is also advised when comparing MLU values across languages. The measure of MLU in this instance is regarded as "highly problematic" (De Houwer, 2009: 65) because languages differ in their use of bound morphology. Comparing the English utterance 'I won' with its German equivalent ('Ich habe gewonnen'), De Houwer (2009) finds a higher morpheme count in German compared to English. The difference between the MLU values leads De Houwer (2009: 65) to form the opinion that Brown's method of calculating the MLU "cannot be applied to morphologically more complex languages". De Houwer (2009) also points out that the comparison of MLU values across languages, especially when calculated in words, is most unambiguous at the one-word stage of development. As soon as bound morphology begins to be utilised by the child, the comparison becomes more complex. This will be investigated in the present thesis by calculating and comparing the MLU values (both MLUw and MLUm values) across the relevant languages acquired by the children in this study.

Due to the difficulties outlined in the previous paragraph, De Houwer (2009) suggested that a bilingual child's MLU value in one language be compared to a monolingual child's MLU value in the same language (rather than comparing the MLU values across the child's languages). However, De Houwer also cautions that bilingual children cannot be assumed to function in the same way as monolingual children and that "for many languages studied in BFLA research, there are insufficient data from monolingual acquisition available as comparison material" (De Houwer, 2009: 66). In addition, "too few languages-in-acquisition have been compared to date to be able to state with certainty that the acquisition of a particular language by a BFLA child runs exactly the same course as its acquisition by a monolingual child" (De Houwer, 2009: 66). For these reasons, De Houwer finds that "there are no easy ways of measuring overall skill in a language" (De Houwer, 2009: 66).

In this thesis, however, it will be argued that despite De Houwer's findings, calculating MLU nevertheless reveals certain useful information, such as whether or not the values are changing from one recording to the next.

Changes in MLU values can be seen to indicate some changes to language development, although they could also be an indication as to the child's talkativeness.

A correlation is utilised in the literature in connection with the MLUw and MLUm values. Parker and Brorson (2005) use "a common statistical measure of correlation" (cf. VanderStoep and Johnston, 2009), the so-called *Pearson correlation* (or Pearson's *r*), to calculate the relation between these two values.

2.6.c *PEARSON'S CORRELATION*

Parker and Brorson (2005: 365) investigate the correlation between the MLUw and MLUm values in the case of "typically developing English-speaking children between the ages of 3;0 and 3;10". The measure the authors utilise, the Pearson correlation, is a measure which calculates the relationship between two variables. The value of the correlation ranges between +1.0 and -1.0. According to Vanderstoep and Johnston (2009: 97), "the closer a correlation is to +1.0 or -1.0, the greater its magnitude." Healey (2009: 340) even specifies that values between 0 and 0.30 indicate a weak relationship between the variables, those between 0.30 and 0.60 a moderately strong one, and those above 0.60 a strong one. In their own study, Parker and Brorson (2005) find *Pearson's r* = 0.998 and speak of an "almost perfect" (Parker and Brorson, 2005: 372) correlation between MLUw and MLUm. According to Healey's (2009) specification, Parker and Brorson's (2005) *r*-value indicates a strong relationship between the MLUw and MLUm values. This strong relationship leads Parker and Brorson (2005) to conclude "that MLUw and MLUm measures are, in fact, strongly correlated" (Parker and Brorson, 2005: 373), suggesting that "MLUw could be used as effectively as MLUm in the measurement of a children's gross language development" (Parker and Brorson, 2005: 373).

This finding, however, is based on the analysis of monolingual (English) transcripts only. In the area of BFLA and TFLA, on the other hand, more than one language may be involved in utterances. How the MLUw and MLUm values

relate to each other in mixed utterances would be interesting to investigate. Would the differential between the values be comparable to the differential between MLUw and MLUm values for monolingual utterances, as was seen previously in studies by Parker and Brorson (2005) and Sinka (2000)?

Due to the fact that the present thesis investigates the nature of utterances produced by children acquiring *three* languages, and due to the fact that these languages involve a differing degree of morphological complexity, it will be interesting to see whether the high correlation found between MLUw and MLUm values by Parker and Brorson's (2005) can be replicated in the case study investigated here. This analysis is performed in Chapter 4.

2.6.d *POPLACK'S AND MYERS-SCOTTON'S PROPOSED CONSTRAINTS*

It was seen in Chapter 2 that some authors (Myers-Scotton, 1993; Poplack, 1980) have proposed rules which were to account for the variety of mixed utterances encountered in the speech of multilingual speakers. It was also noted that these rules were based on data involving *adult* rather than *child* speakers. Nevertheless, the proposed constraints have been applied to multilingual data collected from children (e.g. Lanza, 1997b; Stavans and Swisher, 2006; Tracy, 1996; Vihman, 1998), with conflicting results.

In the context of BFLA, it was found that Poplack's (1980) Free-Morpheme Constraint is violated (Tracy, 1996; Vihman, 1998), while Myers-Scotton's (1993) System Morpheme Principle is generally upheld (Lanza, 1997b; Vihman, 1998). However, instances have been reported of what Myers-Scotton (1993) refers to as Embedded Language (EL) system morphemes in Matrix Language (ML) utterances (Vihman, 1998), which runs contrary to Myers-Scotton's (1993) System Morpheme Principle (cf. Chapter 2, section 2.8 for a more detailed discussion of constraints).

In the context of TFLA, only one study's findings are reported with regard to constraints. Poplack's (1980) proposed constraints, the Free Morpheme Constraint and the Equivalence Constraint, are reportedly less stable when

applied to trilingual utterances than when applied to bilingual ones (Stavans and Swisher, 2006). The instability concerns the typology of the participating languages and the "different ages or stages of language development/acquisition" (Stavans and Swisher, 2006: 203). This is illustrated in the English-Hebrew-Spanish production of **in the** *aron*<u>es</u> ('in the closets'), in which "the English determiner 'the' … complies with the grammatical requirements of both English and Spanish. Yet it violates the bound morpheme constraint imposed by the Hebrew system" (Stavans and Swisher, 2006: 203). In addition, the use of the Spanish plural noun ending /-es/ as an affix for a Hebrew noun in a prepositional phrase commencing with an English preposition and an English determiner represents "morphosyntactic violations between not only two but between three languages" (Stavans and Swisher, 2006: 203).

As for Myers-Scotton's (1993) Matrix Language Frame model in the context of TFLA, this is critiqued with regard to the participating languages: Myers-Scotton's (1993) MLF model allows for *two* languages - the ML and the EL -, while in TFLA, utterances involving *three* languages are in evidence (e.g. Hoffmann and Widdicombe, 1999; Stavans and Swisher, 2006). This means that at least two languages share the role of either ML or EL, which, according to Stavans and Swisher (2006), makes allocating a specific role (ML or EL) to a specific language more complex than in utterances involving two languages. Stavans and Swisher (2006: 202) report that "even if we could assign those roles, it would be difficult to establish the hierarchy between those roles".

Stavans and Swisher (2006), therefore, highlight complexities they encounter in applying some existing constraints to their data involving three languages. As was seen in the previous paragraph, the complexities involve the language typologies, which are responsible for the reported morphosyntactic violations (cf. also Chapter 2, section 3.7).

In view of some of the limitations reported in the existing literature, the present study investigates the applicability of Poplack's (1980) and Myers-Scotton's (1993) proposed constraints to its own bilingual and trilingual data.

3. SUMMARY

The methodology chosen for this study is justified for sociolinguistic reasons (cf. Lanza, 1997b). A case study was selected as the appropriate form for this research due to the small number of participants investigated (just two) and the nature of the research (a longitudinal investigation). A combination of quantitative and qualitative methods are then employed to provide relevant information with regard to the children's linguistic development, actual language use and an investigation into constraints which, it has been proposed in existing literature (Myers-Scotton, 1993; Poplack, 1980), govern the use of multiple languages in an utterance.

The methodology employed in this study is additionally justified because it addresses the issues of observer bias, replicability and validity.

Observer bias (e.g. Foster, 2006) is identified in the data collection phase of case study research. In an investigation, the mere presence of an observer may affect the (form of) language being used by the participants (Trask, 2007). The effect, therefore, is on a participant's language performance. This is reported in some of the existing BFLA (Vihman, 1998) and TFLA (Stavans and Swisher, 2006) literature, in which the participants (children) choose their language in interaction to conform to the observer's expectations. Such observer bias is also observed in the present case study, in which the children are sometimes recorded to use the language of the parent who is present at the recording.

In case studies in which the observers are *regular investigators* (Lanza, 1997b) rather than the participants' parents, de-sensitization of the participants to the observer is an important issue (Trask, 2007). The familiarity of the participants and their observers in case studies involving children and their parents is generally assumed. This means that no period of de-sensitization is required and that data from longer periods of time are accessible as parents spend more time with their children than regular investigators do with the participants in their studies. As a result, observer bias is reduced in case studies involving parent-observers by virtue of the familiarity of the observer with the child (and vice-

versa). A benefit of spending longer periods of time with a child has implications not only for the quantity of accessible data, but also for data variety, as more interactional situations are available to the observer the more time they spend with the study's participant(s).

Other ways of counteracting observer bias involves a clear identification and formulation of the processes and decisions involved in the production of a case study. This was done in the present thesis as a clear and unambiguous formulation of the research design aids the adherence to objectivity and, resulting from this, also the study's validity (Perry, 2005; Seliger and Shohamy, 1989). Subjectivity, on the other hand, will reflect negatively on a case study's objectivity and validity (Perry, 2005; Seliger and Shohamy, 1989).

A potential weakness in the methodology applied in the present study lies in the choice of data collection tools. In this study, the tools are audio recordings and written notes. Audio recordings may be affected subjectively by the necessary choice to be made about the time and place of recordings. However, written notes are also affected by a similar choice. Not only does the time and place of a recording need to be chosen, but also the content. Due to the fact that, in contrast to audio recordings, written notes cannot, physically, record everything that is being said, a choice must be made as to which piece of data is recorded. Taking written notes, therefore, entails a decision about what is to be recorded, while collecting audio recordings does not in the same way. Thus, although objectivity is the aim, an element of subjectivity invariably forms part of note taking.

These weaknesses in the data collection tools can, however, be counteracted by virtue of a clear identification of criteria for data collection and selection. In the present study, audio data were collected approximately monthly for at least 30 minutes, and written notes were taken of utterances in which there was evidence of multiple languages or the use of previously unheard items of vocabulary or grammatical features. The degree of subjectivity in the choice of data collection tools is lowered by virtue of a clear identification of purpose.

Despite their weaknesses, the combination of two data collection tools employed here also has a strength. The strength of using two tools for data collection lies in the fact that they supplement each other: the range of situations and data available to the investigator is greater than if only one tool were utilised. Moreover, some of the data from these two data collection tools are found to confirm each other, making for a stronger, more objective case study. For example, both the audio recordings and the written notes in this study show evidence of utterances involving one, two *and* three languages respectively. Had such a finding involved only data from one data collection tool, then the case for an objective and valid study could potentially be weaker. In addition, the range of applicability would have been much smaller, and the case for extrapolation to other situations would indeed be weaker.

Another weakness which can be identified in the type of research performed in this study involves the factor of replication. A study's validity is strengthened if the study can be replicated (Perry, 2005; Seliger and Shohamy, 1989). However, the very particular circumstances surrounding multilingual case studies, first and foremost with regard to the languages involved, make replicability very difficult. Reported language combinations in TFLA research, for example, involve, among others, English-Hebrew-Spanish (Stavans, 1992; 2001; Stavans and Swisher, 2006), English-German-Spanish (Hoffmann, 1985), French-English-Italian (Hoffmann and Widdicombe, 1999), and Chinese-English-French (Wang, 2008). (In each case, the community language features in first place, followed by the language spoken by the mother and then the language spoken by the father.) While English is a language found in many language combinations in these case studies, the other two languages involve a number of additional languages. It is not easy to find cases in which either the set of languages or some of the other circumstances overlap. This complicates any attempt at a comparative analysis. The situation is aggravated by the fact that the particular language combinations are not easily found in the general population. In other words, the circumstances surrounding in particular the reported TFLA case studies are generally not representative of any larger group of people, but are restricted to, for example, the size of individual families. For

this reason, exact replication of a case study of this kind is rather difficult, if not impossible, which may have implications for the extrapolation of the results. Any findings from such case studies can, therefore, not easily be generalized to a larger population. However, such multilingual cases should be reported as commonalities and patterns across studies may be observed. Lanza (1997b: 82), for example, states that "research is cumulative, and the increasing number of case studies of child language development provides a good base for comparing the findings of one study with that from other studies". Or, in the words of Cruz-Ferreira (2006: 47), "data-based studies are, by their nature, approximations to the whole from where they are sampled, and any conclusions that attempt to make sense of the data in question may be legitimately generalised but are necessarily tentative" as such studies cannot claim to be exhaustive.

Prior to performing quantitative and qualitative analyses of the children's mixed utterances in Chapters 5 and 6, Chapter 4 presents an outline of the typology of each of the participating languages in the present case study and highlights some of the main relevant distinguishing features of each language. A brief analysis of the languages involved in this study will assist in providing better understanding of some of the features of the children's (mixed) utterances.

In addition to this, Chapter 4 presents and quantifies the exposure of each child to each of the three languages, and it includes an assessment of the children's language development by means of Mean Length of Utterance (MLU) calculation. Chapter 4 concludes by exemplifying the children's actual language use in interactions with other members of the family.

CHAPTER 4

THE LANGUAGES – FEATURES, EXPOSURE, DEVELOPMENT AND USE

1. FEATURES OF THE PARTICIPATING LANGUAGES

The languages to which the children of this study are exposed, Croatian, English and German, all belong to the Indo-European group of languages (Crystal, 1997). Within this group, Croatian is a Slavic language, while English and German are grouped under Germanic languages. Table 4.1 outlines some of the main distinguishing features between the languages. Claims about the structure of each language are based on major reference works available for each of the languages. For Croatian, the information is based on Barić *et al.* (2005), and on Težak and Babić (2005). For English, Greenbaum (1991) and Hurford (1994) have been consulted, while for German, reference works include Dodd *et al.* (2003), and Hentschel and Weydt (2003). The features detailed are those which are of importance for the qualitative analysis of the utterances analysed in this thesis. A similar contrastive analysis of a case study's relevant languages is reported in both the bilingual (Sinka, 2000) and the trilingual literature (Stavans and Swisher, 2006).

It will be seen from Table 4.1 that the three participating languages of Croatian, English and German differ in their morphological complexity (that is, their degree of inflection): Croatian and German are the two more highly inflected languages compared to English (see number, gender and case agreement in Table 4.1). As a matter of fact, "English is a language poor in inflectional morphology" (De Houwer, 2009: 35).

The word order in independent declarative sentences for all three languages is SVO. However, the morphologically most complex language of the three languages under consideration is Croatian, which displays a greater word order flexibility compared to German and English.

By virtue of marking person on the verb, both Croatian and German permit some degree of subject elision (discussed further below), which generally does not apply to English.

Table 4.1: Brief contrastive analysis of Croatian, English and German

Marking	Croatian	English	German
Number Agreement	✓ (on N, V, Adj)	✓ (on N, V)	✓ (on N, V, Adj)
Gender Agreement	✓ (on N, V, Adj)	-	✓ (on N, Adj, articles)
Grammatical Gender	✓ (Masculine, Feminine, Neuter)	-	✓ (Masculine, Feminine, Neuter)
Case Agreement	✓ (on N, Adj, personal and possessive pronouns)	-	✓ (on Adj, personal and possessive pronouns, and on some N)
Subject Elision	✓ (generally in spoken and written language)	Not generally observed.	✓ (occasionally in spoken and written language)
Word Order In Main Clauses	Flexible SVO	SVO	Flexible SVO*
Word Order Flexibility	High	Low	Mid

* German belongs to a subclass of SVO languages known as V2 (verb second) languages. This means that the verb in declarative clauses maintains its position as the second element in the clause when some other element (e.g. an adverb) is placed in initial position. "English has rigid verb-object word order, while German has variable but rule-governed word order (both verb-object and object-verb)" (Paradis and Nicoladis, 2007: 21).

Subject elision is a trait which requires some elucidation. Table 4.1 shows that it can be found in all three participating languages in both spoken and written form, however its incidence in Croatian is higher than in the other two languages (see Table 4.1 above). In addition to contextual information which enables the tracking of subjects between clauses in all three languages, Croatian is characterised by the fact that its verbs, for example in the present tense, have distinctive morphological endings for each person (see Table 4.2 below). German verbs in the present tense, by contrast, have the same ending for third person singular and second person plural, and for first and third person plural respectively. And English verbs in the present tense have the same form for every person apart from the third person singular, which is marked with –s.

The conjugation of the English verb "to write" and its Croatian and German equivalents may serve as an example. It can be seen that English is comparatively poor in inflectional morphology (cf. De Houwer, 2009).

Table 4.2: Illustration of verb conjugation in the present tense in Croatian, English and German

Language / Person	Croatian	English	German
I	pi-šem	write	schreib-e
you	pi-šeš	write	schreib-st
he/she/it	pi-še	write-s	schreib-t
we	pi-šemo	write	schreib-en
you	pi-šete	write	schreib-t
they	pi-šu	write	schreib-en

The existence of subject elision (also termed subject ellipsis) is also reported in a case study by Stavans (2001) in the case of two children growing up with Spanish, English and Hebrew. Stavans (2001: 362) writes that for "English monolingual 9-year-olds the use of subject ellipsis in finite clauses with tensed verbs is an ungrammatical but conversationally acceptable way", while in Spanish "clauses with Ø-Subject are acceptable in both the spoken and the written modes".

1.1 MORPHOLOGICAL COMPLEXITY AND LANGUAGE ACQUISITION

In the literature, morphological complexity is known to have an impact on language acquisition. Indeed, "bilingual children who are learning a language with a lot of bound morphemes will start to use some of these from early on" (De Houwer, 2009: 35). The difference in morphological complexity is illustrated at this point with reference to a study of Croatian-speaking and English-speaking children by Kovačević, Jelaska and Brozović (1998). In this contrastive study, the authors highlight the variety of the type and quantity of

inflectional morphology in Croatian as opposed to English. Significant differences in the richness of inflectional morphology are reported:

> "The main inflectional markings in English are past, third singular, participle and progressive forms for verbs, plural and possessive for nouns. In Croatian, on the other hand, there are different inflections for tense, person and number on verbs, numerous forms for active and passive participles, seven different sets of case endings in singular and plural for different noun types, different suffixes for masculine and feminine possessives, etc." (Kovačević, Jelaska and Brozović, 1998: 373).

The authors point out that the inflectional complexity in Croatian may have a bearing on the order and speed of acquisition of this language in contrast to the inflectionally less complex English. Accordingly, it is suggested that "Croatian speaking children have to acquire much more morphology for an effective use of their lexicon than their English speaking peers" (Kovačević, Jelaska and Brozović, 1998: 373). The study by Kovačević and colleagues (1998) and a more recent study (De Houwer, 2009) both suggest that children who are learning a morphologically complex language will use some bound morphology comparatively early on. For example, Kovačević and colleagues (1998: 374) write that "Croatian inventories indicate that children master inflected word forms earlier than English speaking toddlers, perhaps at the expense of a somewhat smaller vocabulary". However, "after the basic grammatical forms are acquired, the child catches up with vocabulary development" (Kovačević, Jelaska and Brozović, 1998: 374).

The implications of these findings require further investigation before effects on language production can be expressed with greater certainty. This is outside the scope of the present thesis as it would require a significantly different methodology from the one applied here. It is important, however, to bear this finding in mind during the qualitative analysis of the data from the present thesis. It is also one of the areas which could be addressed in future research.

2. LANGUAGE EXPOSURE

Having contemplated the methodology of the present case study in the previous and the typology of each of the participating languages in the present chapter, the aim of the present section is to provide information about language use in the case study at hand. This account comprises a description of the pattern of exposure of the children in this study to each of the three languages of Croatian, English and German. Based on the pattern of language exposure and also on the family habits with regard to which language is spoken to whom and when, the subsequent section deals with the language choice(s) the children are expected to make in any given communicative setting. This is followed by sections of actual examples of the children's production in interactions between each child and the parents, and between the children themselves. The chapter ends with an illustration of the children's language sensitivity, which is seen to become more pronounced during the latter part of the period of observation. The findings from the whole chapter are summarised in conclusion.

Due to the proximity of both an academic and a research institution in the neighbourhood in which the children of this study are growing up, some of the languages the children hear in their environment include Arabic, Chinese, French, German, Italian, Japanese, Spanish, and Twi (a language spoken in Ghana). However, the focus in this section is the exposure to Croatian, English, and German, the languages which the children of this study are in the process of acquiring rather than just hearing. It is for this reason that, in what follows, the exposure to each of these languages is described qualitatively and quantitatively.

2.1 QUALITATIVE ASPECT OF LANGUAGE EXPOSURE

Broadly speaking, the children in this study are exposed to Croatian from their mother and to German from their father. German is also the language spoken (i) between the parents themselves and (ii) among the assembled family. Due to the father's lack of Croatian, this language is never spoken either between the parents or when the whole family is assembled. English is spoken among the

family members only in the presence of monolingual English speakers who do not share any other language with the family. The children are also regularly exposed to English through the medium of radio during breakfast-time (cf. Figure 3.1 in Chapter 3). In addition, from the age of 3;3, EK is exposed to English at nursery.

2.1.a EXPOSURE TO CROATIAN

Apart from the rare Croatian-speaking visitor, the mother is the children's main source of Croatian when the family is in England. During visits to Croatia, the study's subjects hear Croatian from both adults and children, family, friends and the general public. Other sources of Croatian, which bolster the exposure to this language, are audio tapes and CDs with children's songs and stories.

2.1.b EXPOSURE TO GERMAN

The children's exposure to German is not solely restricted to interactions with the parents, but is also achieved through interactions with the German side of the family, German friends in Germany and native Germans resident in England. In addition, as with Croatian, German audio tapes and CDs are available to the children.

2.1.c EXPOSURE TO ENGLISH

Exposure to English comes from interactions with the English side of the family, the wider community and family friends and acquaintances, some of whom are non-native speakers of English. Listening to audio tapes in English occurs much less frequently when compared to the other two languages. Exposure to English was limited by choice. In the opinion of the mother, who grew up bilingually herself and has personal experience of acquiring a community and a non-community language, acquisition of the community language would proceed despite lower exposure to this language. It was felt that performing daily tasks and various activities in the community and the subsequent attendance of

nursery and school by the growing children would ultimately ensure sufficient exposure.

2.2 QUANTITATIVE ASPECT OF LANGUAGE EXPOSURE

An *estimate* is given in this section (see Tables 4.3 and 4.4 below) of the percentage of time each day the children are exposed to each language. The estimates, expressed in rounded-up percentages, are calculated on the basis of the number of (waking) hours the children spend exposed to and interacting in the relevant languages.

2.2.a *EXPOSURE AT THE BEGINNING OF THE PERIOD OF OBSERVATION*

For example, of the eleven waking hours in a day of the children's lives at the beginning of the observation, only approximately half-an-hour is spent in an English-language environment such as going shopping, going to the post office, or interacting with other members of the community. The method of calculating the exposure to languages on the basis of waking hours in percentages has been utilised in other case studies previously (cf. Quay, 1998).

Obviously, the number of hours in Table 4.3 can only be a rough guide to the children's exposure. A minute-by-minute record and account of their exposure to each of the languages is a practical impossibility (cf. Wang, 2008).

Before the elder child, EK, attended nursery at age 3;3, the pattern of exposure to the three languages for both children was the following:

Table 4.3: Approximation of the children's exposure to Croatian (C), English (E) and German (G) (based on 11 waking hours per day)

	C	**E**	**G**
Weekday	9 ½ hrs = 86.4 %	½ hr = 4.5 %	1 hr = 9.1 %
Weekend	4 hrs = 36.4 %	½ hr = 4.5 %	6 ½ hrs = 59.1 %

Since the children's father is in full-time employment, the time he spends with the children on weekdays is far less compared to the time their mother, a full-time parent, spends with them. This fact is revealed in the estimates of exposure to German and Croatian in Table 4.3 above: exposure to German is restricted to the morning routine involving all members of the family, while the children are exposed to Croatian throughout the remainder of the day, when the father is absent.

The percentages over the weekend differ from those estimated on weekdays due to the fact that the father spends more time at home, which, consequently, means that more German is spoken. Even so, some of the activities the children have at weekends are done in the company of the mother rather than in the company of the father, which is the reason for the still relatively high percentage of exposure to Croatian.

What the estimates do not show, however, is the fact that once weekly for two hours the children go to a parents and toddlers group. This group is led by a native English speaker and attended by international families. Because this is a once-weekly rather than a typical weekday occurrence, it is not included in the table above. However, attendance of this group reveals a pattern of language use which is of relevance in the discussion of language exposure. In this setting, in front of native and non-native speakers of English, the children's mother chooses which language to speak to her children depending on the degree of familiarity with and involvement of the other speaker: if the interaction concerns the other speaker, the mother chooses to speak to her children in that speaker's language (as a rule English or German as no Croatian speakers are present). If the mother wishes to address only her own child or children concerning an issue which is of no relevance to the other speaker(s), the mother speaks the language she habitually speak with her children, that is, Croatian.

Therefore, exposure to Croatian is overall greater during the week, while exposure to German is greater at weekends. English, on the other hand, figures

least both during the week and at weekends by virtue of this family's lifestyle choices.

2.2.b *CHANGES TO LANGUAGE EXPOSURE*

At the stage at which EK starts nursery (aged 3;3), the pattern of exposure to the languages changes for EK: exposure to English increases in line with the number of hours spent at nursery, while exposure to Croatian experiences a proportional decrease. This is seen in Table 4.4 below. Exposure to German remains unchanged because it involves interactions with the father during breakfast time, before EK goes to nursery.

Table 4.4: Approximation of exposure to Croatian (C), English (E) and German (G) for EK at the nursery stage (11 waking hours per day)

	C	**E**	**G**
Weekday	7 hrs = 63.6 %	3 hrs = 27.3 %	1 hr = 9.1 %
Weekend	4 hrs = 36.4 %	½ hr = 4.5 %	6 ½ hrs = 59.1 %

The sessions at nursery last two-and-a-half hours three times a week. This means that EK is exposed to English about 3 hours on such a day (including time spent waiting for the nursery to open or talking to children/adults after the nursery closed) compared to typically only half-an-hour before attendance at nursery. Exposure to the languages at weekends does not differ from the beginning of the period of observation. However, on some weekends the family pays a visit to the children's native English grandparents, and English is spoken exclusively throughout the visit. The reason for this is that the grandparents have minimal knowledge of German and no knowledge of Croatian. The children's exposure to English in these circumstances, however, is not taken into account in the tables above as the visits are an irregular occurrence at this stage and the tables aim to present the *habitual* exposure to the languages.

2.3 SUMMARY

This chapter provides a qualitative and quantitative account of exposure to each of the three languages for the two children in this study. It is seen that exposure to all three languages is continuous throughout the period of observation, but that, due to the family's circumstances, the degree of exposure to each language varies over time. With a change in life circumstances, that is, EK's attendance of nursery, the pattern of exposure to the languages also changes (with exposure to Croatian decreasing in proportion to the increase in exposure to English). Variation in the exposure to German is noted at weekends when the father spends more time with the family and the family interacts in their chosen language, German. Overall, the family are observed to utilise their languages in accordance with external requirements, that is, primarily the other speaker and/or the setting. Therefore, the children are exposed to their mother's use of both her native languages (Croatian and German) and her non-native language (English). Similarly, they are exposed to their father's use of, first and foremost, his non-native German, as well as to his use of his native English.

A similar pattern of exposure to more than one language from a single parent is reported in some other studies (e.g. Quay, 1998; Zurer Pearson and Navarro, 1998). Quay (1998), for example, reports that her subject's "parents used both languages with her but only one at a time in specific situational contexts" (Quay, 1998: 144) and that the child is, therefore, "exposed to each parent as a speaker of two languages and as models of appropriate bilingual behaviour (though, of course, her parents may not have been conscious of such 'modelling')" (Quay, 1998: 144).

This pattern of language use, however, differs from that described in some existing bi- and trilingual case studies in which the parents reportedly rigidly adhere to the one parent – one language approach (e.g. Barnes, 2006; Hoffmann, 1985; Lanza, 1997b; Saunders, 1988).

In this case study, exposure to a linguistically rich environment is considered to contribute to the positive attitude the children in this study have towards their own and other people's languages and cultures.

3. LANGUAGE DEVELOPMENT

Language acquisition for children acquiring one language (monolingual acquisition) and those acquiring more than one language (multilingual acquisition) is generally considered to proceed at a similar pace and in similar order (Bhatia and Ritchie, 1999; De Houwer, 2009). In addition, both monolingual and multilingual children are reported to "use similar structures at similar stages in development" (Bhatia and Ritchie, 1999: 244). How this development is to be measured, however, has been of interest in some literature (e.g. Brown, 1973). Initial reference to Brown's (1973) method of assessing language development is made in section 2.6.b of Chapter 3 above. Because children may vary in the speed at which they develop speech, chronological assessment of language development is deemed inappropriate. It is generally thought that "the average length of young children's utterances is indicative of their overall level of language development" (De Houwer, 2009: 37). For this reason, Brown (1973) argues for language development assessment by means of calculating the Mean Length of Utterance (MLU). The MLU, according to Brown (1973), is calculated by dividing the total number of morphemes in a sample (e.g. an audio recording) by the total number of utterances from the same sample. The number arrived at by this means can then be equated with a stage of development. According to Brown (1973), there are five stages of development in all (see Table 4.5):

Table 4.5: Brown's Stages of development compared to Mean Length of Utterance in morphemes (MLUm)

Brown's Stages	MLUm
Stage I	1.75

Brown's Stages	MLUm
Stage II	2.25
Stage III	2.75
Stage IV	3.50
Stage V	4

As a child grows older and more mature with regard to language development, so Brown's stages of development decrease in their applicability. A child at Stage V of development is said to be able

> "to make constructions of such great variety that what he happens to say and the MLU of a sample begin to depend more on the character of the interaction than on what the child knows, and so the index loses its value as an indicator of grammatical knowledge" (Brown, 1973: 77).

Historically, the Mean Length of Utterance (MLU) is also calculated in words (cf. Parker and Brorson, 2005; Sinka, 2000), whereby the total number of words from a sample is divided by the total number of utterances from the same sample. The resulting MLU value is termed MLUw (MLU in words) as opposed to MLUm (MLU in morphemes) above.

Both measurements have been applied in previous BFLA studies (e.g. Lanza, 1997b; Sinka, 2000), but TFLA work has apparently not used this treatment. Interestingly, a BFLA study indicates that there exists a difference between the MLUw and MLUm values calculated for the same speech sample (Sinka, 2000): the MLUm values for English are reportedly higher than the MLUw values for the same utterances. This is attributed to the higher number of morphemes than words (cf. Chapter 3, section 2.6).

The thesis now proceeds with a presentation of the MLUw and MLUm values for each of the audio recordings in the case of the two children under

investigation, EK and IF. How the respective values correlate with each other is of interest in a subsequent section. Are both means of assessing language development equally applicable, or do the calculated values indicate a divergence, such as described in the previous paragraph? This information is relevant not only for assessing language development in the present case study, but also for deciding which assessment of MLU is more appropriate, not only in the present study but also more broadly, for other studies about the acquisition of multiple languages. As calculating MLUw involves whole words, it is reasonable to suppose that this means of assessment of language development will require less time than calculating MLUm, which involves a closer inspection of the words for the purpose of identifying morphemes.

3.1 MEAN LENGTH OF UTTERANCE IN WORDS (MLUW)

The measurement of MLU, developed in the 1920s (cf. Parker and Brorson, 2005) and initially referred to as Mean Length of Response (MLR) (Nice, 1925), is a widely-used measurement of language development (cf. Lanza, 1997b). To calculate the MLU, the total number of words in a sample is divided by the total number of utterances from the same sample. Due to the fact that it is words which form the basis of this calculation, the resulting figure is termed Mean Length of Utterance in words, or MLUw.

In what follows, this calculation is performed in sequence for both children , EK and IF, for each of their three languages. Audio-recorded data from the whole period of observation of ten months is included in this calculation. Data from the written notes is not taken into consideration for this calculation as recorded utterances generally involve single or short utterances (for a discussion of the advantages and shortcomings of data collection methods, see section 2.3, Chapter 3).

3.1.a EK'S MLUW VALUES

In addition to the MLUw values for each of the relevant languages in a recording for the child EK, Table 4.6 also includes information on the child's age and the respective setting. The age in each recording session is given as (year;month,day) because some recordings were made on different days of the same month (such as recordings 1 and 2), or two sessions were recorded on the same day (such as recordings 9a and 9b, for example).

Generally, it is observed that the children utilise their languages differently in different settings, in this case with their father and their mother respectively. For example, in recording 5, EK is aged 3;1, and the setting involves the child's mother. In this recording, EK uttered 62 Croatian words in 41 monolingual Croatian utterances, which results in an MLUw for Croatian of 1.51. The MLUw values for the other two languages are calculated in the same fashion.

Table 4.6: Mean length of utterance in words (MLUw) for EK's monolingual utterances.

Recording Session	Age	Setting	C	E	G
1.	2;8,18	Looking at picture book with MUM in family setting	2.25	4	1.56
2.	2;8,22	Drawing session with MUM	2	1	1
3.	3;0,9	Play session with MUM	2.29	3.25	1.67
4.	3;0,30	With native German and DAD	n/a*	2.67	2.28
5.	3;1,3	EK with MUM	1.51	2.89	1.6
6.	3;2,17	Early morning play session with IF and MUM, EK joins later	1.86	2.64	2.08
7.	3;3,26	Drawing session with MUM	2.12	3	2
8.	3;4,3	EK, IF, MUM	1.6	3.5	1
9a.	3;4,7	Play with MUM	1.71	3.45	n/a
9b.	3;4,7	Family	n/a	3	2.19

Recording Session	Age	Setting	C	E	G
10a.	3;4,10	Breakfast in family setting	1	1.33	2.70
10b.	3;4,10	Play with MUM	1.9	2	3
11.	3;5,11	Play, MUM appears briefly twice	2.86	3.06	1.5
12.	3;5,17	EK and IF play, MUM in kitchen	3.5	3.78	n/a
13.	3;6,1	Play with MUM	2.68	2.93	2.5
14.	3;6,8	EK and IF play, MUM in kitchen	2.67	7.33	n/a

* n/a (= not available) indicates that no utterances in that particular language are recorded in that session.

Of the fourteen recordings, two pairs (9a, 9b; 10a, 10b) were made on the same day but in different settings. Utterances in monolingual English appear in all of them, followed by utterances in monolingual Croatian, which are produced in all but two recordings (both involving settings in which Croatian is not understood by some of the children's interlocutors). Monolingual German utterances, on the other hand, are produced in eleven of the fourteen recordings. These results are shown in Figure 4.1 below:

Figure 4.1: MLUw values per language for EK
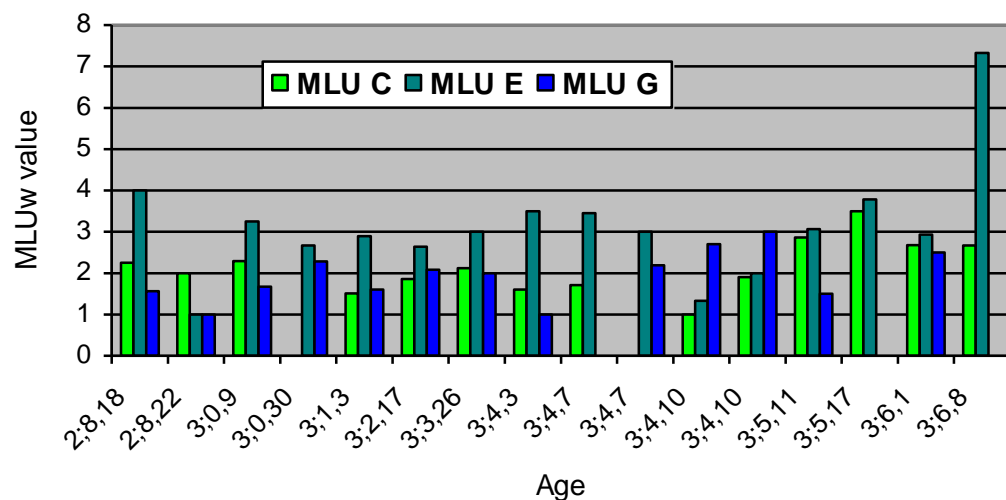
As for the MLUw values, they are seen to vary from one recording to the next from a value of as little as 1 in Croatian (recording 10a), in English (recording 2) and in German (recording 2), to as much as 3.5 in Croatian (recording 12), 3 in German (recording 10b), and 7.33 in English (recording 14). What is immediately observable is the fact that these values do not progress linearly from lowest to highest during the period of observation (see Figure 1 above). Rather, they fluctuate between recordings. This could be an indication of the fact that MLUw values may not be such a straightforward and simple means of calculating a child's grammatical development. It would appear that the whole setting, involving not only the interlocutor in the interaction but also the specific situation, the topic of conversation, the child's willingness to participate in conversation and her linguistic ability to produce a meaningful utterance could all have a bearing on the child's utterance, that is, on the MLUw value. The present author is not aware of any other reason for this observation.

It is possible that a clearer picture may have emerged had recordings been made more frequently. This would have provided more data on which to draw conclusions. Alternatively, more data could have just strengthened the observation made with the existing data available for analysis. On the whole, however, a generally rising tendency is observable with regard to the MLUw values of all three languages. This implies that the languages in EK's case are in the process of development and that this development is concurrent to some extent throughout the period of observation. The MLUw values of English, the community language, across the recording sessions are seen to be higher than the MLUw values of Croatian and German. The sole exception are the recordings 10a and 10b, in which the MLUw values of German are highest. A plausible reason for this observation is the fact that the setting in recording 10a involves the assembled family, a situation in which the habitual language is German. The recording 10b is made shortly after the recording 10a, and although the father is no longer present, there is still evidence of a higher MLUw value for German than for either English or Croatian.

It is expected that the calculation of the younger child's MLUw will provide similar evidence of differential MLUw values across the languages and recording sessions, influenced generally by the same socio- and psycholinguistic factors.

3.1.b *IF'S MLUW VALUES*

As the child IF is aged between roughly 1;4 and 2;1 during the period of observation (in contrast to her sister's age of between 2;9 and 3;6), IF's MLUw values are expected to be overall lower than those found for her elder sister. Table 4.7 below is a summary of IF's MLUw values in monolingual utterances during the period of observation. As in Table 4.6 for EK's data, Table 4.7 also provides details of IF's age and the setting in which the recording took place.

Table 4.7: Mean length of utterance in words (MLUw) for IF's monolingual utterances.

Recording Session	Age	Setting	C	E	G
1.	1;3,18	Looking at picture book with MUM in family setting	1.5	1	1
2.	1;3,22	Drawing session with MUM	1	1	1.67
3.	1;7,9	Play session with MUM	1.77	1.5	1
4.	1;7,30	With native German and DAD	1	2	1.67
5.	1;8,3	EK with MUM	n/a*	n/a	n/a
6.	1;9,17	Early morning play session with IF and MUM, EK joins later	1.48	2.19	1.43
7.	1;10,26	Drawing session with MUM	1.71	3	3
8.	1;11,3	EK, IF, MUM	1.88	n/a	1
9a.	1;11,7	Play with MUM	1.75	2.6	n/a
9b.	1;11,7	Family	1	n/a	1.86
10a.	1;11,10	Breakfast in family setting	1.33	1	2.88

Recording Session	Age	Setting	C	E	G
10b.	1;11,10	Play with MUM	2.33	2	1
11.	2;0,11	Play, MUM appears briefly twice	n/a	3.53	n/a
12.	2;0,17	EK and IF play, MUM in kitchen	3	2.08	n/a
13.	2;1,1	Play with MUM	2.32	1	1
14.	2;1,8	EK and IF play, MUM in kitchen	2	4	n/a

* n/a indicates that no utterances in that particular language are recorded in that session.

What is immediately noticeable in Table 4.7 are two facts, both of which have been predicted initially: firstly, IF's MLUw values during the period of observation are generally a little lower than EK's, and, secondly, there is a similar variability between the MLUw values across the recording sessions and across the individual languages as in EK's case.

In IF's case, it is to be noted that of the fourteen recordings, one has no data available for this child because the child is asleep (which explains the complete lack of speech data for IF in recording 5). As in EK's case, recordings 9a/9b and 10a/10b were made on the same day respectively, but in different settings. The lowest MLUw value for IF is 1 for Croatian (recordings 2, 4 and 9b), 1 for English (recordings 1, 2,10a and 13), and 1 for German (recordings 1, 3, 8, 10b and 13). The highest MLUw value for monolingual utterances reaches 3 for Croatian (recording 12) and German (recording 7), and 4 for English (recording 14). IF's results are presented graphically in Figure 4.2 below:

Figure 4.2: MLUw values per language for IF
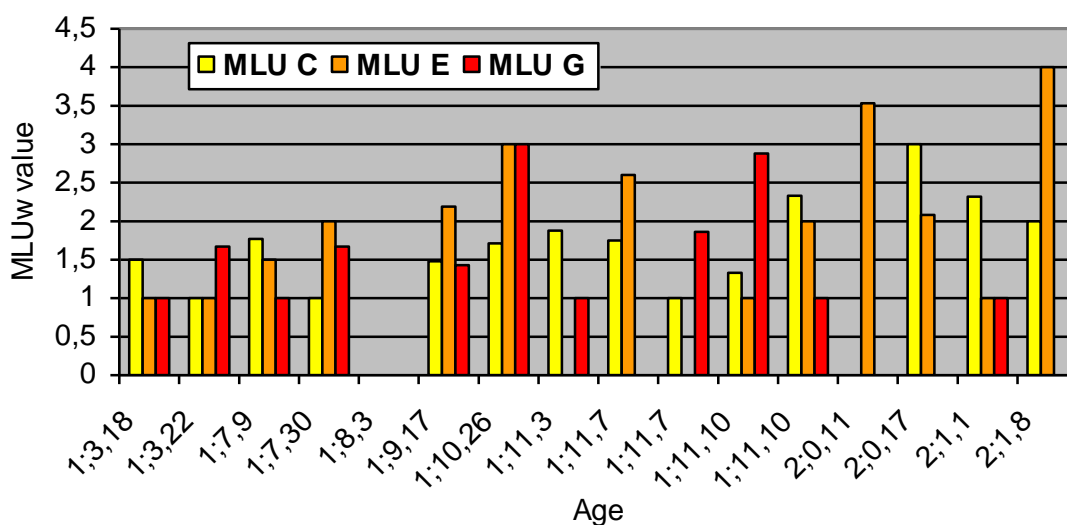
If the recording session in which IF was asleep is neglected in this analysis, monolingual Croatian is present in all but one of the recordings (recording 11), while monolingual English is present in all but two (recordings 8 and 9b), and monolingual German in all but three of them (recordings 9a, 11 and 12).

As in the case of EK above, the MLUw values for IF appear to fluctuate from one recording to the next, with a general tendency to increase towards the end of the period of observation. Broadly speaking, therefore, language development in IF's case is also progressive.

3.1.c COMPARATIVE ANALYSIS OF EK'S AND IF'S MLUW VALUES

The previous two sections present quantitative MLUw values per recording for each of the two children in this thesis respectively. In the present section we shall analyse the available data for evidence of any similarities and differences between the children, EK and IF.

Two points have already been made in this context in the previous section: the actual MLUw values for the younger child IF are lower than for the elder child EK, but fluctuations of MLUw values across recording sessions are observed for both children. Another observation involves the differential distribution of the

children's languages in the available recording sessions. In EK's case, monolingual English utterances are made in every one of the recording sessions considered, while in IF's case, they are not observed in two recordings sessions. Monolingual Croatian is present in all but two of the recordings in EK's case and in all but one of the recordings involving IF. Monolingual German is in evidence in all but three of the recordings involving EK and in all but four recordings involving IF. Therefore, in both children's cases, monolingual German is observed in fewer recordings than are monolingual Croatian and monolingual English. This can be attributed to the smaller number of recording sessions made in a German setting (with only four of the sixteen recording sessions involving a German setting).

Although German is the language of interaction between the father and the children as well as in the family setting, this language is also utilised in the settings involving the mother and the children themselves. While language choice is dependent on sociolinguistic factors such as the participant and the topic (e.g. Lanza, 1997b), the data for EK and IF also indicates the importance of the psycholinguistic factor, which involves language preference. Monolingual English, for example, is observed in the majority of the recordings made during the period of observation, even though the settings did not necessarily require it.

One of the differences between the two children, EK and IF, lies in the fact that IF's MLUw values are generally a little lower than EK's. This is not surprising in view of the fact that IF is 17 months younger than EK.

Another difference can be seen in the MLUw values for English: in the case of EK, they are the highest of all the MLUw values calculated for each of the three languages in all but three recording sessions (those being sessions 2, 10a and 10b, where either Croatian or German have a higher MLUw value). By contrast, in the case of IF, MLUw values for English are highest in only five of the recording sessions (those being sessions 4, 6, 9a, 11 and 14). The MLUw values for Croatian are highest compared to the MLUw values for the other two

languages in sessions 1, 3, 8, 10b, 12 and 13, while the MLUw values for German are highest in sessions 2, 9b and 10a.

While it could be argued that EK has the highest MLUw values specifically for English owing to the level of exposure to this language, which increased when EK attended nursery, this is a weak argument for the reason that attendance at nursery began when EK was aged 3;3, that is, 6 months into the period of observation. It should be noted that EK's MLUw values for English are comparatively highest from the very first recording session onwards. Owing to this, the factor of the level of exposure to this language can be discounted as a reason for this observation. There is no obvious contextual reason for EK's MLUw values to be highest in English, which leaves us with the possibility that this observation involves a psycholinguistic explanation. In other words, English is this child's preferred language.

This section concludes with several observations:

- The community language, English, is present in the majority of recordings despite not being required by external (sociolinguistic) circumstances. This may be indicative of the children's preferred language for some interactions.

- The MLUw values fluctuate across recording sessions. This fluctuation is attributed to socio- as well as psycholinguistic factors.

- For EK, MLUw values range between 1 and 3 for Croatian, 1 and 3.5 for German, and 1 and 7.33 for English. For IF, the values range between 1 and 3 for Croatian and German, and between 1 and 4 for English. These findings indicate that all three of the children's languages are developing and progressing.

Another observation regards the influence which short one-word affirmative/negative answers have on the overall word count and, consequently, on the MLUw value. A high proportion of such retorts are recorded in session 5

for EK and in session 6 for both EK and IF. In session 5, of the 41 utterances produced in monolingual Croatian by EK, 22 (or roughly 54%) consist of one-word affirmation/negation.

If these utterances are taken out of the overall word and utterance count, the resulting MLUw is higher than that calculated if these utterances are left in: the MLUw is 2.11 as opposed to 1.51 (as reported in Table 4.6 above).

Similarly, of the 51 monolingual Croatian utterances produced by EK in recording 6, 16 (or roughly 31%) are one-word affirmative or negative answers. In the case of IF, the figure of monolingual Croatian one-word answers is even higher: of a total of 50 Croatian utterances, 22 (or 44%) are one-word answers. If these utterances (16 for EK and 22 for IF) are taken out of the calculation, the MLUw value for Croatian in recording 6 would, for EK, be 2.26 (rather than the previously calculated 1.86 in Table 4.6), and, for IF, the MLUw value would be 1.86 (rather than the previously calculated 1.48 in Table 4.7). This shows that spontaneous speech can at times produce a less favourable picture with regard to the general MLUw value for a speaker. In the remaining recordings, the proportion of one-word affirmative/negative answers is proportionately much lower, which affects the MLUw values to a much lesser degree.

This section saw an exploration of the MLUw values for both children in this study across the period of observation. It was observed that the values fluctuate across the recordings, and it is this fluctuation of MLUw values which is discussed in the following section with regard to findings made by Sinka (2000).

3.1.d FLUCTUATING MLUW VALUES

Sinka (2000) reports fluctuating MLUw values in the case of two bilingual Latvian-English children, Māra and Maija, who are of an age range between 1;3 and 2;5. The MLUw values (on the basis of words per utterance), are broadly seen to increase during the period of observation, but, upon closer scrutiny, they can be seen to fluctuate from one recording session to the next (see Table 4.8 below).

Table 4.8: The MLUw values for English and Latvian (Sinka, 2000)

Recording Session	Māra		Maija	
	MLUw For English	MLUw For Latvian	MLUw For English	MLUw For Latvian
1.	1.27	1.30	1.26	1.05
2.	1.40	1.28	1.11	1.07
3.	1.39	1.14	1.13	1.31
4.	1.68	1.25	1.16	1.22
5.	1.71	1.27	1.46	1.25
6.	1.83	1.54	1.43	1.48
7.	2.87	1.56	1.51	1.66
8.	2.93	1.56	1.50	1.53
9.	2.31	1.67	1.59	1.89
10.	3.34	1.96	2.02	2.08
11.	3.43	2.01	1.88	2.00
12.	2.61	1.59	1.91	1.69

It needs to be said at this point that the age difference between the children Māra and Maija is only three months, and, developmentally, they appear to compare favourably with each other (apart from Māra's high MLUw E values in the second half of the period of observation).

In the case of the child Māra, the MLUw value for English drops between recordings 2 and 3, 8 and 9, and 11 and 12. A similar observation is made for Māra's MLUw for Latvian: values decrease between recording sessions 1 and 2, 2 and 3, and 11 and 12.

In the second child Maija's case, MLUw values for English drop between sessions 1 and 2, 5 and 6, 7 and 8, and 10 and 11. The MLUw values for Latvian fall between recording sessions 3 and 4, 7 and 8, 10 and 11, and 11 and 12. It will be easier to visualize the highlighted differences if the data are presented in chart form. This is done in Figure 4.3.

Figure 4.3: MLUw values for Māra (light blue and pink) and Maija (dark blue and violet)
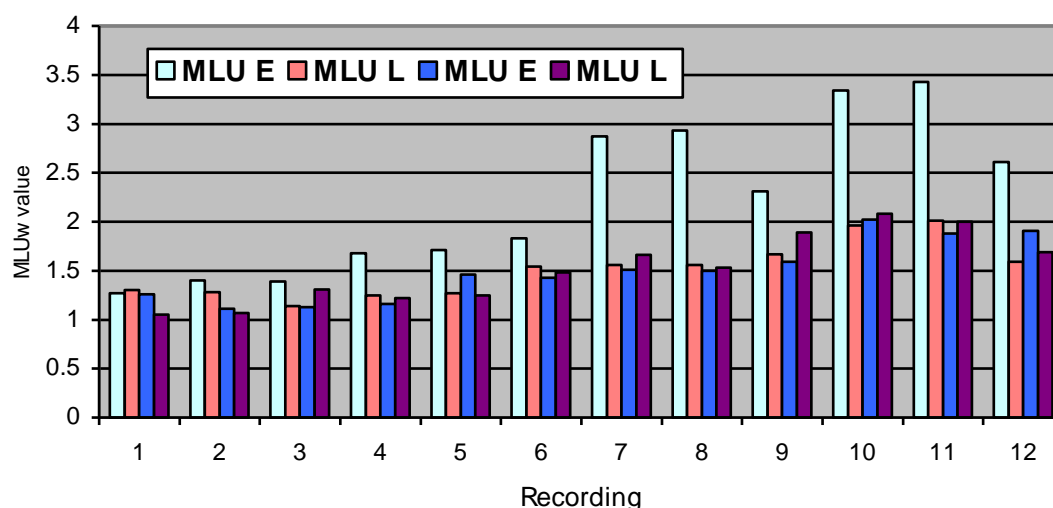
Therefore, differences in MLUw values per language between recordings are clearly evident. While these differences generally amount to relatively little, a noticeable jump in MLUw values for English is noted for the child Māra, especially in recordings 7 and 8, and again in recordings 10 and 11. Both children are noted to live in England.

Because the focus of Sinka's (2000) study is on the children's mixed utterances and on cross-linguistic influences evident in the children's speech, the author reportedly provides the MLUw values solely for the benefit of "additional information" (Sinka, 2000: 151) with regard to her subjects' language use. Regrettably, while a degree of explanation is given for some fluctuations in the children's language use (such as the attendance of a Latvian summer camp, which is said to have boosted the children's Latvian), no clear indication is given as to the reason for the sudden increase in Māra's MLUw values for English

(from recording 7 onwards), or, for that matter, for the fluctuations (however small) in MLUw values. However, it is reasonable to speculate that this observation may involve similar socio-and psycholinguistic factors as those described in the case of EK and IF in this thesis, that is, the setting, the topic of conversation, the children's language preference or their willingness to participate in conversation.

3.1.e *MLUW IN EK'S AND IF'S MIXED UTTERANCES*

The focus now turns to the MLUw values of the mixed utterances produced by the children in the present thesis.

Mixed utterances have been the focus of many studies investigating the acquisition of more than one language by children (e.g. Hoffmann, 1985; Hoffmann and Widdicombe, 1999; Lanza, 1997b; Stavans and Swisher, 2006; Vihman, 1985). Because mixed utterances consist of elements from more than one language, it is conceivable that the mean length of such utterances is higher than the mean length of monolingual utterances as another language may be chosen to fill a gap in an utterance in the original language. This has previously been reported in the literature (e.g. Döpke, 1992b; Lanza, 1997b).

Results from the data analysis performed above have shown that the MLUw values of the children's monolingual utterances fluctuate between 1 and 7.33 for EK, and between 1 and 4 for IF. It will be interesting to see whether or not the children's *mixed* utterances show evidence of similar MLUw values. Table 4.9 provides this information.

Table 4.9: MLUw values for the children's mixed utterances

Recording Session	EK's MLUw Values	IF's MLUw Values
1.	3.2	n/a*
2.	3.5	n/a

Recording Session	EK's MLUw Values	IF's MLUw Values
3.	4.75	3.33
4.	4.5	n/a
5.	3.78	n/a
6.	3.76	3.14
7.	3.5	3.4
8.	2.3	2.5
9a.	5.5	n/a
9b.	n/a	3
10a.	n/a	4
10b.	4.43	n/a
11.	5.5	2.5
12.	4	n/a
13.	4.6	3
14.	n/a	3

Figure 4.4 presents the children's MLUw values for mixed utterances graphically.

Figure 4.4: MLUw values for mixed utterances for EK and IF
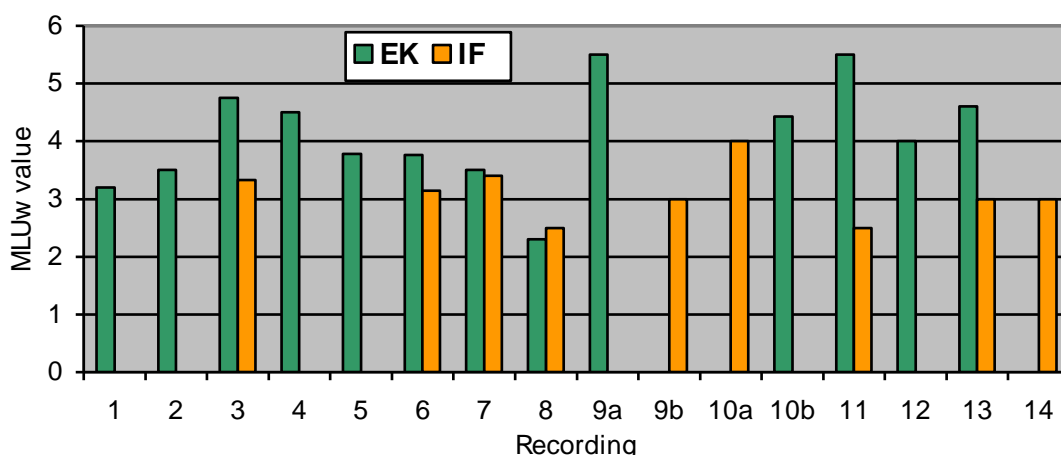
Remembering that EK's MLUw values for monolingual utterances took values from between 1 and 7.33, the MLUw values for mixed utterances reported in Table 4.9 show a significant difference, in that the lowest MLUw value for mixed utterances is recorded to be 2.3 (in recording 8) rather than just 1 as for monolingual utterances. By contrast, the peak MLUw for mixed utterances is 5.5 (in recordings 9a and 11), which is somewhat lower than the highest MLUw value for English monolingual utterances (of 7.33), but noticeably higher compared to the MLUw values for Croatian and German monolingual utterances (3.5 and 3 respectively).

In the case of the child IF, the lowest MLUw value for mixed utterances is recorded at 2.5 (in recordings 8 and 11), while the highest value stands at 4 (in recording 10a). These values compare favourably with the recorded MLUw values for monolingual utterances, in that English monolingual utterances have an MLUw value of 4. Croatian and German monolingual utterances have an MLUw of 3 each (see Table 4.9 above). Again, the lowest MLUw value for mixed utterances is higher than for monolingual utterances (2.5 vs. 1).

Compared to the MLUw values for EK's and IF's monolingual utterances (in Figures 4.6 and 4.7 respectively), the MLUw values for mixed utterances have an overall higher mean value. To explore whether this initial observation is valid,

Table 4.10 sets the overall mean MLUw value for each child's monolingual utterances against the mean MLUw value for each child's mixed utterances.

Table 4.10: Overall mean value of MLUw for monolingual utterances and for mixed utterances

	EK's Mean MLUw	**IF's Mean MLUw**
Monolingual Utterances	2.4	1.76
Mixed Utterances	4.10	3.1

It is clear to see that the mean MLUw values for mixed utterances surpass those for monolingual utterances. Considering the large quantity of both children's monolingual one-word affirmative and negative retorts in recordings 5 and 6 (cf. the last four passages in section 3.1.c above), the mean MLUw value of each child's monolingual utterances is bound to be higher if these retorts are taken out of the calculation. Indeed, the mean MLUw value of monolingual utterances increases to 2.42 for EK and to 1.77 for IF. Although the difference amounts to only 0.2 for EK and 0.1 for IF, it is sufficient to be of relevance in this discussion. The numbers indicate what difference the exclusion of a certain data type can have on the overall calculation. (Obviously, monolingual one-word affirmative or negative answers do not feature in utterances which involve more than one language. Consequently, the mean MLUw values of the children's mixed utterances remain unchanged.)

A similar pattern of relatively higher MLU values for mixed utterances has been found previously (cf. Döpke, 1992a; Lanza, 1997b). The finding that the MLU of a child's mixed utterances surpasses those of the other language choices leads Lanza (1997b: 132) to contemplate that "by drawing on elements from both of her languages through a mixed utterance, the child pushes the limit of her linguistic production". Lanza (1997b: 133) suggests that "the mixed utterance may be a resource, rather than an instance of confusion" and that "the young child can exploit mixing to meet communicative demands".

3.2 SUMMARY

The measurement of language development by means of the mean length of utterance in words (MLUw) has, in the case of EK and IF, produced some interesting findings. Overall, it has been found that the MLUw values for the elder child, EK, are, as expected, slightly higher than those for the younger child, IF. It is interesting to note, however, that the MLUw values generally do not have a continuous upward trend across the period of observation. Rather, they appear to be fluctuating, at times falling from 3 in one recording to 1.5 in the following (data for German for EK in recordings 10b and 11 in Table 4.6) or rising from 1 to 4 (data for English for IF in recordings 13 and 14 in Table 4.7). Fluctuating MLUw values are also in evidence in the case study by Sinka (2000), although to a lesser degree. It is speculated in this thesis that this variability in MLUw values is attributable to a combination of socio- and psycholinguistic factors.

Despite the fluctuations observed, the MLUw values for the children's monolingual utterances are generally seen to increase over time, which implies that all three languages are developing and progressing (cf. Figure 4.5 below). English, the community language, appears strongest in the sense that it commands a value of 7.33 for EK (cf. Table 4.6, recording 14) and a value of 4 for IF (cf. Table 4.7, recording 14). Considering the fact that the children in this study are raised in Great Britain, a predominantly English-speaking country, this observation is hardly surprising.

Figure 4.5 displays the MLUw values calculated for each language per recording. The values are plotted for both children jointly. From this, no clear pattern is visible as to language choice apart from EK's frequent use of English (marked in dark green), and both children's predominant use of Croatian and English in recordings 9a, 12 and 14. Sociolinguistic and psycholinguistic factors are of relevance in this context in that the children are led in their language choice by the setting in which the communication takes place or by their language preference.

Figure 4.5: MLUw values per language for EK (bright green, dark green and blue) and for IF (yellow, orange, red)
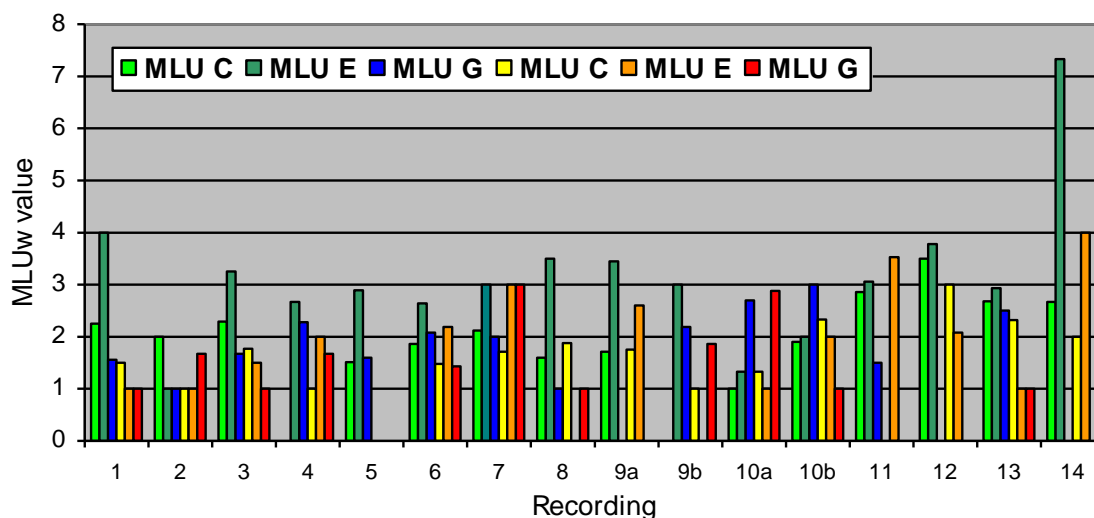
Another finding made during the exploration of MLUw values for the children's utterances involves specifically the mixed utterances. From calculations of the mean MLUw values for both monolingual and mixed utterances, it transpires that mixed utterances involve a higher mean MLUw value than is the case with monolingual utterances (cf. Figure 4.5 above).

In sum, according to the calculations performed in this section of the thesis, the language development of the children EK and IF during the period of observation appears to cover all of Brown's Stages of development (see Table 4.5 at the beginning of this section). It is thought that the fluctuations of MLUw values are due to sociolinguistic and psycholinguistic factors which play a role in communication.

The following section deals with the Mean Length of Utterance in morphemes (MLUm), for the purpose of investigating the correlation which exists between the MLUw and MLUm values. It has already been pointed out that the MLUm values are expected to be higher per speech sample than their respective MLUw values because a morpheme count tends to be higher than a word count (considering the fact that words consist of predominantly more than one morpheme). The question, ultimately, is whether the calculation of MLU is

comparable when calculated in words or morphemes. The answer will have implications for data analysis: if the calculation of MLUm provides comparable results to the calculation of MLUw, then this would constitute a strong argument for performing MLUw rather than MLUm calculations in future case studies because the former is less time-consuming than the latter. Alternatively, perhaps the calculation of MLUm will provide a more differentiated picture of language development and highlight the difference in morphological complexity which exists between the participating languages. It will also give more data which can be analysed, as instances of mixing at the word level may not be countable as a mixed utterance in words, whereas the parts which make up the mixed word may be well defined morphemes from different languages (e.g. *ge-eat*).

3.3 MEAN LENGTH OF UTTERANCE IN MORPHEMES (MLUM)

Calculating MLUm involves the identification of morphemes which make up a word. Morphemes are "considered the basic building blocks of a language" (Lanza, 1997b: 124), in that they are "the minimum meaningful units in a language" (Lanza, 1997b: 125). Words, therefore, can be made up of one or more morphemes. The component which "makes the most precise and concrete contribution to the word's meaning" (Carstairs-McCarthy, 2002: 20) is called the root of the word. Other components which precede or follow the root are called affixes (Carstairs-McCarthy, 2002). So, for example, the word *unconnected* consists of the affixes *un-* and *–ed*, and of the root *connect* (Carstairs-McCarthy, 2002). Only the root morpheme can stand on its own, that is, be free (Carstairs-McCarthy, 2002). The affixes cannot stand on their own and are therefore necessarily bound (Carstairs-McCarthy, 2002). As carrier of lexical meaning, the root of a word is also referred to in some literature as lexical morpheme (Barić et al., 2005; Hentschel and Weydt, 2003; Lanza, 1997b). Affixes, on the other hand, are referred to as grammatical morphemes because they carry the grammatical meaning (Barić et al., 2005; Hentschel and Weydt, 2003; Lanza, 1997b).

In my calculations, the following rules are observed:

- Contrary to Brown (1973), who discarded the first 100 utterances from every sample, in the present thesis every utterance in an interaction counts (cf. also Lanza, 1997b). Lanza argues that counting every utterance instead of only those over 100 may „indicate something about the child's willingness or reluctance to use that language" (Lanza, 1997b: 129).

- Contractions such as "*don't*" and "*where's*" count as one word, but as two morphemes.

- Null-morphemes are counted. For example, "*darf*" (German for *may*), "*nož*" (Croatian for *knife*), and "*want*" each contain two morphemes, one of which is a null-morpheme (noted as *darf-Ø*, *nož- Ø*, *want- Ø*, in contrast to *darf-st*, *nož-em*, *want-s*, where the affixes contain information about the person to which the verb is referring or about the noun case ending).

- Personal names (used within an utterance for other purposes than addressing a person) count as one or more morphemes depending on whether they involve an affix (in the form of the possessive Genitive in English and German, or, in the case of Croatian, in the form of noun case endings).

- English past participles of irregular verbs count as one morpheme (e.g. *broke*). As Brown (1973: 78) writes, "there is no evidence that the child relates these to present forms".

- Similarly, reduplications such as "*Mausi-Maus*" ('mousey-mouse') count as one morpheme as "there is no evidence that the constituent morphemes function as such" (Brown, 1973: 78).

- In repetitions such as "*ovca Curly, ovca Curly, ovca Curly*" ('sheep Curly'), only one instance is counted.

- Fillers such as "ummm" are not counted.

3.3.a EK'S MLUM VALUES

Table 4.11 presents the MLUm values per language (in monolingual utterances) as calculated by dividing the total number of morphemes by the total number of utterances from that sample.

Table 4.11: Mean length of utterance in morphemes (MLUm) for EK's monolingual utterances

Recording Session	Age	Setting	C	E	G
1.	2;8,18	Looking at picture book with MUM in family setting	3.75	5	2.56
2.	2;8,22	Drawing session with MUM	4.75	1.33	1.5
3.	3;0,9	Play session with MUM	3.43	3.67	2.33
4.	3;0,30	With native German and DAD	n/a	2.83	3.61
5.	3;1,3	EK with MUM	2.12	3.33	1.8
6.	3;2,17	Early morning play session with IF and MUM, EK joins later	2.67	3.10	3.33
7.	3;3,26	Drawing session with MUM	3.18	4	2.25
8.	3;4,3	EK, IF, MUM	2.47	6	2
9a.	3;4,7	Play with MUM	2	4.36	n/a
9b.	3;4,7	Family	n/a	5	3.12
10a.	3;4,10	Breakfast in family setting	1	2.33	3.81
10b.	3;4,10	Play with MUM	2.9	2.33	5
11.	3;5,11	Play, MUM appears briefly twice	4.14	3.41	2

Recording Session	Age	Setting	C	E	G
12.	3;5,17	EK and IF play, MUM in kitchen	4.92	4.72	n/a
13.	3;6,1	Play with MUM	3.77	3.36	3.5
14.	3;6,8	EK and IF play, MUM in kitchen	3.33	10.33	n/a

Remembering that EK's MLUw values ranges between 1 and 3 for Croatian, 1 and 3.5 for German, and 1 and 7.33 for English, it is easy to see that, as predicted above, EK's MLUm values surpass these, ranging between 1 and 4.75 for Croatian, 1.5 and 3.81 for German and 1.33 and 10.33 for English. The MLUw and MLUm values overlap only in recording 10a, in which a Croatian negation ('ne', *no*) has the count of 1 in words and morphemes. In the case of EK's younger sister, similar findings are exptected.

3.3.b IF'S MLUM VALUES

It is predicted that IF's MLUm values will be similar to those of her elder sister in that they will show evidence of a higher range of values than IF's MLUw values reported in Table 4.7. However, because IF is younger by 17 months than her sister EK, the MLUm values for IF (presented in Table 4.12 below) may not have as broad a range as those calculated for EK in Table 4.11.

Table 4.12: Mean length of utterance in morphemes (MLUm) for IF's monolingual utterances

Recording Session	Age	Setting	C	E	G
1.	1;3,18	Looking at picture book with MUM in family setting	2.13	1	1.5
2.	1;3,22	Drawing session with MUM	1	2	2
3.	1;7,9	Play session with MUM	2.23	2	1.4
4.	1;7,30	With native German and DAD	2	2.67	3

Recording Session	Age	Setting	C	E	G
5.	1;8,3	IF asleep	n/a	n/a	n/a
6.	1;9,17	Early morning play session with IF and MUM, EK joins later	2.08	2.54	2.57
7.	1;10,26	Drawing session with MUM	2.75	4	4
8.	1;11,3	EK, IF, MUM	3.13	n/a	2
9a.	1;11,7	Play with MUM	2	2.8	n/a
9b.	1;11,7	Family	1	n/a	2.29
10a.	1;11,10	Breakfast in family setting	2	1.33	3.85
10b.	1;11,10	Play with MUM	3.67	2	2
11.	2;0,11	Play, MUM appears briefly twice	n/a	4.47	n/a
12.	2;0,17	EK and IF play, MUM in kitchen	3.67	2.58	n/a
13.	2;1,1	Play with MUM	3.45	2	2
14.	2;1,8	EK and IF play, MUM in kitchen	2.5	6	n/a

It can be seen that IF's MLUm values have a lower range than her sister's MLUm values (in Table 4.11 above), but that IF's MLUm values have a broader range than IF's MLUw values (cf. Table 4.7 above). The MLUm values for the child IF range between 1 and 3.67 for Croatian, 1.4 and 4 for German, and 1 and 6 for English, whereas IF's MLUw values range between 1 and 3 for Croatian and German, and between 1 and 3.53 for English. These results show that an MLU calculation involving morphemes provides a more differentiated picture per language than does an MLU calculation based on words only. Despite differences in the degree of inflection (that is, the languages' morphological complexity), the MLUm value for all three languages has higher peak values than the respective MLUw values. This is as predicted at the beginning of the present section.

3.3.c *MLUM IN MIXED UTTERANCES*

In the context of MLUw values for mixed utterances, it was seen that they are generally somewhat higher than MLUw values for monolingual utterances. It is, therefore, expected that a similar pattern will be observable with regard to MLUm values for mixed utterances. This expectation is borne out by the values in Table 4.13.

Table 4.13: EK's and IF's MLUm values for mixed utterances

Recording Session	EK's MLUm Values	IF's MLUm Values
1.	4.29	n/a
2.	5	n/a
3.	6.67	4.71
4.	6	n/a
5.	5.13	n/a
6.	5.52	4.46
7.	5	4.22
8.	6.13	4.5
9a.	7	n/a
9b.	n/a	3
10a.	n/a	7.33
10b.	6.22	n/a
11.	6.2	3
12.	4	n/a
13.	7.1	4.67
14.	n/a	4

Compared to the MLUw values for mixed utterances in Table 4.9, which range between 2.3 and 5.5 for EK, the MLUm values for EK's mixed utterances in

Table 4.13 are, as expected, higher and range between 4 and 7.1. In the case of IF, the MLUw values for mixed utterances range between 2.5 and 4, while the MLUm values lie between 3 and 7.33.

In addition, the MLUm values for mixed utterances are greater than the MLUm values for monolingual utterances in the majority of instances (cf. Tables 4.11 and 4.12): apart from the MLUm values for mixed utterances in recording 12 for EK and in recordings 11 and 14 for IF.

A similar finding is previously made by Lanza (1997b) in her study of a child growing up with Norwegian and English. In this context, Lanza observes that the MLUm for mixed utterances "consistently surpasses" (Lanza, 1997b: 132) the MLUm values for monolingual utterances in Norwegian and English. While the MLUm values for English range between 1 and 2.39, and for Norwegian between 1 and 2.93, the MLUm values for mixed utterances are reported to be between 2 and 5.50.

We conclude this section with the view argued for by Lanza (1997b: 133), who in her study says that because "in no sample were the MLU values for the mixed utterances lower than the MLU values for both of the other language choices", mixed utterances are "a resource, rather than an instance of confusion" (Lanza, 1997b: 133). The findings from the present thesis confirm that the MLUm values for mixed utterances exceed those for monolingual utterances.

Can, however, the MLUm and the previously calculated MLUw values be correlated at all? Also, can they be said to provide a more differentiated picture with regard to language development?

3.4 MLUM VALUES VS. MLUW VALUES

The proposal that the inflectionally richer languages of Croatian and German may show comparatively higher MLUm values compared to the inflectionally less rich language of English has, on the whole, not necessarily been borne out

by the analysis performed in the previous section. This can be seen in Tables
4.14 and 4.15 below, in which each child's MLUw values per language and per
recording are set against each child's MLUm values. Generally, what can
clearly be seen is that the MLUm values are higher than the MLUw values
(apart from EK's values for Croatian in recording 10a, and IF's values for
English in recording 1 and Croatian in recordings 2 and 9b, where both values
are 1). The difference in values is sometimes as small as .33 (EK's values for
English in recording 2) or .25 (IF's values for Croatian in recording 9a).
Alternatively, the difference in value can be as high as 3 (EK's values for
English in recording 14) or 2 (IF's values for English in recording 14), whereby
the value changes the stage of language development suggested by Brown
(1973) (and presented in Table 4.5 above).

Table 4.14: EK's MLUw and MLUm values during the period of observation

Recording Session	C		E		G	
	MLUw	MLUm	MLUw	MLUm	MLUw	MLUm
1.	2.25	3.75	4	5	1.56	2.56
2.	2	4.75	1	1.33	1	1.5
3.	2.29	3.43	3.25	3.67	1.67	2.33
4.	n/a*	n/a	2.67	2.83	2.28	3.61
5.	1.51	2.12	2.89	3.33	1.6	1.8
6.	1.86	2.67	2.64	3.10	2.08	3.33
7.	2.12	3.18	3	4	2	2.25
8.	1.6	2.47	3.5	6	1	2
9a.	1.71	2	3.45	4.36	n/a	n/a
9b.	n/a	n/a	3	5	2.19	3.12
10a.	1	1	1.33	2.33	2.70	3.81
10b.	1.9	2.9	2	2.33	3	5
11.	2.86	4.14	3.06	3.41	1.5	2
12.	3.5	4.92	3.78	4.72	n/a	n/a
13.	2.68	3.77	2.93	3.36	2.5	3.5

Recording Session	C		E		G	
	MLUw	MLUm	MLUw	MLUm	MLUw	MLUm
14.	2.67	3.33	7.33	10.33	n/a	n/a

Table 4.15: IF's MLUw and MLUm values during the period of observation

Recording Session	C		E		G	
	MLUw	MLUm	MLUw	MLUm	MLUw	MLUm
1.	1.5	2.13	1	1	1	1.5
2.	1	1	1	2	1.67	2
3.	1.77	2.23	1.5	2	1	1.4
4.	1	2	2	2.67	1.67	3
5.	n/a	n/a	n/a	n/a	n/a	n/a
6.	1.48	2.08	2.19	2.54	1.43	2.57
7.	1.71	2.75	3	4	3	4
8.	1.88	3.13	n/a	n/a	1	2
9a.	1.75	2	2.6	2.8	n/a	n/a
9b.	1	1	n/a	n/a	1.86	2.29
10a.	1.33	2	1	1.33	2.88	3.85
10b.	2.33	3.67	2	2	1	2
11.	n/a	n/a	3.53	4.47	n/a	n/a
12.	3	3.67	2.08	2.58	n/a	n/a
13.	2.32	3.45	1	2	1	2
14.	2	2.5	4	6	n/a	n/a

A similar difference in favour of the MLUm count is also noted by Sinka (2000) for English in the case of two English-Latvian bilingual children. This is shown in Table 4.16 below. For Latvian, the morphologically more complex language of the two, no MLUm values are made available by Sinka (2000), and it is

therefore not possible to make a comparison and verify whether or not higher MLUm values are also a reality in the children's Latvian.

Table 4.16: The MLUw and MLUm values for English in Sinka's (2000) study

Recording Session	Māra		Maija	
	MLUw	MLUm	MLUw	MLUm
1.	1.27	1.37	1.26	1.32
2.	1.40	1.60	1.11	1.14
3.	1.39	1.65	1.13	1.21
4.	1.68	2.04	1.16	1.25
5.	1.71	2.00	1.46	1.56
6.	1.83	2.18	1.43	1.55
7.	2.87	3.28	1.51	1.64
8.	2.93	3.27	1.50	1.64
9.	2.31	2.72	1.59	1.82
10.	3.34	3.90	2.02	2.25
11.	3.43	3.86	1.88	2.11
12.	2.61	2.97	1.91	2.09

Based on findings from this thesis and on findings by Sinka (2000), it can be said that a morpheme count appears to provide a generally higher MLU value than a word count. Findings from the present thesis corroborate those from Sinka's (2000) study in the case of English, while the fact that similar findings are made here for both Croatian and German serves to strengthen the case that this trait holds for some other (Indo-European) languages. This could be the focus of a future study.

In order to see more clearly the relationship between the MLUw and MLUm values in the cases presented here, the so-called *Pearson correlation* (or Pearson's *r*), a "common statistical measure of correlation" (cf. VanderStoep

and Johnston, 2009), is applied to the available data. The figures thus obtained will be analysed for any commonalities in the following section.

3.5 THE PEARSON CORRELATION

As was seen, historically, both MLUw and MLUm calculations have been utilised in child language research for the purpose of measuring a child's language development. The relationship between these two variables can be calculated by means of the Pearson correlation (or Pearson's r).

Pearson's r ranges between +1.0 and -1.0. According to Vanderstoep and Johnston (2009: 97), "the closer a correlation is to +1.0 or -1.0, the greater its magnitude." Healey (2009: 340) even specifies that values between 0 and 0.30 indicate a weak relationship between the variables, those between 0.30 and 0.60 a moderately strong one, and those above 0.60 a strong one.

In their own study, Parker and Brorson (2005: 365) analyse scores of 40 transcripts from "typically developing English-speaking children between the ages of 3;0 and 3;10". These authors calculate the correlation between the MLUw and MLUm values to be r = 0.998 and speak of an "almost perfect" (Parker and Brorson, 2005: 372) correlation. According to Healey's (2009) specification which says that the closer a correlation is to 1.0, the stronger it is, Pearson's r calculated by Parker and Brorson's (2005) indicates a strong correlation between MLUw and MLUm.

In the case of the two Latvian-English children in Sinka's (2000) study, MLUw and MLUm values for monolingual (English) utterances are provided, but the author does not calculate their correlation. This is done in the present thesis: the correlation for the MLUw and MLUm values for English is found to be r = 0.997 for the child Māra and r = 0.996 for the child Maija.

 In the present study, the available transcripts involve both monolingual and mixed utterances, and the calculation of Pearson's correlation consequently also involves both types of utterances. The correlation between MLUw and

MLUm values for monolingual and for mixed utterances is calculated separately for each child below.

3.5.a *PEARSON'S CORRELATION FOR EK'S DATA*

With respect to *monolingual* utterances, involving the three languages of Croatian (C), English (E) and German (G) respectively, the correlation is shown in Table 4.17. The MLUw and MLUm values are shown for each of the relevant languages per recording.

Table 4.17: The correlation between EK's MLUw and MLUm values for monolingual utterances

Recording Session	C		E		G	
	MLUw	**MLUm**	**MLUw**	**MLUm**	**MLUw**	**MLUm**
1.	2.25	3.75	4	5	1.56	2.56
2.	2	4.75	1	1.33	1	1.5
3.	2.29	3.43	3.25	3.67	1.67	2.33
4.	n/a	n/a	2.67	2.83	2.28	3.61
5.	1.51	2.12	2.89	3.33	1.6	1.8
6.	1.86	2.67	2.64	3.10	2.08	3.33
7.	2.12	3.18	3	4	2	2.25
8.	1.6	2.47	3.5	6	1	2
9a.	1.71	2	3.45	4.36	n/a	n/a
9b.	n/a	n/a	3	5	2.19	3.12
10a.	1	1	1.33	2.33	2.70	3.81
10b.	1.9	2.9	2	2.33	3	5
11.	2.86	4.14	3.06	3.41	1.5	2
12.	3.5	4.92	3.78	4.72	n/a	n/a
13.	2.68	3.77	2.93	3.36	2.5	3.5
14.	2.67	3.33	7.33	10.33	n/a	n/a
Correlation	0.857		0.867		0.922	

It is seen that the correlation in all three languages is well above 0.80, which, according to Healey's (2009) specification, indicates that the relationship between the MLUw and MLUm values is strong.

Table 4.18 presents EK's MLUw and MLUm values for *mixed* utterances and the resulting correlation.

Table 4.18: EK's MLUw and MLUm values for mixed utterances

Recording Session	MLUw	MLUm
1.	3.2	4.29
2.	3.5	5
3.	4.75	6.67
4.	4.5	6
5.	3.78	5.13
6.	3.76	5.52
7.	3.5	5
8.	2.3	6.13
9a.	5.5	7
9b.	n/a	n/a
10a.	n/a	n/a
10b.	4.43	6.22
11.	5.5	6.2
12.	4	4
13.	4.6	7.1
14.	n/a	n/a
Correlation	0.551	

The correlation between MLUw and MLUm in the case of EK's mixed utterances is considerably weaker than that of EK's monolingual utterances, although it can still be considered to be moderately strong (cf. Healey, 2009).

3.5.b PEARSON'S CORRELATION FOR IF'S DATA

Table 4.19 calculates the correlation between IF's MLUw and MLUm values in the case of *monolingual* utterances, while Table 4.20 presents the correlation for *mixed* utterances.

Table 4.19: IF's MLUw and MLUm values for monolingual utterances

Recording Session	C		E		G	
	MLUw	MLUm	MLUw	MLUm	MLUw	MLUm
1.	1.5	2.13	1	1	1	1.5
2.	1	1	1	2	1.67	2
3.	1.77	2.23	1.5	2	1	1.4
4.	1	2	2	2.67	1.67	3
5.	n/a	n/a	n/a	n/a	n/a	n/a
6.	1.48	2.08	2.19	2.54	1.43	2.57
7.	1.71	2.75	3	4	3	4
8.	1.88	3.13	n/a	n/a	1	2
9a.	1.75	2	2.6	2.8	n/a	n/a
9b.	1	1	n/a	n/a	1.86	2.29
10a.	1.33	2	1	1.33	2.88	3.85
10b.	2.33	3.67	2	2	1	2
11.	n/a	n/a	3.53	4.47	n/a	n/a
12.	3	3.67	2.08	2.58	n/a	n/a
13.	2.32	3.45	1	2	1	2
14.	2	2.5	4	6	n/a	n/a
Correlation	0.900		0.926		0.919	

The correlation between the MLUw and MLUm values in IF's monolingual utterances is strong in each of the languages.

Table 4.20: IF's MLUw and MLUm values for mixed utterances

Recording Session	MLUw	MLUm
1.	n/a	n/a
2.	n/a	n/a
3.	3.33	4.71
4.	n/a	n/a
5.	n/a	n/a
6.	3.14	4.46
7.	3.4	4.22
8.	2.5	4.5
9a.	n/a	n/a
9b.	3	3
10a.	4	7.33
10b.	n/a	n/a
11.	2.5	3
12.	n/a	n/a
13.	3	4.67
14.	3	4
Correlation	0.766	

The correlation between the MLUw and MLUm values of IF's mixed utterances is weaker than that of her monolingual utterances, however, at 0.766 the correlation is still considered to be strong (cf. Healey, 2009).

3.6 SUMMARY

Overall, the calculations performed in this section appear to suggest that the MLUw and MLUm values calculated for speech samples from the present thesis have a strong correlation, with values ranging between 0.857 and 0.926 for *monolingual* utterances for both children. The correlation between the relevant

MLUw and MLUm figures for mixed utterances are moderately strong (with a value of 0.551 for EK) to strong (with a value of 0.766 for IF). A stronger aberration is observable between the MLUm and MLUw values for EK's mixed utterances than for IF's mixed utterances. This aberration is attributable to the existence in EK's speech of elements of morphology which are not observed to be used to such an extent by the other child, IF. In other words, the greater the morphological complexity of speech elements, the higher the MLUm value and the stronger the aberration between the MLUm and MLUw values.

Due to the observed fluctuation of MLUw and MLUm values (and, consequently, also a fluctuation in the stages of language development between the individual recording sessions), Brown's (1973) Stages of grammatical development (cf. Table 4.5 above) can only be taken as a *rough* indication of a child's development at a specific recording session. Factors such as the other participant, the topic and the child's willingness to participate in conversation all have a bearing on the MLUw and the MLUm values. For this reason, the present author feels it is inappropriate to generalize more broadly the stage of apparent language development for the children in this study.

Brown's (1973) stages of grammatical development have been criticised by Lanza (1997b), who, while saying that "MLU has been used as a basic index of the child's grammatical development", finds "that it neither captures the different semantic combinations within the utterance nor resolves the question as to whether length of utterance can be equated with linguistic complexity" (Lanza, 1997b: 127). This needs to be put into perspective, however, by highlighting the fact that Brown's (1973) method of calculating the mean length of utterance and his indices of grammatical development are widely utilised (Crystal, 1997), despite the study's possible shortcomings. Due to this widespread usage, results attained by this method of language assessment provide a degree of comparability between studies of (children's) linguistic development.

One of the purposes of performing the MLUw and MLUm calculations in the present study was to provide an indication of the children's language

development, and it is felt that this purpose has been achieved. The analysis has shown that all three languages demonstrate different stages of development, which implies that the languages are not stagnant, but that they show some activity and development throughout the period of observation. It is seen, however, that the children's utterances in the language of the community, English, appeared to show evidence of greater average length in some recordings than utterances in the minority languages of Croatian and German. This finding would require an investigation generally into the length of utterances in each of these three languages.

Another purpose of the calculations in this section was to investigate the appropriateness of either or both calculations in describing a speaker's language development. In this respect, it is found that the MLUm values are generally higher than the relevant MLUw values. Nevertheless, the correlation between both calculations is strong for both children's monolingual data. The correlation between MLUw and MLUm in mixed utterances, however, is somewhat weaker, but it can still be described as moderately strong to strong.

These findings suggest the following:

- Both MLUw and MLUm calculations provide a useful insight into language development, not least because they have also been utilised in some other case studies.

- Language development, however, has to be viewed cumulatively over a period of observation because sometimes fluctuations are observed between individual recording sessions which, if taken individually, can provide an altogether different impression with regard to language development.

- The correlation calculated between MLUw and MLUm values is generally strong, which suggests that either measure of language development can be assumed to provide a reasonable degree of understanding of a speaker's linguistic development. However, the analysis leading to the

calculation of MLU is time-consuming: while counting words may not be such a task, counting morphemes is. Based on this finding, it can be concluded that unless a study aims to perform a grammatical analysis of its data, calculating MLUw will provide a sufficient degree of understanding of language development. It can always be borne in mind and taken into account that calculations of MLUm will generally provide slightly higher values, at least with regard to the relevant languages in the present study.

- Both MLUw and MLUm values have strong links to socio- and psycholinguistic factors which affect the manner in which a child communicates. Due to their strong influence, the view is held in the present thesis that Brown's (1973) stages of grammatical development are to be taken with caution. The calculated values are considered only to provide a rough indication of a child's linguistic development at a particular recording session rather than to involve an absolute categorisation into a stage of development for any longer stretch of time.

Overall, the MLUw and the MLUm values presented in this chapter suggest that the languages are developing. As was pointed out at the beginning of this section of the thesis, it is generally agreed in the literature that language acquisition occurs at a similar rate across the languages of a multilingual child: for example, BFLA children are found not to differ much from their monolingual counterparts in the pace of language acquisition (cf. Kessler, 1972; McLaughlin, 1984; Meisel, 1990; Taeschner, 1983), and nor are TFLA children (e.g. Barnes, 2006), provided that exposure to the languages is similar.

The MLUw and MLUm values for mixed utterances are generally observed to be higher than those for monolingual utterances. Contrary to previous findings which have not found any clear differences between monolingual and mixed utterances in terms of overall length and complexity (De Houwer, 1990; Sinka, 2000), the present thesis finds that the MLU values for mixed utterances are generally higher than those for monolingual utterances.

4. LANGUAGE EXPECTATIONS AND ACTUAL LANGUAGE USE

Based on the sociolinguistic description of the use of the three relevant languages in the present case study in section 2 of this chapter and based on the calculations of the children's language development in section 3, the present section contemplates the reasonable expectations one can have with regard to the children's language choice in specific settings. The expectations are traceable to either unwritten family conventions, or to the linguistic abilities of the other speaker (with regard to the languages in that speaker's repertoire). Based on the patterns of language use described in 2.1 of the present chapter, Table 4.21 sets out the language expectations in each of the different settings.

Table 4.21: Language expectations

Setting	Expected Language
Children and Mother	Croatian
Children and Father	German
Children Among Themselves	Croatian, English and German
Assembled Family	German
In The Presence of English-Speakers (e.g. in the wider community)	English

Depending on the family conventions or requirements of a particular setting, the children are exposed to other patterns of language choice, such as when their mother (or father) addresses them and speaks with them in English due to the presence of monolingual speakers of English.

Therefore, although the expectation is that Croatian is the language of choice in interactions between the children and their mother, pragmatically, the other two languages are also utilised, depending on external and internal circumstances, involving, respectively, the communicative environment and the speaker's preference.

In interactions with the father, it is generally expected that the children utilise German. However, here too language choice depends on outside circumstances and can involve English. Due to the father's lack of knowledge of Croatian, this language is generally not expected to be observed in interactions between the father and the children.

From this it can be seen that there is a degree of flexibility with regard to the expected language of conversation in a particular setting. In the setting of the children and the father, German is the norm, but English can also be an option. In the setting of the children and the mother, however, while Croatian is the norm, both German and English are language choices available to the children. In other words, language choice is more restricted in interactions with the father compared to interactions with the mother. How this works in practice will be seen in sections 4.1 and 4.2 below, in which speech samples from the data corpus are used to illustrate this point. The differentiated use of the languages depending on the individual setting illustrates sensitivity on the part of the children in the present study with regard to language choice (discussed in 4.3). Similar linguistic sensitivity is also reported in relation with the use of Hebrew, Spanish and English by two children in the study by Stavans (1992).

In a setting involving the two children alone, all three languages can fulfil the role of expected language. The constraints which are found in a setting with either of the parents are non-existent in a setting involving only the children. Possible motivations for their choice of language include the children's own linguistic abilities and their language preference. In other words, if there is a grammatical paradigm or some item of vocabulary which the children have not yet acquired in one language, they could choose to use another of their languages to fill this gap. Language expectation is, consequently, much weaker in interactions involving the two children by themselves than it is in interactions with either or both of their parents. This will, again, be seen for each child in turn in sections 4.4 and 4.5 below. The examples presented in these sections stem from the study's corpus of audio recordings rather than from the written notes. This is because recordings of longer stretches of conversation are more reliable

when recorded on audio tapes than when noted (mostly from memory) in writing. This makes data sourced from audio recordings more representative in the discussion of language occurrences.

4.1 ACTUAL LANGUAGE USE IN EK'S CASE

The aim of this section is to show how the elder child, EK, utilises the languages at her disposal in everyday conversations in interactions with members of her family. For this reason, the present section is subdivided into three subsections, depending on the other person involved in the interaction: the mother, the father, or the sister.

The languages are coded as follows:
Croatian – underlined,   **English** – **bold**,   *German – italics*.

4.1.a IN INTERACTIONS BETWEEN EK AND THE MOTHER

Examples 4.1 to 4.6 are a series of exchanges between the child EK (aged 2;8) and her mother recorded at the beginning of the period of observation. They illustrate interactions between EK and her mother in the family setting. The recording begins with a trilingual utterance by EK. Upon entering the living room, EK spots the house she built of Lego blocks on the previous day:

(4.1)　　EK (2;8):　*Mein* kuća **found**.
　　　　　　　　　my house found
　　　　　　　　　'I have found my house.'

　　　　　MUM:　Aha, *ich habe mein Haus gefunden.*
　　　　　　　　　'Ah, I have found my house.'

By responding in German, the expected language in the family setting, the mother aims to achieve two things: firstly, to illustrate what the expected language of interaction is in that particular setting, and, secondly, to provide an appropriate and correct lead for EK on how to express the intended meaning.

The fact that EK is responsive to the prompt in German can be seen in her subsequent utterance, in which she asks her mother for help in German:

(4.2)   EK (2;8)   Mama, *hilf mir bitte*.
                     'Mummy, help me please.'

This is followed by an incomprehensible utterance. The mother makes clear her lack of understanding and admonishes her daughter to speak properly:

(4.3)   MUM: *Ich verstehe dich nicht. Du musst richtig sprechen.*
                     'I don't understand you. You must speak properly.'

To this request EK answers in Croatian, the expected language in the setting of mother and daughter:

(4.4)   EK (2;8)   <u>Kuća pravi molim,</u> mama.
                     house make please mummy
                     'Make a house, please, mummy.'

Again, the mother answers in the expected language for the family setting, that is, in German:

(4.5)   MUM: *Ich repariere dann dein Haus. So, bitte schön!*
                     'I'll repair your house then. Here you are!'

Later on in the same recording (illustrated in example (Example 4.6)), two bilingual utterances are recorded, both involving Croatian and German. EK has just finished singing a German song, followed by a Croatian one. She then asks her mother to open up the sofa for her to lie down:

(4.6)   EK (2;8): *Aufmach* <u>to</u> *bitte*, mama.
                     'Open that please, mummy.'

             This prompts the mother to ask:

          MUM: *Aufmachen? So?*
                 'Open? Like this?'

> EK: *Ja!*
>   'Yes!'

> MUM: Oh, *dann kannst du dich hinlegen!*
>   'Oh, then you can lie down!'

> EK: *Wie* <u>krevet</u>!
>   like bed
>   'Like a bed!'

> MUM: *Wie ein Bett ist das.*
>   'Like a bed that is.'

The bilingual utterances ('*Aufmach* <u>to</u> *bitte* mama.' and '*Wie* <u>krevet.</u>') involve the language expected in the family setting, that is, German, and the language expected in the mother-child setting, which is Croatian. Both settings appear to have influenced EK's choice of language.

Therefore, examples (4.1) through (4.6) illustrate four distinct possibilities with regard to EK's language choice in interactions with her mother: EK is seen to produce an utterance in monolingual German, the language of the family setting in example (4.2), and an utterance in Croatian, the language of interactions between the mother and the child, in example (4.4). EK is also observed to utilise two of her languages in example (4.6), or all three of her languages in example (4.1). The trilingual utterance in example (4.1) is the first utterance in that recording, and it is not known whether it was made in response to a particular previous utterance or not.

Other bilingual utterances are produced by EK in later audio-recordings, such as in examples (4.7) and (4.8). In both examples, the setting involves EK and the mother. In example (4.7), EK and the mother are playing while IF is asleep. Suddenly, the mother hears a brief sound, which prompts her to ask EK a question. However, as no other sounds can be heard from IF, EK concludes that she must be asleep again. This bilingual utterance involves Croatian and German:

(4.7)   MUM: <u>Koga to čujemo</u>?
                'Whom do we hear?'

          EK (3;1): <u>Opet</u> *schlaf.*
                     again sleep
                     'Asleep again.'

In example (4.8), EK responds with two bilingual sentences to her mother's Croatian prompt: the first one involves Croatian and German, the second English and German:

(4.8)   MUM: Kira, <u>otvori zavjese, molim.</u>
                'Kira, open the curtains please.'

          EK (3;1): <u>Ne, sunce bio moj</u> *Augen.* **It was** *zu hell von mich.*
                     no sun was my eyes. it was too bright of me.
                     'No, the sun was in my eyes. It was too bright for me.'

What can be seen in EK's utterance at this age, is the fact that she produces a far more complex response (albeit in three languages) compared to utterances from the first recording. All eight examples indicate the breadth of choices available to this multilingual child for expressing her thoughts.

Overall, it should be noted that in the majority of instances, EK is observed to respond to her mother's utterances in the language in which the utterances is made. This can be seen in Table 4.22, which shows the languages in which EK makes direct responses to her mother's prompts in a particular language.

As noted in section 2.1 of Chapter 3, the period of observation for this data involves ten months. For the purpose of the presentation of language occurrences in the case of the two children in this study, this period is subdivided into two five month periods. It can be seen that with advancing age and linguistic development, differences in language usage conventions over time are observable. Table 4.22 presents a count of instances in which the child responds to her mother's prompts in any of the languages and language combinations during the first half of the period of observation. Table 4.23 provides data for the second half of the period of observation. In Tables 4.22

and 4.23, the relevant languages are marked by their first letter: C = Croatian, E = English, G = German.

Table 4.22: Language(s) used by EK in response to her mother (during the first half of the period of observation)

EK responds ⟍ Mother speaks	Total utterances	C	E	G	Bilingual utterances	Trilingual utterances
C	44	29	2	4	9	n/a
E	3	n/a	3	n/a	n/a	n/a
G	19	3	n/a	11	5	n/a

In response to her mother's Croatian utterances, for example, EK can be observed to utilise the same language, Croatian, in the majority of cases: in 29 of the total of 44 responses to Croatian, EK replies in Croatian. This amounts to 65.9 %. Bilingual utterances are made in 9 of the 44 utterances, which is equivalent to 20.5%. German is used in response to the mother's Croatian in 9.1% of the utterances, while English is used in 4.5% of the utterances.

EK's responses to her mother's German show a similar pattern, in that the child responds in German in the majority of instances, that is, in 11 of the 19 instances in Table 4.22 (or in 57.9% of the utterances). Bilingual utterances in response to the mother's German are produced in 5 instances (or 26.3% of the total of 19 utterances), and Croatian is uttered in 3 instances (or 15.8% of utterances). As for utterances made by the mother in English, these receive a response in English from EK in all three instances recorded.

Thus, although EK is seen to produce utterances in all of her languages in response to her mother's prompts, Table 4.22 shows EK's *tendency* to respond in the language in which she is addressed by her mother in the majority of instances.

The second half of the period of observation shows evidence of a similar trend with regard to the language in which EK responds:

Table 4.23: Language(s) used by EK in response to her mother (during the second half of the period of observation)

EK responds ╲ Mother speaks	Total utterances	C	E	G	Bilingual utterances	Trilingual utterances
C	142	88	23	7	20	4
E	2	n/a	2	n/a	n/a	n/a
G	26	n/a	1	25	n/a	n/a

It can be seen in Table 4.23 that EK answers in the language in which she is addressed, particularly with regard to English and German, but to some extent also with regard to Croatian. As in the first half of the period of observation, so also in the second half EK responds to her mother's English in English. German utterances in response to German are produced in all but one instance (which is comparable to 96.2%), while Croatian in response to Croatian is used in 62% of EK's utterances.

Expressed in rounded up percentages, the figures for EK's use of the different languages and language combinations in response to her mother's Croatian utterances (the expected language) during both halves of the period of observation compare as follows:

Table 4.24: Percentage of use of the different languages and language combinations in response to the mother's CROATIAN utterances (data sourced from audio recordings)

Period of observation	C	E	G	Bilingual	Trilingual
First half	65.9%	4.5%	9.1%	20.5%	n/a
Second half	62%	16.2%	4.9%	14.1%	2.8%

It can be seen that EK's use of Croatian in response to Croatian is slightly lower in the second half compared to the first half of the period of observation. Her use of English shows an increase, but her use of German in response to Croatian decreases, as does EK's use of bilingual utterances. However, several trilingual utterances are recorded in response to the mother's Croatian in the second half of the period of observation, while none are recorded in the first half. This comparison may show a general trend in EK's choice of language (or language combination) in response to her mother's Croatian. However, it must be remembered that the external factor of topic of conversation also plays an important role in determining the language of the child's response, as do internal factors such as the child's language preference and language ability.

Examples (4.9) to (4.13) below, taken from the second half of the period of observation, illustrate EK's use of participating languages in response to the mother's unilingual Croatian or German utterances. The focus here is not on responses made in the language of the mother's prompt, but rather on responses which are made in a different language or in a combination of languages.

In examples (4.9) and (4.10), the setting involves the mother and the two children. Therefore, the expected language of interaction is Croatian, the language in which the mother makes her remarks. EK, however, does not reply in Croatian, but uses a combination of two languages, involving Croatian and German.

(4.9)   MUM: <u>To je što</u>?
                        'That is a what?'

      EK (3;4): <u>To je crni</u> *Blümchen*.
                        'That is a little black flower.'

(4.10)   MUM: <u>Imate dosta hrane sada unutra?</u>
                        'Do you have enough food inside now?'

      EK (3;4): <u>Ne, ja</u> *nehm noch ein Megablock*. Oh, <u>to je</u> *schwer!*
                        'No, I take another Megablock. Oh, it is heavy!'

In both examples, EK starts off her reply in Croatian but then changes to German for the remainder of the utterance. In these instances, the availability of vocabulary may play a role in EK's language choice.

Examples (4.11) and (4.12) are instances in which EK replies in English to the mother's prompt. In example (4.11), the family are having a meal and discussing the day's events in German, the expected language used in the family setting. Among other things, the mother mentions that EK drew a picture at nursery that day and asks the child what she drew. The fact that the nursery was mentioned may have played a role in the child's choice of language for her response.

(4.11)   MUM: *Was hast du da gemalt?*
                      'What did you draw there?'

          EK (3;4): **Mole**!
                      'A mole.'

In example (4.12), the mother and the children are talking about flying in an aeroplane. EK says that if she had an aeroplane, she could fly 'to him'. It is not clear to the mother to whom EK is referring, so she asks for clarification in Croatian, the expected language in the setting involving the child and her, only to receive a reply in English.

(4.12)   EK (3;6): **I have my aeroplane**. *Kann* **up in the air and ride there up to him.**
                    'I have my aeroplane. I can go up in the air and ride there up to him.'

          MUM: <u>Kome ideš</u>?
                    'To whom are you going?'

           EK: **To Irene up in the air.**

Example (4.13), on the other hand, illustrates EK's use of three languages in a single utterance in response to her mother's Croatian prompt. The setting involves both children and the mother. They are discussing going to the park

with friends. EK informs her mother that, following a fictitious telephone conversation, the friends are well and will be joining them at the park. The mother asks EK whether she has rung the friends already (on her toy telephone). This is when EK runs off, remembering to get the phone from another room.

(4.13) MUM: <u>Si ih nazvala</u>?
'Have you rung them?'

EK (3;5): Oh, <u>ja</u> *brauch* **my** <u>telefon</u>!
'Oh, I need my telephone!'

Despite the use of various languages in her replies in the examples (4.9) to (4.13), it needs to be remembered that EK produces the majority of her responses in the language of her mother's initial question or comment (see Tables 4.22 and 4.23 above). Table 4.22 above shows that the majority of EK's responses to her mother's prompts are produced in the expected language, Croatian, while a smaller percentage of responses is made in a language (or language combination) other than monolingual Croatian.

In the next section, attention turns to EK's responses to her father's remarks. The responses are expected to involve either German, the expected language in the family setting, or English, the father's native language and the language of the wider community.

4.1.b IN INTERACTIONS BETWEEN EK AND THE FATHER

Due to the father's minimal knowledge of Croatian – he understands some individual everyday words or phrases, but his knowledge is insufficient for active language production - it is not expected that EK's responses to her father's remarks will contain Croatian. It must be noted that only two recordings in the first half of the period of observation involve interactions with the father, and these interactions are of a relatively short duration.

An extract from a conversation taking place in the family setting at breakfast time illustrates how EK responds to her father's prompts. The interaction is opened by the father with an utterance in German, the language of the family setting:

(4.14)   DAD: *Was möchtest du auf deinem Brot,* Franka? Marmite?
                    'What would you like on your bread, Franka? Marmite?'

      IF (1;4): Marmite.

    EK (2;8): **Table daddy**?

       DAD: *Wie bitte,* Kira?
                    'Pardon, Kira?'

        EK: **Please may I leave table**, daddy?

       DAD: **Yes, you may**.
                    (After a brief interval, the father asks) Was machen wir jetzt?
                    'Yes, you may. What are we going to do now?'

        EK: *Hoch, bitte*, tata!
                    'Up, please, daddy!'

       DAD: *Aber zuerst, was machen wir mit den Händen?*
                    'But first, what do we do with our hands?'

        EK: <u>Oprat</u> *Hand.*
                    wash hand
                    'Wash our hands.'

      MUM: *Und nicht nur die Hände, sondern auch noch den...*
                    'And not only the hands, but also the...'

        EK: *Mund!*
                    'Mouth!'

As is the family custom, the main language in this interaction (especially in the utterances made by the parents) is German. Due to the fact that EK has only recently learned to ask for permission to leave the table in English, her request

is acknowledged by the father in English. However, the father quickly returns to German, the expected language in the family setting. EK replies with a bilingual Croatian-German utterance to her father's next question in German. Although it was not anticipated that Croatian would be used by EK in interactions with the father, this is nevertheless observed to occur. However, the mother's subsequent remark in German is followed by EK's response in German. In sum, example (4.14) shows how EK makes use of the languages at her disposal to communicate in an everyday interaction. Replies to the father's German utterances involve English, German, and a bilingual utterance involving Croatian and German. The remainder of EK's responses to her father's German utterances during the first half of the period of observation are conducted in unilingual German, as in the following extract:

The father and EK are teasing each other:

> DAD: *Du bist ein Klaun. Hast du eine blaue Nase?*
> 'You are a clown. Do you have a blue nose?'

> EK (3;0): *Nein!*
> 'No!'

In the audio recordings, of the total of seven direct replies to the father's comments in German, EK produces four (or 57.14%) in German and two (or 28.57%) in English. One reply (or 14.28%) is the bilingual utterance reported in (4.14) above: <u>Oprat</u> *Hand.*).

Similar to interactions with the mother, our observations show that in interactions with her father, who speaks German with the child, EK responds in a variety of languages rather than exclusively in the expected language.

More recordings of interactions between EK and her father would have been beneficial for analysis purposes. Regrettably, no additional recordings are available, and our conclusion will have to be based on the few utterances which are available.

4.1.c IN INTERACTIONS BETWEEN EK AND THE SISTER

In conversations with the younger sister, language choice is not restricted to such a degree as in interactions with the parents. As is pointed out near the beginning of section 4 above, there are far fewer constraints on the language(s) to be used in this setting compared to the settings involving either, or both, parents (see also section 4.3 below).

In the first half of the period of observation, audio recordings are made in the presence of one or both parents, who keep conversation flowing by making comments or asking questions. The recordings show evidence of the fact that the children sometimes play next to each other rather than with each other. Thus, in these recordings, only one utterance by EK can be considered to be a direct retort to an utterance by her sister IF.

(4.16)   The father and the children are looking at a picture book, passing comments and teasing each other:

DAD: *Hat Franka eine blaue Nase?*
      'Has Franka a blue nose?'

EK (3;0): *Ja!*
           'Yes!'

IF (1;7): *Blaue Nasen!*
           'Blue noses!'

EK: *Nein,* **you have** *blaue Nase!* **Chubby face**!
     'No, you have a blue nose! Chubby face!'

In this instance, IF's comment is understood by EK to mean that she, EK, has a blue nose, which she vehemently denies, saying that IF is the one with a blue nose. The initial denial is in German ('*nein*'), but EK then formulates two elements of her answer in English, possibly in anticipation of the later expression '**chubby face**', an expression which her father teasingly likes to use and which EK enjoys using as well. Alternatively, EK's response may be interpreted as showing her use of English in reply to her sister's remark, with an

embedded German expression. As this is the only sample available of direct interaction between the sisters during the first half of the period of observation, it is impossible to specify whether EK's use of English shows that this is the language which the sisters use between themselves, or whether the initial English verb phrase '**you have**' is triggered by the subsequent English noun phrase '**chubby face**'.

In the second half of the period of observation, there is evidence in the audio recordings of the children sometimes being left to play by themselves, although never for too long, as especially the younger child is still quite young (aged between 1;4 and 2;1). Evidence of direct interaction between the sisters is more plentiful, as is evidence of the ways in which EK responds to her sister's comments (see Table 4.25 below).

Table 4.25: The language(s) used by EK in response to her sister's utterances (during the second half of the period of observation)

IF responds ⟍ Sister speaks	C	E	G	Bilingual utterances	Trilingual utterances
C	1	n/a	n/a	1	n/a
E	n/a	13	1	1	n/a
G	n/a	n/a	3	n/a	n/a
Bilingual	n/a	1	n/a	n/a	n/a

Considering the results for Croatian, English and German, there is evidence of some compatibility with regard to the language(s) used in response to the sister's comments: EK responds in Croatian to her sister's Croatian utterance once and in German to her sister's German on three occasions. Most numerous are instances of EK's response in English to her sister's English utterance, indicating that this is the language the sisters use the most when interacting between themselves. Several speech samples are presented below to illustrate language occurrence in interactions between EK and her sister.

The use of German is illustrated in the setting of the mother and the children in example (4.17). The mother uses the expected language for this setting, which is Croatian, but IF's reply in German prompts EK to make a comment in German:

(4.17)   MUM: Franka, <u>što smo rekle? Ako padne puno snijega, što ćemo</u> <u>raditi?</u>
                       'Franka, what did we say? If lots of snow falls, what will we do?'

          IF (1;9):   *Schneemann!*
                       'Snowman!'

          EK (3;2):   *Grooooß!*
                       ‚Biiiig!'

Example (4.18) is another instance of how EK responds to her sister's remark. The interaction involves the children and their mother during a drawing session. Throughout this session, the mother speaks Croatian, the expected language of interaction between them, while the children reply mainly in Croatian, with a few elements added in German but even fewer in English. Although conversation is in Croatian, IF's sudden choice of German in a comment about what she is doing at that moment seems to prompt EK to use German as well.

(4.18)   MUM: <u>Tako. Rep će biti crveni. Evo ga ... Čudni zeko.</u>
                       'That's it. The tail will be red. Here we are ... Strange bunny.'

          IF (1;10):   *Ich mach* zebra, tata zebra.
                          'I am making a zebra, a daddy zebra.'

          EK (3;3):   *Ich mach* mama.
                          'I am making a mummy.'

The words 'mama' and 'tata' are not coded for language throughout the thesis because they are Croatian terms of relationship which are used by the members of this family also in interactions in German. The word 'zebra' is omitted in the process of language identification because no unequivocal identification as to its source language is possible due to the immaturity in IF's pronunciation. The sounding of the initial syllable 'ze-' indicates that the source

language could be either Croatian or English, but no other distinguishing feature in the pronunciation permits a more precise identification of the source language. It can be assumed, however, that the word belongs to Croatian, considering that Croatian is the other language utilised in this interaction and not English.

To sum up, this whole section illustrates how the elder child in this case study, EK, makes use of the languages in her repertoire in response to her parents' and to her sister's utterances. In interactions with her mother, almost two-thirds of EK's replies are made in the language of the mother's previous utterance. Just over a third of her utterances are made in monolingual other-language utterances, in bilingual or in trilingual utterances.

Although the small sample involving EK and the father does not permit firm conclusions to be drawn, EK's answers appear to mirror the father's use of German (apart from one instance, in example (4.14), in which she produces a bilingual utterance).

In interactions with her sister, EK is observed generally to utilise the language her sister utilised before her (cf. Table 4.25): of a total of 21 direct responses, 17 (or 81%) are made in the language of the sister's previous utterance, while 4 (or 19%) are made in another language or combination of languages (included in this count is a bilingual utterance from IF which prompts an English utterance from EK). The data in Table 4.25 also points to the observation that conversation among the sisters appears to be conducted to a large extent in English, the language of the wider community, but that the other two languages in the children's repertoires are also being used.

4.2 ACTUAL LANGUAGE USE IN IF'S CASE

Following an analysis of language occurrences in the case of her elder sister, the younger child's use of the languages in her repertoire is analysed in the present section. To be analysed are IF's interactions with her mother, her father, and her sister during the period of observation. Data presentation and

analysis in this section follow the pattern set up in EK's case. Firstly, the period of observation is subdivided into two halves, for ease of reference and in order to see whether there are any developmental differences between these two periods. Secondly, interactions between IF and her mother, her father and her sister are dealt with in three subsections respectively. The data considered in this section stems from the audio recordings (as previously, in the case of the child EK) because this data is more representative of the child's everyday language use.

It is expected that the findings from both periods will be comparable to a degree to those in the case of EK (in section 4.1 above). In other words, interactions with the mother and the sister are expected to involve the three languages, while interactions with the father are expected to involve mainly German.

4.2.a IN INTERACTIONS BETWEEN IF AND THE MOTHER

In order to illustrate how IF makes use of her languages in response to an utterance by her mother, several representative examples are provided at this point. Examples (4.19) to (4.21) stem from the first recording, which is made in the family setting. In this setting, the expected language is German. This is the reason why the mother is addressing IF in German.

(4.19)   MUM: *Du möchtest Musik hören,* Franka?
                        'You would like to listen to music, Franka?'

        IF (1;4):   Da!
                        'Yes!'

As can be seen, IF replies to her mother's German utterance in Croatian. Although the setting involves all four members of the family, the actual conversation is conducted between the mother and the daughter. In this instance, it is possible that the setting of the mother and the daughter served as a stronger prompt for language choice than the setting of the family.

In the interaction a few turns-at-talk later, the mother and the children are looking at a picture book, and the mother asks IF to identify to whom the mother is pointing.

(4.20) MUM: *Und wer ist das,* Franka?
        'And who is that, Franka?

    IF (1;4): *Schneemann!* Oh, <u>to sladoled</u>!
        Snowman! Oh, that ice cream!
        'Snowman! Oh, that is ice cream!'

The direct reply to the mother's German question is in German. However, this is closely followed by an utterance in Croatian. The Croatian utterance is not a reply to the mother's question, but can be seen as having been triggered by a picture in the book at which the mother and child are looking. The utterance can be interpreted as an initiation by IF of a new interaction. This interaction is in Croatian, the language expected in the setting of the mother and the children rather than the family setting.

The sample which follows involves an interaction between IF and her mother in the family setting. IF spots a hat in the picture book and makes a comment in Croatian.

(4.21) IF (1;4): <u>Kapa</u>!
        'Cap!'

    MUM: *Wo ist die* <u>kapa</u>?
        'Where is the hat?'

  IF: **There**!

In this interaction, the mother is seen to use German (as expected in an interaction in the family setting) in her question. The question, however, also contains the Croatian noun utilised by the child in her initial remark. The mother's intention is not to confuse the child with the German equivalent, and she chooses to utilise the Croatian word in an otherwise German utterance. Apart from Croatian in her initial utterance, IF also uses English in her reply

when she is asked to show the whereabouts of the hat. The assumption is that English is chosen on this occasion as this word is easier to pronounce than its Croatian equivalent ('tamo'), considering that IF's immature pronunciation produces an approximation of /dɛə/ rather than the phonologically more exacting adult-target /ðɛə/.

We have thus seen that IF utilises Croatian in her interactions with her mother even in the family setting, in which German is the expected language. She is also observed to make use of German and English in direct reply to her mother's utterances. The distribution of languages in IF's replies to her mother's utterances during the first half of the period of observation is outlined in Table 4.26 below.

Table 4.26: The language(s) in which IF responds to her mother's utterances (during the first half of the period of observation)

IF responds / Mother speaks	C	E	G	Bilingual utterances	Trilingual utterances
C	9	n/a	1	1	n/a
E	n/a	n/a	n/a	n/a	n/a
G	2	n/a	2	n/a	n/a
Bilingual	n/a	1	n/a	n/a	n/a

It can be seen in Table 4.26 that of the total of 16 utterances produced by IF in direct reply to her mother's prompt, 11 (or 68.8%) are made in the language of the mother's utterance. Five utterances (or 31.2%) are made in a language or combination of languages other than that of the mother's utterance. If IF's replies to the mother's *Croatian* prompts are analysed separately, 81.8% are made in Croatian, while 9.1% involve, respectively, German or bilingual utterances.

The second half of the period of observation shows a greater number of IF's utterances in response to her mother's questions or comments. There may be

two reasons for this observation: firstly, the size of recorded samples between the two halves of the period of observation is biased toward the second half of the period of observation, in which the data corpus is greater. Secondly, the child IF, is more mature linguistically, and, arguably, produces more utterances.

Table 4.27: The language(s) in which IF responds to her mother's utterances (during the second half of the period of observation)

IF responds Mother speaks	C	E	G	Bilingual utterances	Trilingual utterances
C	53	2	3	3	n/a
E	n/a	n/a	n/a	n/a	n/a
G	1	n/a	6	n/a	n/a

Of the 68 utterances IF produces in direct response to her mother's utterance, 59 (86.8%) are made in the same language and 9 (or 13.2%) are made in another language or combination of languages. If IF's replies to her mother's Croatian prompts are analysed, then 98.1% are made in Croatian).

The following are some examples of interactions between the mother and IF during the second half of the period of observation, involving Croatian (example 4.22), German (examples 4.23 and 4.24), and a combination of both languages (example 4.25).

Example (4.22) is a slightly longer extract from an interaction between the mother and IF early one morning when it was snowing. It illustrates a typical interaction when the two of them are alone together: the mother speaks Croatian, the expected language in an interaction between mother and child, and IF answers in Croatian.

(4.22)   MUM: <u>Vani pada snijeg.</u>
                     'Outside it is snowing.'

IF (1;10): <u>I snjegović</u>.
'And snowman.'

MUM: <u>Napravit ćemo snjegovića ako padne puno snijega.</u>
'We will build a snowman if lots of snow falls.'

IF: <u>Jesti snijega.</u>
'Eat snow.'

MUM: <u>Ti hoćeš jesti snijega?!</u>
'You would like to eat snow?!'

IF: <u>Da</u>!
'Yes!'

MUM: <u>Je l' to fino?!</u>
'Is that nice?!'

IF: <u>Da</u>!
'Yes!'

The above extract is followed by a short exchange a few minutes later when EK enters the room and the mother wishes to let her know the content of the previous conversation. The mother prompts IF to tell her sister what would be happening if lots of snow fell.

(4.23)   MUM: Franka, <u>što smo rekle? Ako padne puno snijega, <u>što ćemo raditi?</u>
'Franka, what did we say? If lots of snow falls, what will we make?'

IF (1;10): *Schneemann!*
'Snowman!'

In the previous example, (4.22), IF is recorded as utilising the Croatian equivalent for the German '*Schneemann*'. On the surface, it is not clear why IF should have replied in German when she knows the required Croatian word. However, it may be the fact that the children have a toy snowman whom they like to call 'Schneemann' which triggered IF's reply and made the German word more readily available to IF in this interaction.

The following exchange occurs in the family setting, during a meal. This setting requires German, and IF is observed to utilise it readily.

(4.24)   MUM: *Bitte,* Franka?
                    'Yes, Franka?'

        IF (1;11): *Da ist eine Spinne!*
                    'There is a spider!'

            MUM: *Wo ist die Spinne?*
                    'Where is the spider?'

              IF: *Da.*
                    'There.'

            MUM: *Da oben am Fenster?*
                    'Up there at the window?'

              IF: *Ja.*
                    'Yes.'

Equally, however, bilingual utterances are noted, as in example (4.25). On this occasion, the children and the mother are having a drawing session, and IF has just drawn a zebra. EK is unsure of the meaning of this word and asks:

(4.25)   EK (3;3): Zebra <u>je šta</u>?
                    zebra is what
                    'What is a zebra?'

            MUM: <u>Zebra je jedna životinja. Treba nam crna, pa ćemo nacrtati</u> <u>zebru.</u>
                    <u>Ona izgleda kao konj.</u>
                    'A zebra is an animal. We need black, and then we will draw a zebra. It looks like a horse.'

        IF (1;10): <u>Ima</u> *Bauch* ... <u>i</u> *Auge.*
                    has belly ... and eye
                    'It has a belly ... and an eye.'

            MUM: <u>To je lijepa zebra.</u>
                            'That is a pretty zebra.'

IF: *Viele zebra!*
       'Many zebras!'

MUM: <u>Puno da ih nacrtam?</u>
       'Should I draw many?'

IF: <u>Da</u>, <u>molim</u>.
       'Yes, please.'

In EK's initial question about zebras ('Zebra <u>je šta</u>?') and in IF's request for her mother to draw many zebras ('*Viele* zebra!'), the noun is not coded for language because it could not be assigned to a single language due to the children's immature pronunciation of the word (it could be either Croatian or English): the initial syllable 'ze-' is pronounced closely similar in both of these languages, while pronunciation of the word in German differs. As in example (4.18) above, it can be assumed that the word is produced in Croatian, considering the fact that no English elements are utilised in this interaction.

In this instance, IF makes use of both Croatian and German in her utterances ('<u>Ima</u> *Bauch*... <u>i</u> *Auge*', and '*viele* zebra'). There is no immediate clue as to the reason why IF chooses to utter some of the words in German. Although they are everyday words for which IF could be assumed to know the equivalents in Croatian, the audio data do not provide appropriate evidence at this stage.

To sum up IF's use of the languages in her repertoire in direct response to her mother's utterances, Table 4.28 presents an overview of the percentages in which IF produces responses in one of her languages or in a combination of two of them. The percentages are calculated on the basis of the data presented in Tables 4.26 and 4.27 above.

Table 4.28: Percentage of use of the different languages and language combinations in response to the mother's CROATIAN utterances (data sourced from audio recordings)

Period Of Observation	C	E	G	Bilingual	Trilingual
First half	81.8%	n/a	9.1%	9.1%	n/a

Period Of Observation	C	E	G	Bilingual	Trilingual
Second half	86.88%	3.28%	4.92%	4.92%	n/a

In the second half of the period of observation, IF's use of Croatian in response to her mother's Croatian (the expected language in interactions with the children) is slightly higher than in the first half. Her use of English shows an increase, but her use of both German and bilingual utterances in response to Croatian decreases. No trilingual utterances are recorded in response to her mother's Croatian.

4.2.b IN INTERACTIONS BETWEEN IF AND THE FATHER

As mentioned previously, there are very few recordings of interactions with the father. In the first half of the period of observation, no relevant audio sample is found in which IF interacts directly with her father (apart from IF's utterance in example 4.14 in section 4.1.b, in which she replies with a product's brand name, "Marmite).

In the second half of the period of observation, however, five instances are recorded in which IF responds to her father's questions. They all occur in the family setting, and, on that account, the expected language is German. German is also the language expected in the setting of the father and child. Replies in exclusively monolingual German are recorded in the interactions between IF and her father, which is illustrated in the examples below.

(4.26)   The father shows IF a pair of newly-bought swimming goggles and asks her:

DAD: *Was ist das?*
       'What is that?'

IF (1;11):   *Eine Brille.*
       'A pair of glasses.'

Similarly, the following two interactions show IF to use German. Both interactions occur at breakfast-time.

In example (4.27), IF is given cereal for breakfast by her sister. However, instead of one brand of cereal, IF would like another one. As her father informs her that she cannot have the brand she wishes because none is available in the house, IF noisily first expresses the wish for milk, and then for an apple.

(4.27)   DAD: Kira *hat dir* Rice Crispies *gegeben. Finde ich sehr lieb.*
                 'Kira has given you Rice Crispies. I think that is very kind.'

     IF (1;11):   Shreddies!

          DAD: Shreddies *haben wir nicht. Oder habt ihr sie gestern gekauft?*
                 'We don't have Shreddies. Or did you buy them yesterday?'

            IF: *Dann ich möchte diesen Miiiiilch! Ich möchte die Apfel. Ich* möchte
                  die Apfel, bitte!
                  'Then I'd like (this) milk! I'd like the apple. I'd like the apple, please!'

In example (4.28), IF initiates the conversation by making a comment in German (the appropriate language for the family setting) about her father's activities that day, which her father acknowledges with a simple '*Ja.*'. Seeing that IF requires a spread for her toast, the father then offers her honey, which she gratefully accepts:

(4.28)   IF (1;11):   Daddy *geh nach Uni und esse nach Uni.*
                      daddy go to uni and eat to uni.
                      'Daddy is going to university and he is going to eat (have lunch) at
                      the university.'

             DAD: *Ja. Honig?*
                    'Yes. Honey?'

              IF: *Honig, bitte!*
                    'Honey, please!'

In her interaction with the father, IF is, therefore, observed to utilise German throughout the second half of the period of observation. There is a general lack

of relevant data from the first half of the period of observation to pronounce any conclusion. The audio recordings do not show evidence of any other language used in this setting.

4.2.c *IN INTERACTIONS BETWEEN IF AND THE SISTER*

Mention has already been made of the relative absence of constraints with regard to the language expected in the setting of the two children (cf. section 4.5 above). It is, thus, possible that interactions between the children show evidence of the use of all three languages and their combinations.

As previously stated, due to the children's young ages in the first half of the period of observation (between 2;9 and 3;0, and between 1;4 and 1;7 respectively), audio recorded sessions involve interactions predominantly between a parent (or parents) and a child, while interactions between the children themselves are a very rare occurrence indeed: only two utterances are made by IF in response to her sister's prompt. This is seen in Table 4.29 below.

Table 4.29: The language(s) in which IF responds to her sister's utterances (during the first half of the period of observation)

IF responds / Sister speaks	C	E	G	Bilingual utterances	Trilingual utterances
C	n/a	n/a	n/a	n/a	n/a
E	n/a	1	n/a	n/a	n/a
G	n/a	n/a	n/a	1	n/a

Example (4.29) sees the children playing in the same room but not jointly, as can be observed in the initial non-sequiturs in this interaction. IF is commenting on the state of her socks, while EK is pretending to be on the phone with her father. The expression 'sleepy socks' refers to socks which have slipped a little off the child's foot.

(4.29)   IF (1;7):   <u>To bilo</u> *da rein*. **Sleepy socks here**. **There**!
                    That was there inside. Sleepy socks here. There!
                    'That was in there. Sleepy socks are here. There they are!'

         EK (3;0):   *Hallo? Hallo,* tata! *Ja, komm! Posaune spielen?* Oh, **no**! Oh, **that
                    was quick**! *Spielen Posaune.* <u>Jesti nešto</u>? <u>Jesti i</u> *Posaune spiele,
                    ja? Ja?!*
                    'Hello? Hello, daddy! Yes, come! Trombone play? Oh, no! Oh, that
                    was quick! Play trombone. Eat something? Eat and trombone play,
                    yes? Yes?!'

         EK (to IF): **Run farmyard, yes?**

              IF: **Farmyard!**

Although IF is observed to use English prior to her sister's question about
whether they should play 'farmyard', IF's subsequent English utterance shows
her acceptance of her sister's suggestion of the language of interaction for play.

In example (4.30), the setting involves both children and their mother. IF makes
a bilingual comment in response to her sister's monolingual German utterance.
The bilingual utterance involves Croatian, the expected language of interaction
between the mother and the children, and German, the language of the sister's
comment.

(4.30)   MUM: Franka, <u>ćeš mi nacrtati auto</u>?
                    'Franka, will you draw me a car?'

         IF (1;4): <u>Da</u>!
                    'Yes!'

            MUM: <u>Ajde</u>! ... Oh, <u>koji auto</u>!
                    'Go on! ... Oh, what a car!'

         EK (2;8): *Große!*
                    ‚Big!'

              IF: <u>Auto</u>. *Groß* <u>auto</u>.
                    'Car. Big car.'

MUM: <u>Tako je, veliki auto.</u>
'That's right, a big car.'

EK appears very impressed by the size of the car IF draws and she expresses her pleasure with a German adjective. In her response to her sister's utterance, IF seems to specify what is considered to be big, first by supplying the noun, and then by ordering the German adjective and the Croatian noun into a mixed-language noun phrase. The pronunciation of the Croatian-German cognate 'auto' permits the assertion that this is a Croatian rather than a German noun because the final 'o' is pronounced open, as required in Croatian.

During the second half of the period of observation, the number of instances in which the children interact with each other directly is clearly on the increase. IF's use of English occurs comparatively frequently in response to the sister's English. In addition, two Croatian utterances are made by IF in response to her sister's Croatian, as is one bilingual utterance in response to the sister's German (see Table 4.30).

Table 4.30: The language(s) in which IF responds to her sister's utterances (during the first half of the period of observation)

IF responds / Sister speaks	C	E	G	Bilingual utterances	Trilingual utterances
C	2	n/a	n/a	n/a	n/a
E	n/a	7	n/a	n/a	n/a
G	n/a	n/a	n/a	1	n/a
Bilingual	n/a	1	n/a	n/a	n/a

Data about IF supports the statements made in section 4.1.c about the comparatively frequent use of the community language, English, in interactions between the siblings. The examples which follow illustrate some instances of such interactions.

Example (4.31) is recorded at a moment just after the mother had left the room. Interactions in the presence of the mother are in Croatian, but the moment she leaves the room, EK initiates a new game with IF in English. EK is pretending to have a loofah. This word enjoyed much popularity among the children ever since they encountered it in a much-loved English storybook about Percy the Park Keeper.

(4.31)   EK (3;4):   Irene, **that one a loofah! I don't want a loofah!**

           IF (1;11):   **Where is the loofah?**

Apart from illustrating the children's inclination towards using English when they are playing together, this situation is also representative of a more general observation made by the parents in this study. The parents report that the children switch to the expected languages of Croatian (with the mother) or of German (with the father) as soon as the parents' presence in a setting is noticed or whenever the children address them. Equally, as soon as the parents are no longer in the children's company and out of earshot, the children conduct their conversation in the language which suits them best at that point in time (to a large extent, this is English). This deliberate choice of language on the part of the children is discussed in section 4.7 below.

Examples (4.32) and (4.33) illustrate language choice in interactions between the children themselves.

(4.32)   In this game, EK is proffering to her sister a drink of tea in a tiny cup.

         EK (3;5):   **Look**, Franka. **This one little**, *ganz, ganz* **little glass**.
                        'Look, Franka. This one is a small, quite, quite small glass.'

         IF (1;11):   **Thank you**. ... Oh, *mein* **tea**!
                        'Thank you. ... Oh, my tea!'

           EK: **You have tea. There! There you are tea!**

Conversation between the children is predominantly in English, with just two elements from German ('*ganz*' and '*mein*'). Although IF's bilingual remark 'Oh, *mein* **tea**!' could be thought of as a monolingual English utterance ('**mine tea**'), this is not likely as IF is neither observed nor recorded to utilise this specific form of the English possessive pronoun ('**mine**') anywhere else at that stage. In addition, IF's pronunciation of '*mein*' is German.

(4.33) The setting involves the children and their mother, and interactions are conducted in Croatian, even among the children.

(4.33)   EK (3;6): Franka, <u>pusti mama malo igrati, da</u>?
                           'Franka, let mummy play a little, yes?'

        IF (2;1): <u>Ne</u>.
                           'No.'

To summarise, this section illustrates how the younger child in this case study, IF, uses the languages at her disposal in response to her parents' and her sister's utterances. If data from Table 4.28 is taken into consideration, which involves percentages of IF's replies in participating languages to the mother's prompt in Croatian, and if these percentages are then averaged across the whole of the period of observation, then IF responds to her mother's prompt in the language of the prompt in 83% of the instances. This means that 17% of IF's utterances do not reflect the language used by the mother. Overall, however, in response to her mother's utterances, IF is seen to produce utterances in all three of her languages individually, or in a combination of two of them. Interactions with the father are recorded as involving solely German, the expected language of interaction, while interactions with her sister bear a resemblance to interactions with the mother in that they involve any of the three languages singly or in combination. Again, it needs to be said that the audio recordings involving the father are short compared to those involving the mother and the sister and, for this reason, the finding that IF only ever utilises German in interactions with her father must be taken as tentative.

4.3 LANGUAGE SENSITIVITY

Before concluding this section, several speech samples are presented which illustrate the children's sensitivity to language choice. As has been pointed out previously in this chapter, the expected language in interactions between the children and the mother is Croatian. However, both in the first and in the second half of the period of observation, there are instances in which the children do not use Croatian when speaking with their mother (cf. Tables 4.22 and 4.23 for EK, and Tables 4.26 and 4.27 for IF). However, in the second half of the period of observation, there is increasing evidence of the children's tendency to play in the language (or combination of languages) which suits them best at that moment (which is frequently English), while interacting with their mother in Croatian. On such occasions (see examples (4.34) to (4.37) below), the switch to Croatian is momentary, sometimes in mid-utterance (example 4.35).

In example (4.34), IF is sitting in a cardboard box, pretending to be in a train, and singing along with EK the song "London's burning … Fetch the engine". EK is taking turns talking to IF and then informing the mother of what both she and IF are doing.

(4.34)   EK (3;4):   **London burning** ...

   IF (1;11):   **The engine** ...

         EK: **Irene! I help you. I help you**. Mama, <u>ja pomozi Franku</u>! **There**,
               Irene ... Mama, <u>mi spremimo nešto u kutije</u> **from the buggy**.
               'Irene! I help you. I help you. Mummy, I help Franka! There, Irene ...
               Mummy, we put something into boxes from the buggy.'

         MUM: <u>Može. Dobro.</u>
               'Ok. That is all right.'

         EK: <u>Ja i Franka u kupovinu</u> ... Oh, **I want this and this**.
               I and Franka shopping ... Oh, I want this and this.
               'I and Franka are going shopping ... Oh, I want this and this.'

In example (4.35), the children are playing with Lego. EK is putting her Lego car through the pretend car-wash when she decides to ask the mother for permission to listen to music on a tape.

(4.35)   EK (3;5):   **And he going to the wash car. I go to my.**

     IF (2;0):   **We ... I need something ...**

       EK: **In the wash car**! **May I have the** <u>muziku na ovu kazetu</u>?
           In the wash car! May I have the music on this tape?
           'In the car-wash! May I listen to the music on this tape?'

    MUM: <u>Ne</u>, Kira.
           'No, Kira.'

It can be seen that EK starts off her utterance to her mother ('May I have…') , which is meant for her mother, in English, the language used in conversation with her sister. Mid-utterance, however, EK switches to Croatian and completes her question in the language expected in the mother-child setting.

The following is a longer extract of conversation involving the mother and both children. It illustrates how sensitively EK chooses which language to use in conversation with either her sister or with the mother. The children are playing in English, when EK calls to the mother in the kitchen in Croatian and then resumes playing in English with her sister.

(4.36)   IF (2;0):   **This one scratch over there.**

   EK (3;5):   **I bang you**, **yes**?

      IF: **No**!

     EK: Mama, <u>gdje mi idemo sada? Ja hoću na dječje igralište!</u>
         Mum, where are we going now? I want on playground!
         'Mum, what are we doing today? I would like to go to
         the playground!'

MUM: <u>Ja ću oprati suđe u kuhinji, onda ćemo oprati zube i nazvati Hiroe i vidjeti je l' će i ona htjeti ići s nama. Okej?</u>
'I am going to do the dishes in the kitchen, then we willclean our teeth and ring Hiroe and see whether she willwant to go with us. Okay?'

EK: <u>Da</u>. Hiroe <u>malo bolesna</u> ...
Yes. Hiroe a little sick ...
'Yes. Hiroe is a little sick ...'

MUM: <u>Možda je sada opet zdrava. Ćemo vidjeti kako se osjeća.</u> <u>Moramo je nazvati i pitati.</u>
'Perhaps she is better again. We shall see how she feels. We have to ring her and ask her.'

EK: **There. You are alright here, yeah? She need to be better.**

IF: **And** Lisa **go**...

EK: Lisa **is better now.**

IF: **Yes**.

EK: Mama, Lisa <u>je dobro</u>!
'Mum, Lisa is well!'

MUM: Oh, <u>hvala. To je dobro znati.</u>
'Oh, thanks. That is good to know.'

EK: <u>Da, i</u> Hiroe.
yes and Hiroe
'Yes, and Hiroe is well.'

IF: **Hello,** Hiroe! **I so ... playground you coming?**

EK: Mama, <u>ja oprala zube</u>! ... Mama, <u>u</u> Eaton Park <u>ima malo trave</u>.
Mummy, I cleaned teeth! ... Mummy, in Eaton Park there is a little grass.
'Mummy, I have cleaned my teeth!... Mummy, in Eaton Park there is some grass.'

MUM: <u>Gdje ima trave? U Eaton Parku?</u>
'Where is grass? In Eaton Park?'

EK: <u>Da</u>.
'Yes.'

In example (4.37), the children are playing by themselves in the living room, while the mother is busy elsewhere. IF then calls out to her mother to say hello and to let her know where IF is.

(4.37)   IF (2;1): **I knock on Milly's door.**

    EK (3;6): **No, that is the giant's door.**

        IF: **That our door.**

    EK: **No, giant is helping to make our dinner with our** mummy.

        IF: **No**, *das* mummy. Mama, mama!
        No, that mummy. Mummy, mummy!
        'No, that is mummy. Mummy, mummy!'

    MUM: <u>Molim</u>?
        'Yes?'

        IF: <u>Bok, tu sam!</u>
        'Hello, here I am!'

    MUM: <u>Bok</u>!
        'Hello!'

In the examples (4.34) to (4.37) above, the pattern of language use generally involves English when the children play among themselves and a switch to Croatian when wishing to speak with their mother.

Overall, in the case of EK and IF in the present study, use of multiple languages in an utterance is noted only in situations in which the other speaker is bi- or trilingual. In interactions involving monolingual speakers, both children are observed and recorded to utilise almost exclusively only the relevant language for that interaction. A similar finding is also made by Stavans and Swisher (2006) in their case study involving two children growing up with English,

Hebrew and Spanish. The children in this study have also been found to converse monolingually in interactions involving monolingual speakers. Children's sensitivity to their interlocutor's language choice is a feature which is reported in the BFL literature as well. Paradis and Nicoladis (2007), for example, have established that children as young as two years old utilise their languages sensitively with regard to their interlocutor's language.

5. SUMMARY OF CHAPTER 4

It was seen that the children are exposed to all three languages on a regular basis, with a difference in the degree of exposure to each. Exposure to English, the community language, was recorded to be lowest, followed by exposure to German and to Croatian. Despite this difference in exposure, the languages apparently progressed at a similar rate, which was seen when calculations of the children's Mean Length of Utterance (MLU) were performed for each language (and for each recording session) separately (cf. section 3).

Two methods are used to calculate the MLU: (i) on the basis of words per utterance, and (ii) on the basis of morphemes per utterance. Both means have been used in previous studies, with some literature noting slightly higher MLU values when a morpheme count is performed (cf. Sinka, 2000). More recently, a study by Parker and Brorson's (2005) investigated the correlation between MLUw and MLUm values and found it to be strong. This indicated to the authors that both means of calculating MLU are equally applicable.

In the present thesis, both means of calculation are performed on the present data, and, in line with Sinka's (2000) finding, the MLUm values are also found to be higher than the respective MLUw values. The calculation shows the correlation between the two sets of values to be strong, a finding which echoes Parker and Brorson's (2005) finding. The final decision about whether the MLUw or the MLUm calculation is a more appropriate means of calculating language development rests with the linguist performing an investigation.

In this context, it was also interesting to note that the MLU calculations performed on the present data resulted in higher values for the children's mixed utterances compared to their monolingual utterances. Marked differences in value were noted for both children. A similar finding is previously made by Lanza (1997b), who interpreted it as meaning that mixed utterances are "a resource, rather than an instance of confusion" in a multilingual child's language production (Lanza, 1997b: 133). Based on this interpretation, the mixed utterances produced by the children in the present case study are also to be seen as a resource.

In their use of resources from two or more languages in their speech, multilingual children can be compared to multilingual adults, for whom such behaviour, equally, is reported in the literature (cf. Myers-Scotton, 1993; 2006). A more detailed analysis of how the linguistic behaviour of these two groups of speakers compares and contrasts is outside the scope of the present thesis. It is, however, of considerable interest in the discussion of whether the adult way of using the resources has any influence on how children make use of them.

Having explained the exposure to each of the languages and having discussed language development by means of calculating the Mean Length of Utterance, the chapter then proceeded to present and discuss the language choices available to each family member when it comes to communicating with each other, either jointly or individually. Examples of each child's language production were provided for the dyadic interactions child-mother, child-father, and child-sibling. The custom in the family is that the mother interacts with the children in Croatian, while the father interacts with them in German. German is also the *family language*, that is, the language which the members of the family speak to each other when they are assembled. English is generally spoken between family members only in interactions with members of the wider community and with those relatives and friends who are either monolingual in English or who are multilingual themselves but who do not share any of the other languages spoken in this family.

An analysis of audio-recorded interactions, however, shows that the expectations as to language choice in individual interactions are not always strictly adhered to. Specifically, some interactions between the children and the mother are recorded as not involving the expected language of Croatian but rather one of the other two languages or a combination of two or more of them. However, compatibility is observed with regard to the language spoken by the mother and the response given by each child: for EK, this compatibility amounts to 64%, and for IF, compatibility is even higher and reaches approximately 83%. In other words, 36% of utterances made by EK and 17% of utterances made by IF are made in a language other than the language of the mother's initial utterance.

It is only the interactions between the father and the children which are recorded as involving almost exclusively (with the sole exception of example 4.14) the expected language, that is, German. It should be remembered, however, that this finding is made on the basis of an altogether smaller data corpus compared to the data corpus of utterances involving the mother and the sister, which is why this finding may lack reliability.

With respect to interactions between the sisters, it is observed that they utilise the language which best fulfils their need at a particular time. English, however, is frequently their choice in this setting. This may be because most interactions are "play", and English is the language of play in the wider community.

Compared to the beginning of the period of observation, interactions with the mother in the second half of the period of observation have shown to be conducted more frequently in the expected language for this setting, that is, Croatian. This is especially true of IF's interactions with her mother (see Tables 4.26 to 4.28 above), but a tendency is also noted in the case of EK (illustrated in examples (4.34) to (4.36) above).

To summarise, although the pattern of language choice tends to be similar for both children, EK's language choice is observed to be less constrained than

IF's. EK's utterances in response to the mother's Croatian prompts are made up of a higher percentage of utterances in a language other than Croatian, or in a combination of two and three languages (cf. Tables 4.22 to 4.24). By contrast, IF's responses to the mother's Croatian involve monolingual Croatian in over 80% of the utterances, with a generally lower percentage of other language utterances compared to EK. No trilingual utterances are recorded in IF's audio recorded data in this setting (cf. Tables 4.26 to 4.28).

It has been suggested that children make 'inappropriate' language choices for reasons of language immaturity rather than due to a lack in language sensitivity (Döpke, 1992b; Lanza, 1997b). The children in the aforementioned studies are found to differentiate perceptually between their three languages, although they are seen to make "seemingly inappropriate language choices" (Lanza, 1997b: 132).

The focus in the next chapter, Chapter 5, is on the incidence of mixed utterances in recorded speech samples from the children in this study. This is an important part of the investigation into the nature of these children's utterances as it shows the frequency with which bi- and trilingual utterances are made in contrast to monolingual ones.

CHAPTER 5

QUANTITATIVE ANALYSIS OF MIXED UTTERANCES

The focus of the present and of the subsequent chapter is on mixed utterances in the speech of the children in this case study. It was seen in Chapter 4 that mixed utterances are in evidence in the speech of the two children under study. They are recorded to occur in the children's interactions involving the mother and the sibling. In interactions with the father, it is recorded that utterances are produced in monolingual German.

The nature of the children's utterances is being explored by means of a quantitative and a qualitative analysis of the data collected in this study. The quantitative analysis, performed in the present chapter, quantifies the incidence of monolingual and mixed utterances (both bilingual and trilingual ones) in the children's speech and it looks at the distribution, in the bilingual data corpus, of the language pairs Croatian-German, Croatian-English and German-English. It is expected that there will be a numerical difference between the data from the written notes as opposed to the data from the audio recordings: the audio recordings are the bigger source of data and it is expected that quantitatively more utterances are available for analysis. However, the written notes are a relevant data source because, as pointed out in section 3.3 on data collection, they were utilised to record, *inter alia*, specifically mixed utterances. Both data sources are considered to supply relevant data for the exploration of the nature of these children's utterances.

In what follows, a quantitative analysis of the children's mixed utterances is performed on the utterances recorded during a ten-month period of observation. At this stage, it is not necessary to divide the period of observation into a first half and a second half (as was done in Chapter 4) because the relevant data are considered cumulatively for the purpose of a statistical overview of the incidence of mixed utterances.

1. OVERVIEW OF THE INCIDENCE OF MIXED UTTERANCES

Table 5.1 presents a count of the children's bi- and trilingual utterances and rounded-up percentages of their occurrence in each child's overall language

production, as recorded by audio means and in written notes. A preliminary analysis of the children's data corpus reveals that bilingual utterances (Biling. Utt.) are represented more widely in the children's speech than are trilingual utterances (Triling. Utt).

Table 5.1: Incidence of multilingual utterances from the thesis' data corpus

Data Source	EK			IF		
	Total Number of Utt.	Biling. Utt.	Triling. Utt.	Total Number of Utt.	Biling. Utt.	Triling. Utt.
Written Notes	315	103 32.70%	35 11%	272	57 20.96%	6 2.21%
Audio Recordings	657	49 7.46%	8 1.22%	392	21 5.36%	1 0.26%

When the percentage of bi- and trilingual utterances (Biling. And Triling. Utt.) per data source is added up, it is obvious that they make up a minority of the children's overall number of utterances compared to their monolingual utterances (Monoling. Utt.). This can be seen in Table 5.2.

Table 5.2: Incidence of monolingual utterances

Data Source	EK			IF		
	Total Number Of Utt.	Biling. And Triling. Utt.	Monoling. Utt.	Total Number Of Utt.	Biling. And Triling. Utt.	Monoling. Utt.
Written Notes	315	138 43.81%	177 56.19%	272	63 23.16%	209 76.84%
Audio Recordings	657	57 8.68%	600 91.32%	392	22 5.61%	370 94.39%

Table 5.2 shows that monolingual utterances are in the majority during the period of observation in both children's language productions, regardless of which data source is considered. It should be remembered, though, that the

written notes were biased toward recording multilingual utterances (cf. Chapter 3), and that this may explain the smaller difference between the incidence of multilingual vs. monolingual utterances.

It can be argued that the audio recordings provide a more representative sampling of the children's language production than do data from the written notes because they provide longer stretches of continuous speech. If, then, only the relevant data from the audio recordings are considered, it can be seen that mixed utterances (bi- and trilingual ones) make up a comparatively small percentage of the total number of utterances per child. The difference in the percentages of monolingual utterances in the audio recordings between the two children indicates that EK's language use is less constrained than is IF's. In other words, EK makes more use of mixed utterances than does her younger sister.

What follows is a quantitative analysis of this thesis' data corpus with respect to the incidence of the two types of mixing, that is, intra- and inter-utterance mixing (cf. section 2.7 in Chapter 2). The analysis is performed for each child separately, taking into consideration first the bilingual data, followed by the trilingual data. In this, the present thesis follows a procedure previously encountered in Stavans and Swisher's (2006) study, in which the incidence of both types of mixing is calculated before a qualitative analysis is performed on the relevant data in Chapter 6. The purpose of this analysis is to take another step on the path to investigating the nature of the utterances produced by the children in the present study.

2. BILINGUAL DATA

The bilingual data utilised for the analysis of the incidence of intra-utterance (Intra-utt.) vs. inter-utterance (Inter-utt.) mixing stems from both data sources used in this thesis, the written notes and the audio recordings. It will be seen that intra-utterance mixing has a markedly higher incidence in the data than does inter-utterance mixing (cf. Table 5.3).

Table 5.3: Incidence of bilingual intra-utterance and inter-utterance mixing

Bilingual Utterances	EK			IF		
	Total	Intra-utt.	Inter-utt.	Total	Intra-utt.	Inter-utt.
Written Notes	103	102	1	57	57	n/a
Audio Recordings	49	43	6	21	19	2

The findings in Table 5.3 indicate both children's preference for mixing within one and the same utterance. With regard to inter-utterance mixing, it is interesting to note the numerical difference across the two data collection sources: the data from the audio recordings note a higher incidence of inter-utterance mixing than do the data from the written notes. However, the sample is, arguably, too small to give reliable statistics. Nevertheless, the divergence can be explained by the fact that audio recordings note longer stretches of conversation, which may include instances consisting of several utterances. Speech samples recorded in the written notes are necessarily shorter as the investigator may not be able to remember and write down longer stretches of conversation. In addition, as mentioned in the previous section and in Chapter 3, the samples in the written notes are also biased to specific occurrences. Nevertheless, whatever the data collection method utilised, the incidence of inter-utterance mixing is small in both cases.

Due to the predominance of intra-utterance mixing observed in this study, the focus of attention henceforth is on this type of utterance. Under investigation is the incidence of the participating languages in bilingual intra-utterance mixing. On the basis of three participating languages, possible language combinations per utterance involve Croatian-English, Croatian-German and English-German. The sequence of the languages of each language pair in an utterance is of no consequence in this calculation. The aim is to investigate the children's possible language preference.

Based on the knowledge that Croatian and German are the languages utilised most frequently in the family home (cf. Chapter 4), where the majority of recordings are made, it is expected that the incidence of utterances involving this language pair outnumbers either of the two other pairs, Croatian-English and German-English. Tables 5.4 and 5.5 present the incidence of each language pair in the case of intra-utterance mixing for each of the two children. The figure in brackets indicates the number of utterances in which the morpheme count per language is equal.

Table 5.4: Incidence of bilingual mixing per language pair for EK

Bilingual Utterances	Total Number of Utterances	Croatian-German (Instances of ambiguous data*)	Croatian-English (Instances of ambiguous data)	German-English (Instances of ambiguous data)
Written Notes	103	57 (+11)	10 (+3)	20 (+1)
Audio Recordings	49	10 (+3)	19 (+3)	12 (+2)

   * Instances of ambiguous data involve utterances in which the number of
    morphemes per language is the same.

In the case of the elder child EK, the Croatian-German language pair is in the majority in the data corpus recorded in the written notes. However, in the data corpus from the audio recordings, the language pair involving Croatian-English has a higher count than the other two language pairs.

Table 5.5: The incidence of bilingual mixing per language pair for IF

Bilingual Utterances	Total Number of Utterances	Croatian-German (Instances of ambiguous data*)	Croatian-English (Instances of ambiguous data)	German-English (Instances of ambiguous data)
Written Notes	57	15 (+7)	16 (+2)	14 (+3)
Audio Recordings	21	5 (+4)	8 (+2)	1 (+1)

* Instances of ambiguous data involve utterances in which the number of
morphemes per language is the same.

In the case of the younger child IF, the apparently preferred language
combination for bilingual mixed utterances from both data collection means
involves Croatian-English, closely followed by Croatian-German and then
German-English.

The most popular language combinations in bilingual mixed utterances
recorded in the written notes involve Croatian for both children, either in
combination with German (in the case of EK), or in combination with English (in
the case of IF). A possible explanation for this finding is the fact that Croatian is
the language of choice for the mother in conversation with the children. It is also
the language of the majority of the children's responses to their mother's
prompts (see Chapter 4). The preference for German and English by EK and IF
respectively may be related to the recording session, the topic of conversation
and/or the child's preference.

The difference in the number of utterances per language pair as recorded in the
written notes in Table 5.4 is considerable, with 57 identifiable utterances
involving Croatian-German and (only) 10 involving Croatian-English and 20
involving German-English. As can be seen, the count is overwhelmingly in
favour of the language pair Croatian-German. Possible reasons for this
observation are twofold: (i) Croatian and German are the two languages utilised
most in the home environment, in which the majority of the recordings were
made, which is why EK apparently uses these two languages the most; and (ii)
Croatian and German are the languages with which the mother herself grew up
bilingually. Consequently, in recording mixed utterances in the written notes, the
mother may have been biased towards this language pair. The fact, however,
that all three language combinations are distributed more evenly in the data
from the written notes for the younger child IF (see Table 5.5), suggests that the
presumption of the mother's bias may be ill-placed here. Rather, the
observation made in the case of IF may validate the finding that EK produces
the majority of mixed utterances with the language pair Croatian-German.

The audio recordings, frequently involving the children at play by themselves, note the apparent preference for the language combination involving Croatian-English in both children's cases. It was seen in Chapter 4 that conversations between the siblings frequently involved English, with the use of some Croatian and German. This might explain the slight predominance in mixing of the language pair Croatian-English over the other two language pairs.

3. TRILINGUAL DATA

Table 5.1 gives an indication as to the incidence of trilingual utterances: they are recorded in the elder child EK's speech quantitatively more than in her sister's speech. Table 5.1 also shows a numerically higher incidence of trilingual data in the written notes as opposed to the relevant data from the audio recordings. As explained at the beginning of this chapter, the higher incidence of mixed utterances in this study's written notes compared to the audio recordings is not surprising, considering that one of the purposes of the notes was to record utterances involving more than one language in situations in which audio recordings were unavailable. Generally, however, a relatively low percentage of trilingual utterances is recorded in the whole data corpus for both children.

This section on trilingual data is less comprehensive than the previous section on bilingual data for two reasons: firstly, all recorded trilingual utterances involve intra-utterance mixing, a fact which renders a calculation and discussion of the incidence of intra- vs. inter-utterance mixing in this context superfluous, and secondly, because trilingual data deals with utterances involving *three* languages, an exploration of *language pairs* is not applicable. How the three languages are distributed in the children's trilingual utterances is investigated in Chapter 6, which analyzes mixed utterances qualitatively.

4. SUMMARY

Taking into consideration the findings from Tables 5.1 to 5.5, six observations can be made with regard to the incidence of mixing in this case study:

- Mixing is seen to occur in both children's speech, but it is recorded to be a more frequent occurrence in the speech of the elder child EK.

- Bilingual utterances outnumber trilingual ones, as shown in the overview in Table 5.6:

Table 5.6: Percentage of bi- and trilingual utterances with regard to the total number of utterances

Child	Total Number of Utterances	Bilingual Utterances	Percentage of Bilingual Utterances	Trilingual Utterances	Percentage of Trilingual Utterances
EK	972	152	15.64%	43	4.42%
IF	664	78	11.75%	7	1.05%

- The language pairs featuring Croatian with either German or English are represented more frequently in bilingual mixing than the language pair German-English.

- There is evidence in the bilingual and the trilingual data that intra-utterance mixing is more prevalent than inter-utterance mixing.

- Audio recordings appear to be the data source with a higher incidence of inter-utterance (bilingual) mixing.

- In this thesis, audio recordings are regarded as the data source which provides the more representative data because they are the source of longer stretches of continuous speech.

CHAPTER 6

QUALITATIVE ANALYSIS OF MIXED UTTERANCES

1. INTRODUCTION

The present chapter is an investigation into the nature of mixed utterances produced by the children in this study. In preparation for this analysis, Chapter 5 presented and discussed other relevant data and information. It was seen, for example, that the majority of the children's utterances from the data corpus accumulated over the ten-month period of observation are in the form of monolingual utterances. Mixed utterances, however, were also observed and recorded. It is these which are the focus of attention in the present chapter. This study's data corpus reveals that both bilingual and trilingual utterances are in evidence in in the speech of both children. Bilingual mixed utterances are recorded more frequently than are trilingual utterances, and the elder child EK apparently produces more mixed utterances than does her younger sister.

The mixed utterances under consideration in this chapter involve intra-utterance mixing, which means that mixing occurs within one and the same utterance rather than between two utterances. Within this type of mixing, the present thesis distinguishes two sub-types of mixing: (i) whole-word mixing, and (ii) word-level mixing. In the field of BFLA, both types of mixing have been reported (e.g. Gawlitzek-Maiwald and Tracy, 1996; Saunders, 1988), while in the field of TFLA, only a few trilingual utterances are identified in all (e.g. Hoffmann and Widdicombe, 1999; Stavans and Swisher, 2006), and they tend to involve whole-word mixing. Word-level mixing involving trilingualism is reported in only one of the studies consulted for the purposes of the present thesis, that by Stavans and Swisher (2006). Other trilingual case studies note that "no examples were found in which all three languages could be clearly identified" (Barnes, 2006: 221).

Whole-word mixing involves the insertion of whole words from Language A and/or Language Alpha into an utterance in Language Aleph (cf. Chapter 1). Because the insertions can involve items from one *or* two languages, whole-word mixing is observed in both bilingual and trilingual utterances. *Word-level mixing*, by contrast, involves instances in which an item (word) consists of

elements (morphemes) from two (or more) languages. For example, if the utterance is in Language Aleph, the content (or lexical) morpheme of an item may be in the same language, but the system (or grammatical) morpheme may stem from Language A. Alternatively, the content morpheme may be supplied by Language A, while the system morpheme comes from language Aleph. This would be an instance of a *bilingual* utterance involving mixing at the morphological level. An item in an utterance in Language Aleph could also consist of elements from the two remaining languages, Language A *and* Language Alpha. In such an instance, one would describe this utterance as a *trilingual* utterance with mixing at the morphological level.

When making a distinction between different types of mixing, Sinka (2000) talks of lexical as opposed to morphological mixing. For Sinka (2000), lexical mixing involves items which are content words and have descriptive content (e.g. nouns, verbs, adjectives, adverbs and prepositions). Items which "have a grammatical function and carry information about grammatical properties such as tense, agreement and case" (Sinka, 2000: 158) are involved in so-called morphological mixing.

According to Sinka (2000:159), lexical mixing is observed in the utterance '**It's a suns**' ('it's a dog', where '*suns*' is a Latvian noun inserted into an otherwise English utterance). An instance of morphological mixing for Sinka (2000) is '*tas ir* **recording**' ('that is recording'), made in an English setting and involving Latvian words which have a grammatical function.

This distinction, however, is insufficient for the purposes of the present thesis, because instances are recorded in the children's speech in which content words in one language contain grammatical morphemes from another language. An example of this comes from data collected for the elder child EK (the languages are coded as follows:
Croatian – underlined,   **English – bold**,   *German – italics*)

(6.1)   EK (3;5)   Anne *ge*nosila **teddy**ja od Carle.
                    'Anne carried (a) teddy of Carla's.'

In this instance, two content words, a verb ('<u>nosila</u>') and a noun ('**teddy**') are appended with grammatical morphemes (the German past tense marker '*ge-*' and the Croatian noun case ending '-<u>ja</u>' respectively). This instance of mixed utterance would be said to involve word-level mixing because the relevant grammatical morpheme stems from a language which is different from the language of the lexical morpheme itself. Based on a majority morpheme count, Croatian is the ML in this utterance which also contains German and English morphemes.

Whole-word mixing, on the other hand, is involved in instances such as the one produced by IF:

(6.2)   IF (1;7)   **My** *wollte* <u>pisati</u>.
                'I wanted to write.'

In this case, the utterance contains two grammatical words (the personal pronoun '**my**' and the auxiliary verb '*wollte*') and what Sinka (2000) calls a content word (the verb '<u>pisati</u>'). The German '*wollte*' and the Croatian '<u>pisati</u>' each involve the correct grammatical morphemes for that language. This instance of mixing is, therefore, termed whole-word mixing.

In the context of whole-word and word-level mixing, this thesis tests the applicability of some previously proposed constraints (Myers-Scotton, 1993; 2006; Poplack, 1980). The relevant constraints involve Poplack's (1980) Free Morpheme Constraint and the Equivalence Constraint, as well as constraints proposed by Myers-Scotton (1993; 2006) within the Matrix Language Frame model (see section 2.8 in Chapter 2).

As the Free Morpheme Constraint involves a switch to another language within one and the same word, this will be relevant for word-level mixing in section 3 of the present chapter. Poplack's (1980) Equivalence Constraint, however, specifies that a switch to another language is possible where the word order in an utterance is the same for the participating languages immediately before and

immediately after a switch point. This specification involves what this thesis terms whole-word mixing and is discussed in the next section.

Myers-Scotton's (1993; 2006) constraints involve the distinction between the roles each participating language has in a mixed utterance. One of the languages is said to supply the morphosyntactic frame of an utterance and is called the Matrix Language (ML), while the other language participates by providing some content (or lexical) morphemes and is termed Embedded Language (EL). Crucially, the suggested constraints specify that in mixed utterances the word order and all system (or grammatical) morphemes are supplied by the ML.

The analysis in the present section investigates the applicability of these constraints on its own data. It was seen in section 2..8.b of Chapter 2 that the identification of the role of the participating languages in children's mixed utterances according to Myers-Scotton's (1993) MLF model is not always straightforward (Lanza, 1997b; Paradis, Nicoladis and Genesee, 2000; Vihman, 1998). Furthermore, it is found that limitations of grammatical development in children may have implications for the applicability of constraints (Meisel, 1994a; Paradis, Nicoladis and Genesee, 2000). The relevant ML/EL identification in the present section is performed on the basis of a majority morpheme count per utterance.

2. WHOLE-WORD MIXING

This section of the thesis analyses a type of mixing involving whole words. In view of the proposed investigation, especially with regard to Myers-Scotton's (1993; 2006) constraints, the distinction between the two participating languages is of essence. The identification of the ML and the EL is, therefore, discussed prior to analysing, qualitatively, the children's mixed utterances in the present chapter. Each example provided in this chapter involves the utterance itself, the gloss, and/or the translation (or interpretation) of that utterance (cf. example (6.4) below).

2.1 ML/EL IDENTIFICATION

In view of the differentiation between the ML and the EL, and within the context of the three languages available to the children in this study, it transpires that six possible bilingual combinations emerge, as outlined in Table 6.1.

Table 6.1: Language combinations involving the three languages

ML	EL
Croatian	English
English	Croatian
English	German
German	English
German	Croatian
Croatian	German

According to the definitions of ML and EL in the Introduction to Chapter 6, identifying these in a mixed utterance could prove to be quite straightforward. This is seen in example (6.3):

(6.3)   EK (3;5)   Mama, **we have** *genug* **food**.
                           'Mum, we have enough food.'

In (6.3), according to Myers-Scotton's (1993; 2006) definitions of the ML and the EL, "English is the ML because it supplies the utterance's morphosyntacic frame, while German is the EL language, supplying a lexical morpheme."

However, matters are not always so straightforward. Consider, for example, the following:

(6.4)   EK (3;4)   <u>Ja imam</u> *viele* <u>godine</u>.
                           I have many years
                           'I am very old.'

Clearly, this utterance has a majority morpheme count in Croatian (<u>ja</u>, <u>ima</u>-<u>m</u>, <u>godin</u>-<u>e</u>). One criterion for identifying the ML is, therefore, fulfilled. The other criterion for establishing the ML is Myers-Scotton's (1993; 2006) suggestion that the utterance's morphosyntactic structure is supplied exclusively by the ML (in this case, it should be Croatian). As suggested by Myers-Scotton (1993; 2006), the apparent EL in example (6.4), German, supplies a content morpheme, an adjective. In addition, however, German also supplies a system morpheme (the adjectival suffix), and this goes contrary to Myers-Scotton's (1993; 2006) proposal in her Matrix Language Frame (MLF) model, according to which the EL supplies solely content morphemes. The ML/EL identification is further complicated by the utterance's syntax: the observed SVO word order is a permissible construction in both Croatian and German. The identification of the ML in this instance, therefore, remains ambiguous. Such findings limit the applicability of Myers-Scotton's (1993; 2006) proposed rules as the utterance's morphological elements do not stem exclusively from the ML. Furthermore, the typological closeness of the languages with regard to word order in this instance does not permit an unambiguous identification of the source language of the utterance's syntax.

These are difficulties encountered in a large proportion of the present study's data involving bilingual mixed utterances, irrespective of the language pair considered. Compare, for example, the following German-English (6.5) and Croatian-English (6.6) utterances:

(6.5) EK (3;1) *Nein,* **you have** *blaue Nase.*
               no you have blue nose
               'No, you have a blue nose.'

In (6.5), both participating languages are observed to supply content morphemes (**you**, **have**, *blaue*, *Nase*), something which is uncontroversial according to Myers-Scotton's MLF model. What is controversial, however, is the fact that both languages also supply system morphemes, in the form of grammatical elements (the marking of the verb **have** for person and number in English, and the marking of the German adjective *blau* with the relevant case

ending for gender and number). With this, one of the basic tenets of Myers-Scotton's (1993; 2006) MLF model, the notion than only one language sets the grammatical frame of the utterance, is not observed. Moreover, the utterance in (6.5) follows a word order (SVO) which is permitted in both participating languages. Therefore, two languages are seen to supply elements of the utterance's morphosyntactic structure, which makes both languages possible candidates for the role of the utterance's ML. However, according to a majority morpheme count, German is the ML in (6.5).

In the Croatian-English utterance below, a similar observation is made.

(6.6)   EK (3;0)   Irene **want** <u>pisati</u>.
                    Irene want to write
                    'Irene wants to write.'

In (6.6), English provides an auxiliary verb (a term utilised in a similar context by Döpke (2000a)), while Croatian provides the main verb. The personal name 'Irene' is not included in the morpheme count because personal names are considered not to be language-specific in this thesis (cf. Chapter 3). The auxiliary verb counts as a system morpheme and, thereby, contributes to the utterance's morphosyntactic structure, just as does the main verb. By virtue of this, both participating languages could be considered as ML. Again, the word order in example (6.6) is available in both languages and is, for this reason, not a distinguishing feature.

Another difficulty in identifying an utterance's ML and EL is found in those mixed utterances in which the syntactic frame is completely unidentifiable with regard to its source language. This is illustrated in example (6.7):

(6.7)   EK (2;9)   Eleanor *so machen* **can't**.
                    Eleanor so do can't
                    'Eleanor can't do it that way.'

Neither of the two participating languages in (6.7), German and English, permits a syntactic structure of this kind, although it could be considered acceptable

were it uttered in monolingual spoken Croatian. In addition, both participating languages are involved in supplying system morphemes to the utterance: German is the source of the infinitival suffix to the main verb (-*en*), while English supplies the auxiliary verb and an adverb (both system morphemes). This is not permitted according to Myers-Scotton's (1993; 2006) MLF model. A majority morpheme count identifies German as the ML in this utterance.

The complications exemplified in (6.4) to (6.7) above are indicative of some of the basic difficulties encountered in the identification of the ML and the EL according to the premises made by Myers-Scotton (1993; 2006). Her suggestion with regard to the function for each of the languages may be applied only in a very limited fashion to instances of whole-word mixing from the present study. In the context of children growing up with two or more languages, other means of identifying the ML and the EL are required as Myers-Scotton's (1993; 2006) model does not permit unambiguous ML/EL identification in this context.

2.2 SUGGESTED ALTERNATIVE MEANS OF ML/EL IDENTIFICATION

Two means of identifying the ML and the EL in children's mixed utterances are suggested and put to the test by Tracy (2000). Firstly, there is the *language of conversation*, that is, the language which is generally spoken in a specific situation, or the language spoken by the interlocutor immediately prior to the child's utterance. Secondly, it is suggested that "the language of the majority words or morphemes or the types of categories involved" (Tracy, 2000: 18) may be a relevant criterion in this context.

The first point, that is, the notion of the *language of conversation*, is illustrated by Tracy (2000) in two examples:

(6.8)   das bateau (the boat),

(6.9)   das vache (the cow).

In both examples not only do the participating languages involve German and French, but they also both involve a noun phrase (NP) in which the determiner is in German and the noun in French. However, based on the criterion of language of conversation as being that which is spoken by the interlocutor, the ML in (6.8) is reported to be German, while in (6.9) it is French. For this reason, the EL element in (6.8) is the French noun (*bateau*), while in (6.9) it is the German determiner (*das*).

The difficulty with the criterion of *language of conversation* in determining the ML and the EL, however, is the fact that a child in his or her retort to an interlocutor's comment may not be influenced by the language this person uses. An example which illustrates this difficulty is taken from this thesis' data corpus and includes a situation in which the whole family and a native German speaker are involved. The adults in this situation speak German among themselves and also with the children. The mother turns to the younger child and asks her to return a colouring pen to a drawer: *Franka, tu den Stift bitte wieder in die Schublade.* ('Franka, put the pen please back into the drawer.'). The immediate reponse by the elder of the two children is a justification why this cannot be done:

(6.10)   EK (3;0)   Irene **want** <u>pisati</u>.
                         Irene want to write
                         'Irene wants to write.'

Although the whole situation involves German, and even the immediately preceding parental remark is in German, the child responds with a bilingual utterance which does not involve German at all. The language of conversation in this situation is, therefore, seen to be very dynamic and to involve a change not just between the two interlocutors themselves but also within the child's utterance itself. Precedence over the criterion of language of conversation in this instance seems to involve the child's immediate need to formulate an adequate response: the content of what the child wishes to express apparently determines the language(s) utilised, over and above the notion of language of conversation. This confirms Tracy's (2000) finding that children may have a

different notion of what constitutes the language of conversation than adults, or, alternatively, that they may not always be influenced by what is perceived by the adult to be the language of conversation.

The second suggestion made by Tracy (2000) to facilitate the identification of the ML and the EL involves a majority word or morpheme count. This criterion too, however, is not without its problems, as Tracy (2000) points out, citing especially utterances which are short, "which they usually are in the early phases of language acquisition" (Tracy, 2000: 18). An example taken from the present thesis' data illustrates this:

(6.11)   IF (1;09)   **That is** *meins.*
                      'That is mine.'

With regard to a word count, this utterance contains two words from English and one word from German. With regard to a morpheme count, however, both languages share the same number of morphemes, which is two (English: **that**, **is**; German: *mein-s*). The morpheme count in (6.11), therefore, is not a distinguishing factor with regard to the ML/EL distinction. As for the previously discussed criterion of language of conversation, it cannot be applied to (6.11) because the remark was made by the younger child spontaneously, immediately following random humming by the elder child. The situation itself in this recording involved Croatian, as spoken in situations involving the mother and the children. Nevertheless, the languages utilised in (6.11) involve the child's other two languages, English and German. In this, (6.11) is comparable to (6.10) above, in that the child's utterance is apparently not influenced by the so-called language of conversation.

Both sets of criteria utilised for determining the ML and the EL in (6.11) have, evidently, not been wholly fruitful. An additional suggestion made by Tracy (2000) is that "additional aspects (such as word order, functional architecture)" (Tracy, 2000: 18) be taken into consideration. However, due to the typological similarity of the two languages, English and German, word order in (6.11) is not a distinguishing feature and therefore not of assistance in this matter.

With regard to the majority morpheme count, a difficulty described by Tracy (2000) also lies in the arbitrariness by which morphemes are allocated to a source language. Tracy illustrates this by the following example (Tracy, 2000: 19):

(6.12)   Puppet-s guck-en
                puppets (to) look

Tracy argues that if the –s is taken to represent English plural, then this utterance has an even distribution of morphemes, two for English (*puppet-s*) and two for German (*guck-en*). If, however, the –s is taken as a German ending, the utterance becomes a "*mixed mainly German*" (Tracy, 2000: 19) utterance. Tracy suggests that "the ambiguity cannot be resolved" (Tracy, 2000: 20) but the fact can be noted that „both interpretations are justified" (*ibidem*). Examples (6.4) to (6.7), (6.10) and (6.11) show evidence of the need to consider several interpretations of the relevant elements involved in mixed utterances.

In summary, because of the difficulties encountered in applying Myers-Scotton's (1993; 2006) proposed criteria for determining the ML and the EL to data from this thesis, other means, suggested by Tracy (2000), have been explored. The discussion in this section highlights the suggestions made by Tracy (2000) and the criteria which could aid the identification of the ML and the EL in children's mixed utterances: (i) the language of conversation, (ii) a majority morpheme count, and (iii) the word order. Difficulties have been identified with regard to the applicability of all three criteria to children's mixed utterances, both by Tracy (2000) and in the present study. In addition, Tracy (2000) illustrates the complexity of allocating morphemes to their source language (cf. example (6.12) above), a difficulty also encountered in the present thesis (cf. section 2.6 a in Chapter 3, example (6.13) below and examples (6.144) and (6.145) in section 3 of this chapter).

In the process of testing the applicability of the various means of identifying the ML and the EL, it is found that various criteria may be applied, but that they all have their limitations. This gives rise to ambiguities which sometimes cannot be

resolved. The outcome for instances in which none of the criteria is absolutely applicable lies in what Tracy (2000) suggests are multiple interpretations of a child's mixed utterances. In section 2.6 a in Chapter 3, the present study suggests that any ambiguous individual element in a mixed utterance should be excluded from the analysis, while the remainder of the elements are retained. An instance of this can be found in the example produced by EK (aged 3;1):

(6.13)   **Come on** *in Wohnzimmer lesen eine* <u>lijepu</u> *Geschichte,* <u>molim</u>.
           come on in living room read a nice story please

In this instance, the ambiguous German-English preposition 'in' is excluded from the analysis. Although it could be argued that the English language would require the preposition 'into' in this instance rather than 'in', which could indicate that this preposition might stem from German, the data corpus in this study does not provide evidence for the use of 'into' by either child at this period of time. The source language of the preposition, therefore, remains ambiguous.

In utterances in which ML identification is complicated by features which run contrary to Myers-Scotton's (1993; 2006) proposed constraints, it is difficult to identify a single criterion which is generally applicable. However, the majority morpheme count, either by itself or in conjunction with the sociolinguistic factor of language of conversation, could be given some consideration. Indeed, it has been suggested that only in short, two-word utterances can a morpheme count result in two languages sharing the same number of morphemes (Tracy, 2000). However, it is found in data from the present thesis that three-word bilingual utterances with the same morpheme count are recorded (cf. example (6.11) above and (6.15) below), as is a single bilingual four-word utterace (6.14):

(6.14)   EK (3;5)   **We need that** *fotokopieren.*
                     'We need to photocopy that.'

In (6.14), English and German have three morphemes each: **we need that** and *foto-kopier-en.*

Although these findings make the criterion of a morpheme count for the purpose of ML/EL identification less straightforward, it is necessary to keep in mind that evidence of this is rare in the present data. In effect, example (6.14) is the only example of its kind encountered in this data corpus, and ML/EL identification by means of a morpheme count has shown to provide less ambiguous results than do Myers-Scotton's (1993; 2006) proposed constraints.

2.3 DATA EXCLUDED FROM PRESENTATION

Whilst performing the majority morpheme count on the bilingual mixed utterances from the children in the present thesis, some relevant observations were made which have consequences for the selection of the utterances to be presented. So, for example, instances were identified in which the ML and the EL cannot be determined due to the equal number of morphemes from the participating languages. Examples of such an utterance can be seen in (6.11) and (6.14) above and in the following example:

(6.15)   EK (3;5)   <u>Ja</u> *anzieh'n* <u>gaće</u>.
                           I (to) put on knickers
                           'I am putting on (my) knickers.'

This utterance involves three morphemes, both lexical and grammatical in kind, from Croatian (<u>ja</u>, <u>gać</u>-, -<u>e</u>) and from German (*an*-, *zieh*-, -'*n*). This finding prevents ML identification both according to Myers-Scotton's (1993; 2006) criterion and according to a majority morpheme count. Bilingual utterances of this kind are excluded from presentation in the present chapter. The reason for this decision lies in the fact that such mixed utterances involve whole-word mixing in which each word contains language-appropriate lexical and/or grammatical morphemes. It depends on socio- and psycholinguistic factors and the communicative situation itself which languages are utilised. Apart from demonstrating that ML/EL identification is ambiguous, mixed utterances with the same morpheme count per participating language do not provide other information which could be of specific interest for the discussion in this thesis. Omission of bilingual utterances in which ML/EL identification is not possible is

not seen as problematic, as the relevant qualitative analyses can be performed on the remaining bilingual data. (The case of trilingual mixed utterances with the same morpheme count per participating language is considered separately in section 2.5 of this chapter.)

The overall proportion of *bilingual* mixed utterances which share the same number of morphemes is relatively small in the present study. For EK, the proportion lies at 13.5% of her bilingual mixed utterances (or 25 utterances out of 185). For IF, the proportion is 16.1% (or 14 utterances out of 87). The difference in the proportion of utterances which share the same number of morphemes between EK and IF is relatively small and attributable to the children's age difference and their respective stage of language development. The younger child IF produces more short utterances than does her elder sister EK. The probability that an utterance shares the same number of morphemes per language is higher in short (frequently, but not exclusively, two-word) utterances than in longer utterances, that is, utterances which consist of more than two words. This was seen in the fact that only a single four-word bilingual utterance with the same morpheme count per language was recorded throughout the period of observation. The incidence of three-word bilingual utterances with the same morpheme count was higher.

Obviously, whether or not such mainly short utterances are produced by the children at all depends not only on the child herself and the stage of her language development, but also on the communicative situation, which may or may not prompt the child to produce them. It also depends on the general trait of the child's talkativeness. Short utterances may be in the nature of some types of interaction. The proportion calculated here applies solely to the bilingual data collected in this study during the period of observation. It cannot be generalized to be applicable to other periods of development, nor can it be generalized to be applicable to other children.

In what follows, we shall proceed with presenting examples of bilingual mixed utterances from the children in this study. Section 2.5 subsequently deals with

the children's trilingual mixed utterances. The *bilingual* mixed utterances presented in the next section are laid out in groups of language pairs, according to the participating language combination set out at the beginning of section 2.1 in the present chapter. The ML in these utterances is determined by a majority morpheme count. Other means of ML/EL identification – according to Myers-Scotton's (1993; 2006) definitions of the ML and the EL, and according to the language of conversation – have been seen to be less applicable in the present study and are therefore excluded from the analysis.

2.4 WHOLE-WORD MIXING IN BILINGUAL MIXED UTTERANCES

The utterances in this section are a selection of bilingual mixed utterances from both children in this study, and the data are presented separately for each child. The selection of the mixed utterances presented here is made on the basis of the word class of the EL elements. Originally, Myers-Scotton (1993; 2006) identified EL elements as involving content morphemes (nouns, verbs, adjectives and some adverbs). What Myers-Scotton (1993; 2006) terms content morphemes are items which belong to word classes identified as *open class*. Open class items (cf. Trask, 2007), or open class forms (Evans, 2007), are seen to belong to large word classes which can readily accept new members, such as nouns, verbs, adjectives and (some) adverbs (Crystal, 1992; Evans, 2007; Jackson, 2007). Open class items typically carry referential meaning (Jackson, 2007). There is evidence in the present data, however, of EL elements also involving closed class items (Trask, 2007), or closed class forms (Evans, 2007), that is, items which belong to small word classes and linguistic forms which accept new members only with difficulty. Such word classes and forms involve, for example, pronouns, prepositions, determiners, conjunctions, auxiliary verbs and inflectional morphemes (Crystal, 1992; Evans, 2007; Jackson, 2007). Closed class items typically carry grammatical meaning and bind the content words together (Jackson, 2007).

2.4.a WHOLE-WORD MIXING BY EK

As already explained above, the relevant mixed utterances presented subsequently are grouped according to the participating language combination. The language combination puts the ML in first place, followed by the EL: e.g. "German-English" means that German is identified as the ML and English as the EL. A gloss for each utterance is provided in addition to atranslation of that utterance. The languages are coded as follows: Croatian – underlined, **English – bold**, *German – italics*. The EL item is coded for its source language and its relevant word class.

When the data corpus has multiple utterances in evidence for a specific language combination, the choice of which utterance to present lies with the word class of the EL item: if the EL item is from a word class which has already been exemplified, then the utterance containing such an item is not included. The reasoning behind this choice is the fact that the aim of this section is twofold: to show the variety of word classes available to the children, and to demonstrate that the EL in some bilingual mixed utterances involves more than just content morphemes (as proposed by Myers-Scotton (1993; 2006)). Tables 6.2 to 6.4 present some bilingual mixed utterances produced by the elder child, EK.

Table 6.2: EK's bilingual mixed utterances involving German and Croatian (data from audio recordings)

Example number	Mixed utterance (Child's Age) Gloss Meaning/Translation	Word class of EL item	
		Open	Closed
German-Croatian			
(6.16)	*Aufmach* <u>to</u> *bitte*, mama. (2;9) open that please mummy 'Open that, please, mummy.'		Pron
(6.17)	<u>Opet</u> *schlaf.* (3;1) again sleep '(She is) asleep again.'		<u>Adv</u>

Example number	Mixed utterance (Child's Age) Gloss Meaning/Translation	Word class of EL item	
		Open	Closed
(6.18)	*Honig* <u>ie</u> *gelb*. (3;6) honey is yellow 'Honey is yellow.'	<u>V</u>	
Croatian-*German*			
(6.19)	*Wie* <u>krevet</u>. (2;9) as bed '(That is) like a bed.'		Adv
(6.20)	Da, i Darcy ima čizme *mit* cvjeteke. (3;1) yes and Darcy has boots with little flowers 'Yes, and Darcy has boots with little flowers.'		Prep
(6.21)	<u>Ja imam</u> *viele* <u>godine</u>. (3;4) I have many years 'I am very old.'	Adj	
(6.22)	<u>To je crni</u> *Blümchen*. (3;5) that is black little flower 'That is a little black flower.'	N	

Table 6.2 shows evidence of a number of different word classes in the EL item. These word classes belong to what Myers-Scotton (1993; 2006) terms content and system morphemes, or, in other words, open class and closed class items respectively. Myers-Scotton's (1993; 2006) MLF model does not allow for system morphemes in this position unless the EL item is part of a so-called EL island, that is, of a construct which is produced when morphosyntactic procedures of the ML are inhibited. It is impossible to argue, however, that the EL item in (6.21), for example, is part of an EL island in which the morphosyntactic procedures of the ML are inhibited: in this instance, the EL item is a single word which, on its own, does not show evidence of morphosyntactic procedures. The finding in the present data, therefore, has implications for the applicability of Myers-Scotton's MLF model in this analysis.

In the subsequent two tables, Table 6.3 and Table 6.4, additional bilingual utterances from EK's data are presented. As will be seen, these utterances also

contain EL items which involve a variety of both open class and closed class items.

Table 6.3: EK's bilingual mixed utterances involving German and English (data from audio recordings)

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL Item	
		Open	**Closed**
German-**English**			
(6.23)	Eleanor *so machen* **can't**. (2;9) Eleanor so do can't 'Eleanor can't do it that way.'		Aux V, Adv
(6.24)	*Nein*, **you have** *blaue Nase*. (3;1) no you have blue nose 'No, you have a blue nose.'	**Pron, V**	
English-*German*			
(6.25)	Irene *mit* **baby farmyard**. (2;9) Irene with baby farmyard 'Irene (is playing) with a farmyard for children.'		Prep
(6.26)	**I** *werfe* **chicken**. (3;3) I throw chicken 'I am throwing a chicken.'	V	
(6.27)	*Nein*, **not yet**! (3;3) no not yet 'No, not yet!'		Adv
(6.28)	Mama, **we have** *genug* **food.** (3;5) mummy we have enough food 'Mummy, we have enough food.'	Adv	
(6.29)	**I have** *Löffel*. (3;6) I have spoon 'I have a spoon.'	N	

Table 6.4: EK's bilingual mixed utterances involving English and Croatian (data from audio recordings)

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL Item Open	Closed
English-<u>Croatian</u>			
(6.30)	**He like** <u>aerodrom</u>. (3;3) he like airport 'He likes the airport.'	<u>N</u>	
(6.31)	<u>Tamo je</u> **farmyard**. (3;5) there is farmyard 'There is a farmyard.'	<u>V</u>	<u>Adv</u>
(6.32)	<u>Ja</u> **working**. (3;5) I working 'I am working.'		<u>Pron</u>
(6.33)	**When you are** <u>gotovo</u>. (3;5) when you are finished 'When you are finished.'	<u>Adv</u>	
(6.34)	<u>Što</u> **boy called**? (3;5) what boy called 'What is the boy called?'		<u>Adv</u>
<u>Croatian</u>-**English**			
(6.35)	Irene **want** <u>pisati</u>. (3;0) Irene want write 'Irene wants to write.'		**Aux V**
(6.36)	Mama, **I need** <u>malo mjesta</u>. (3;1) mummy I need a little space 'Mummy, I need some space.'	**Pron, V**	
(6.37)	<u>Ja</u> **make** <u>crni</u>. (3;5) I make black 'I am making it black.'	**V**	
<u>Croatian</u>-**English**			
(6.38)	**May I have the** <u>muziku na ovu kazetu</u>? (3;6) may I have the music on this tape 'May I listen to the music on this tape?'	**Pron, V**,	**Aux V, Det**
(6.39)	<u>Gdje je moj</u> **drawing**? (3;6) where is my drawing 'Where is my drawing?'	**N**	

Tables 6.2 to 6.4, therefore, illustrate the variety of word classes making up the EL items, ranging from open class items such as N, V, Adj and some Adv (as proposed by Myers-Scotton (1993; 2006) previously) to closed class items such as Prep, Pron, aux V, Det and other Adv. As can be seen, the involvement of open class *and* closed class items as EL elements is a feature of EK's speech, irrespective of the language combination involved.

To verify that this relatively large variety of both open class and closed class items in the function of EL items is not particular to utterances recorded on audio tape, representative examples from the other data source, the written notes, have been analysed as well. Because it is undisputed that open class items form part of EL items, the examples selected for Table 6.5 involve exclusively those utterances which provide evidence of closed class items as EL items. All relevant language combinations are presented in the same table.

Table 6.5: EK's bilingual mixed utterances with CLOSED CLASS items as EL item (data from written notes)

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL Item
German-Croatian		
(6.40)	*Kann nicht auf Tür* od *Kinderzimmer.* (3;0) can not open door of children's room 'I cannot open the door to the children's room.'	Prep
Croatian-*German*		
(6.41)	*Kann* objesi *meins* košarica. (2;9) can hang mine basket 'I can hang up my basket.'	Aux V, Det
(6.42)	Golub *darf vom* podu jesti. (3;3) dove may from floor eat 'The dove may eat from the ground.'	Aux V, Prep
(6.43)	Ja *kann* ne to otvoriti. (3;6) I can not that open 'I cannot open that.'	Aux V

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL Item
(6.44)	*Mir* <u>ne hladno</u>. (3;6) me not cold 'I am not cold.'	Pron
German-**English**		
(6.45)	I *zu viel genehmen.* (3;1) I too much taken 'I have taken too much.'	Pron
English-*German*		
(6.46)	**You off to my house** *mit* Grandad? (3;1) you off to my house with Grandad 'Are you off to my house with Grandad?'	Prep
(6.47)	Mama **smaller** *als* tata. (3;1) mummy smaller than daddy 'Mummy is smaller than daddy.'	Comp part
English-<u>Croatian</u>		
(6.48)	**I have** <u>nešto u</u> **pocket**. (3;1) I have something in pocket 'I have something in (my) pocket.'	Pron, Prep
<u>Croatian</u>-**English**		
(6.49)	n/a	n/a

It can be seen in Table 6.5 that closed class items as EL items are not peculiar to EK's mixed utterances in the audio data only. Data from the written notes also show a variety of closed class words as EL items.

With regard to the incidence of each language pair in EK's bilingual mixed utterances, this is presented and discussed in Chapter 5.

The following section details the analysis of IF's bilingual mixed utterances in a similar fashion to that in which EK's bilingual mixed utterances have been analysed above. The utterances are chosen for the same reason, namely that

they provide evidence of a variety of open class and closed class items for the EL element. Equally, excluded from presentation are utterances for which ML/EL identification was impossible on the grounds of the equal number of morphemes from the participating languages.

2.4.b WHOLE-WORD MIXING BY IF

This section presents recorded bilingual mixed utterances from the younger child IF. The aim of the analysis is to verify that findings made for the child EK are not particular to this child only. Obviously, EK and IF are children of the same family and patterns observed in their mixed utterances may be attributable to the influence they inevitably may have on each other's utterances. However, because data from no other child is available with the same combination of languages, the findings for IF can serve as a verification for the findings made for the elder child EK.

The analysis of IF's utterances proceeds in the same fashion as that for EK, in that bilingual mixed utterances from the audio recorded data are presented first (in Tables 6.7 to 6.9), followed subsequently by bilingual mixed utterances from the written notes (in Table 6.10).

Table 6.7 shows that a variety of word classes make up the EL items in the bilingual mixed utterances from IF. Both open class and closed class items are involved. The inclusion of *two* instances of N as EL item is motivated by the fact that the N in (6.50) shows a correct Croatian noun case ending, while the N in (6.51) is evidence of the fact that language change occurs even between a Det and its accompanying N.

Table 6.6: IF's bilingual mixed utterances involving Croatian and German

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL item
German-<u>Croatian</u>		

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL item
(6.50)	Mjesta *für mich*! (1;10) space for me '(Make) space for me!'	N
(6.51)	*Das ist ein* nož. (2;0) that is a knife 'That is a knife.'	N
(6.52)	I Auge. 'And eye.'	Conj
Croatian-*German*		
(6.53)	*Mach* kuglicu. (1;8) make little ball 'I am making a little ball.'	V
(6.54)	To je *mein* ksilofon! (2;1) that is my xylophone 'That is my xylophone.'	Det

Only one example exists in the audio recorded data for IF of an unambiguous English-German mixed utterance, and it is presented in Table 6.7. It involves an utterance in which the EL element is a closed class item, a Pron.

Table 6.7: IF's bilingual mixed utterances involving German and English

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL item
English-*German*		
(6.55)	**What is** *das*?! (2;0) what is that 'What is that?'	Pron

Table 6.8 presents mixed utterances involving English and Croatian. It will be seen that both open class and closed class items appear as an EL element.

Table 6.8: IF's bilingual mixed utterances involving English and Croatian

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL item
English-<u>Croatian</u>		
(6.56)	**Where's gone** <u>poklon</u>? (1;8) where's gone present 'Where is the present gone?'	N
(6.57)	**I** <u>pravi</u> **a present**. (2;0) I make a present 'I am making a present.'	V
(6.58)	**That's very, very** <u>oš(tro)</u>. (2;1) that's very, very sharp 'That's very, very sharp.'	Adv
<u>Croatian</u>-**English**		
(6.59)	**There** <u>boja čizme</u>, mummy. (1;8) there colour boots mummy 'There I am colouring the boots, mummy.'	Adv
(6.60)	<u>Sjed' avion</u>, **please**! (1;10) sit plane please 'Sit in the plane, please!'	Int
(6.61)	<u>Ne, striček i</u> **lady**. (1;10) no gentleman and lady 'No, a gentleman and a lady.'	N
(6.62)	**I found** <u>drugi repić</u>. (1;11) I found another little tail 'I have found another little tail.'	Pron, V

In what follows, data from the written notes are used to check whether mixed utterances from this data collection source show similar characteristics to those from the audio recordings. As open class items have been shown to constitute EL elements in the audio recorded data from this thesis, and as this is something for which Myers-Scotton's (1993) MLF model caters, it is felt that they do not require further exemplification. However, because closed class items are not predicted to occur as EL elements, these are chosen specifically for presentation in Table 6.9. Several utterances are included in which the EL

item is a Pron (cf. examples (6.64), (6.67), (6.69), (6.72), (6.78)). Although all of the utterances involve the same word class for EL item, they are all included here to show the variety of pronouns in this child's repertoire.

Table 6.9: IF's bilingual mixed utterances with CLOSED CLASS items as EL items

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL item
German-<u>Croatian</u>		
(6.63)	Laurie *nicht gehen* <u>u</u> *Schule*. (2;0) Laurie not go in school 'Laurie does not go to school.'	Prep
<u>Croatian</u>-*German*		
(6.64)	<u>Mrkva drži jedan</u> *meins*. (1;5) carrot holds one mine 'I am holding a carrot and it is mine.'	Pron
(6.65)	Mama, *help mir*, <u>lutkica obući</u>. (1;7) mummy help me dolly (to) dress 'Mummy, help me dress the dolly.'	aux V, Pron
(6.66)	<u>Krumpir ne</u> *heiß*. (1;8) potato no hot 'The potato is not hot.'	Adv
(6.67)	*Du* <u>piti sok</u>? (1;11) you (to) drink juice 'Are you drinking juice?'	Pron
(6.68)	<u>To</u> *von* <u>doktor</u>? (2;0) that from doctor 'Is that the doctor's?'	Prep
German-**English**		
(6.69)	*Guck* **that**, mummy! (1;4) look that mummy 'Look at that, mummy!'	Pron
German-**English**		
(6.70)	**My** *anziehen*! (1;7) my (to) dress 'I would like to put this on!'	Det

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of EL item
(6.71)	**My** *Kleid*! (1;8) my dress '(That is) my dress!'	Det
(6.72)	*Moment*, **I** *komme mit!* (1;10) moment I come with 'One moment, I am coming along!'	Pron
(6.73)	**Where** Kira *tun Püppchen*? (1;11) where Kira (to) put dolly 'Where has Kira put the dolly?'	Adv
English-*German*		
(6.74)	*Mit* **birdie**. (1;10) with birdie 'With a birdie.'	Prep
English-<u>Croatian</u>		
(6.75)	n/a	n/a
<u>Croatian</u>-**English**		
(6.76)	Tata, <u>obuci jaknu</u> **this one.** (1;7) daddy put on jacket this one 'Daddy, put this jacket on.'	Det
(6.77)	**My** <u>ruke oprati</u>. (1;8) my hands (to) wash 'I am washing my hands.'	Det
(6.78)	**I** <u>ne mogu</u>. (1;8) I not can 'I cannot.'	Pron

Table 6.9 shows that closed class items are in evidence in IF's bilingual mixed utterances from the written notes. They range from Adv, aux V and Det to Prep and Pron. In this, the case of IF is similar to that of EK: mixed utterances from both the audio recordings and the written notes clearly show that EL items do not solely consist of open class items, but of closed class items as well. This

observation goes contrary to Myers-Scotton's (1993) suggestion that closed class items (or, what Myers-Scotton calls system morphemes) "must come from the ML" (Myers-Scotton, 1993: 7). It appears, therefore, that the children in the present study do not obey the rules set out by Myers-Scotton (1993).

With regard to Poplack's (1980) proposed constraints, only the Equivalence Constraint is applicable in the case of whole-word mixing. This constraint suggests that changes to another language can only occur at points in an utterance which are common to both participating languages. In other words, the surface structure of the two participating languages needs to be the same in both languages if a language switch is to occur. This constraint implies that if the surface structure of the participating languages is not the same, then a language switch is impossible. However, this is exactly what is observed in some of the data from the present thesis: examples (6.7), (6.19), (6.36), (6.45) and (6.66) involve children's bilingual utterances whose surface structure is not the same in the participating languages. Indeed, the source language of the utterances' surface structures is unidentifiable. This could be attributed to the children's ages and their level of linguistic development.

On the other hand, it could be argued that, with only a handful of examples available which run counter to Poplack's (1980) Equivalence Constraint, perhaps it would not be unreasonable to state that it *is* observed in the *majority* of instances.

The investigation now proceeds with the data analysis of the children's *trilingual* mixed utterances. Their analysis will permit insight into the varied use of elements from the three languages in producing an utterance. The examples, from both data collection sources, are presented and discussed not only in light of what has been found to be true for *bilingual* mixed utterances but also as entities in themselves. Initially, however, the notion of a ML and an EL in the context of utterances involving elements from three languages needs to be clarified.

2.5 WHOLE-WORD MIXING IN TRILINGUAL MIXED UTTERANCES

The identification of the ML and the EL in the case of *trilingual* mixed utterances is potentially more complex than in *bilingual* mixed utterances due to the greater number of participating languages. Myers-Scotton's (1993) MLF framework, for example, suggests that although mixed utterances may "involve more than two languages" (Myers-Scotton, 1993: 75), there is always only one ML, while there may be more than one EL.

To illustrate this observation, Myers-Scotton provides an example which features the languages of Luyia, English and Swahili (Myers-Scotton, 2006: 262):

> **And in general** iko ile tabu <u>iye tsiuymba ha Nairobi hano</u>.
> And in general there is that problem of houses in Nairobi here.

Myers-Scotton (Myers-Scotton, 2006: 263) suggests in her analysis that Luyia is the ML, whilst English provides a conjunction (**and**) and an island (**in general**). Curiously, no mention is made of the part of the utterance which is in Swahili. As the present author is not proficient in either Luyia or Swahili, it would have been useful had Myers-Scotton (2006) indicated which of the two languages is in plain type and which is underlined. A morpheme-by-morpheme gloss of the utterance would also have been helpful for the purpose of verifying this mixed utterance. What *is* known in this example is Myers-Scotton's observation that Luyia, as supplier of morphological elements, is the utterance's ML, while, by implication, English and Swahili fill the role of ELs.

In the context of the *trilingual* utterances in this thesis, we would, therefore, be looking to find one ML and two ELs in a mixed utterance. However, it was seen in the examples of *bilingual* whole-word mixing (in the previous section) that the ML was not the sole supplier of morphological elements, but that the EL also participates in this. It is, therefore, strongly possible that in *trilingual* mixed utterances, too, the ML will not be the only language to supply closed class items. This is investigated in two separate sections next, for EK and for IF

respectively. Prior to this, however, more needs to be said about ML/EL identification.

2.5.a ML/EL IDENTIFICATION

In the analysis of the *bilingual* mixed utterances above, the ML and the EL are identified according to a majority morpheme count: the ML commands the greater number of morphemes. This principle is also applied in this study's trilingual data. However, as trilingual data involves three languages, the question is which of the languages is the ML. A majority morpheme count could, potentially, be in favour of either one, two or all three languages. In other words, either one, two or all three languages may share the same number of morphemes.

In example (6.79), the trilingual utterance clearly has one ML. In this case, it is Croatian, with a majority morpheme count of three (ja, telefon-Ø), while German ('*brauch*') and English ('**my**') have only one morpheme each:

(6.79)   EK (3;6)   Ja *brauch* **my** telefon.
                          'I need my telephone.'

In cases such as (6.80), in which two languages share the majority morpheme count, neither language can be said to be the ML: English and German have two morphemes each (**make-Ø** and *Haus-Ø*), while Croatian has one (ja):

(6.80)   EK (3;5)   Ja **make** *Haus.*
                          I make house
                          'I am making a house.'

In (6.81), all three languages share the same number of morphemes (*kann-Ø*, **see-Ø,** plav-o):

(6.81)   EK (3;4)   *Kann* **see** plavo.
                          can see blue
                          'I can see blue.'

Of the total number of trilingual utterances for EK (which is 43), 7 are recorded to involve the same number of morphemes for each participating language. In the case of the younger child IF, only one instance is noted of a trilingual mixed utterance in which the number of morphemes per language is the same (**I** *ge*prdi. 'I passed wind.').

In contrast to the bilingual data in section 2.4 a and 2.4 b, which includes a *selection* of relevant examples, the trilingual data in this section includes *all* the recorded examples. Two reasons exist for this: (i) the size of the trilingual data in this study is much smaller than of the bilingual data, which makes the presentation of the whole trilingual data corpus comparatively less restrictive; and (ii) the dearth of trilingual data in the existing literature demands that as many instances of it are presented and analysed as available. The data in this section comes from both data sources, the audio recordings and the written notes, and they are dealt with separately for each child.

2.5.b *WHOLE-WORD MIXING BY EK*

Throughout the period of observation, trilingual mixed utterances make up a relatively small percentage of EK's total number of utterances:

Table 6.10: Incidence of trilingual mixed utterances

Child	Total number of recorded utterances	Trilingual mixed utterances
EK	972	43 (4.42%)

The analysis in this section starts off by presenting, in Table 6.11 below, EK's trilingual mixed utterances as recorded on audio tape. The examples involve those utterances in which *whole words* come from the participating languages. Examples of trilingual mixed utterances involving items in which the lexical part of the word is supplied by one language and the relevant grammatical affix by another – involving so-called word-level mixing – are presented separately in section 3 of this chapter.

Where possible, the ML and the EL are identified, and the word class of the participating items is clearly marked. It has been pointed out above that, in trilingual utterances, one, two or three languages could share the same number of morphemes. This complicates ML/EL identification. Nevertheless, the aim of the present section is to verify whether closed class items stem exclusively from the ML or whether, as discovered in the investigation involving *bilingual* utterances, closed class items also stem from the EL.

Table 6.11: EK's trilingual mixed utterances and word classes invol

Example Number	Mixed Utt. (Child's Age) Gloss Meaning/Translation	Word Class		Equal Number of Morphemes
		ML	EL	
(6.82)	*Mein* <u>kuća</u> **found**. (2;9) my house found 'I have found my house.'			*Det*, <u>N</u>, **V**
(6.83)	*Später* <u>leti</u> **plane** Kira **old**. (2;9) later fly plane Kira old 'When I fly (the plane) next, I'll be older.'	N, Adj	*Adv*, <u>V</u>	
(6.84)	<u>To krp(a)</u> *nehme*, **wipe** *alles*. (3;3) that rag take wipe everything 'I take that rag and wipe everything.'	V, Pron	<u>Pron</u>, <u>N</u>, **V**	
(6.85)	<u>To</u> *Luft* **coming out**. (3;3) that air coming out 'That is air coming out.'	VP	Pron, *N*	
(6.86)	<u>Ovce</u> **want** *einladen*. (3;3) sheep want to invite 'I want to invite the sheep.'	V	<u>N</u>, aux V	
(6.87)	*Kann* **see** <u>plavo</u>. (3;4) can see blue 'I can see blue.'			*Aux V*, **V**, <u>Adv</u>
(6.88)	<u>Ja</u> **make** *Haus*. (3;5) I make house 'I am building a house.'			<u>Pron</u>, **V**, *N*

Example Number	Mixed Utt. (Child's Age) Gloss Meaning/Translation	Word Class		Equal Number of Morphemes
		ML	EL	
(6.89)	Ja *brauch* **my** telefon. (3;6) I need my telephone 'I need my telephone.'	Pron, N	*V*, **Det**	

Table 6.11 shows that some closed class items (Pron, aux V, Det) are supplied by the participating ELs. In three instances, examples (6.82), (6.87) and (6.88), the ML is unidentifiable due to the equal number of morphemes from at least two participating languages. In addition, these three examples also show that all three languages participate in that utterance's morphosyntactic structure:

(6.82)   *Mein-Ø* kuć-a **found**.

(6.87)   *Kann-Ø* **see**-Ø plav-o.

(6.88)   Ja **make**-Ø *Haus-Ø*.

Participation in the morphosyntactic structure is observed in language-specific inflectional morphemes (e.g. kuć-a), null-morphemes (e.g. *mein-Ø*) or a verb's tense (e.g. **found**). In (6.88), the item supplied by one of the languages is a pronoun (ja), a closed class item.

ML identification in these three instances is complicated by the fact that the utterances' syntactic structures are not readily identifiable with any particular language: this is either due to an utterance's incompleteness from the point of view of an adult target (in examples (6.82) and (6.87), or due to an ambiguous word order, in (6.88), where the SVO order is permissible in all three languages.

Before proceeding with the analysis, it has been seen that some of the trilingual utterances do not follow Myers-Scotton's (1993; 2006) suggestion that only one language supplies a mixed utterance's morphosyntactic structure. As for Poplack's (1980) proposal that a language switch is only possible in places in which the surface structure of an utterance is the same in all the participating

languages, it was seen in the trilingual examples above that it is applicable in some instances (e.g. (6.88)), but not in others (e.g. (6.82)). Due to the child's lack of adult-target language competence, the source language of the syntax in some of the mixed utterances is not easily identifiable. The child just switches languages between whole words.

The attention is now directed towards EK's trilingual mixed utterances as recorded in the written notes. Due to the diversity of utterances and their structures, and also due to the variety of elements from the participating languages, these trilingual mixed utterances cannot easily be divided into sub-groups, and, thus, they are presented jointly in Table 6.12.

Table 6.12: EK's trilingual mixed utterances and the word classes involved

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class		Equal Number of Morphemes
		ML	EL	
(6.90)	**Please could** *mir* <u>to</u> *gebe*? (2;9) please could me that give 'Please, could you give that to me?'	Pro, V	**Int**, **aux V**, <u>Pron</u>	
(6.91)	*Muss sehe ob* <u>striček doktor</u> **there**. (2;9) must see whether uncle doctor there 'I must see whether the doctor is there.'	Aux V, V, Conj	<u>N</u>, <u>N</u>, **Adv**	
(6.92)	Tata *kann* <u>to</u> **very good** <u>jestati</u>. (2;9) Daddy can that very good to eat 'Daddy can eat that very well.'	<u>Pron</u>, V	*Aux V*, **Adv**	
(6.93)	*Kann nicht* **very good** <u>vozati</u>. (2;9) can not very good to drive 'I cannot drive very well.'	Aux V, Adv	**AdvP**, <u>V</u>	
(6.94)	*Ja*, **first** *Toastbrot* <u>jesti</u>. (2;9) yes first toast to eat 'Yes, first I'll eat (a slice of) toast.'	Adv, N	**Adv**, <u>V</u>	
(6.95)	*Nein,* <u>drž</u> *seins* **pocket**. (2;10) no hold his pocket 'No, I'll keep (them) in my pocket.'	Adv, Pron	<u>V</u>, **N**	

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class		Equal Number of Morphemes
		ML	EL	
(6.96)	*Weil* **there** <u>skroz</u> *nass ist.* (2;10) because there completely wet is 'Because it is completely wet there.'	Conj, Adj, V	**Adv**, <u>Adv</u>	
(6.97)	Wolfgang <u>jesti</u> *viele* **sandwiches**. (2;10) Wolfgang to eat many sandwiches 'Wolfgang eats many sandwiches.'			<u>V</u>, *Adj*, **N**
(6.98)	<u>To</u> **there** *unten war.* (2;11) that there below was 'That was under there.'	Adv, V	<u>Pron</u>, **Adv**	
(6.99)	Tata, *ich* <u>pravila</u> **wee**. (2;11) daddy I did wee 'Daddy, I did a wee.'	<u>V</u>	*Pron*, **N**	
(6.100)	*Habe* <u>lisicu šumu</u> **found**. (3;0) have fox wood found 'I have found the fox in the wood.'	<u>N, N</u>	*Aux V*, **V**	
(6.101)	**Doggy there** <u>stol</u> *bleiben*. (3;0) doggy there table to stay 'The doggy stays there near the table.'	***N, Adv***	<u>N</u>, *V*	
(6.102)	Kira *sehen* **picture** <u>od</u> Eleanor<u>e</u>. (3;0) Kira to see picture of Eleanor 'Kira sees Eleanor's picture.'			*V*, **N**, <u>Prep</u>
(6.103)	**Help** Franka *auszieh'n* <u>pelenu</u>. (3;0) help Franka take off nappy 'I am helping Franka take off her nappy.'	V	**Aux V**, <u>N</u>	
(6.104)	<u>Striček ide</u> **playgroup** <u>igra</u> *mit* <u>nas</u>. (3;0) gentleman goes playgroup plays with us 'The gentleman is going to the playgroup to play with us.'	<u>N, V, V, Pron</u>	**N**, *Prep*	
(6.105)	**Another one** *Auge* <u>jesti, da</u>?! (3;1) Another one eye to eat yes 'I'll eat another eye, yes?!'			**Adj, Adj**, *N*,<u>V</u>, <u>Adv</u>

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class		Equal Number of Morphemes
		ML	EL	
(6.106)	Meine Tasche <u>malo</u> **stuck** geblieben. (3;1) my bag a little stuck stayed 'My bag stayed a little stuck.'	Det, N, V	<u>Adv</u>, **Adv**	
(6.107)	*Ich* <u>to povući</u> **up**. (3;1) I that to pull up 'I'll pull that up.'	<u>Pron</u>, <u>V</u>	*Pron*, **Adv**	
(6.108)	*Kann* **better** <u>jesti</u>. (3;1) can better to eat 'I can eat better.'			*Aux V*, **Adv**, <u>V</u>
(6.109)	**I** *holen* <u>nešto drugo</u> **for** <u>benzin</u>. (3;1) I get something else for petrol 'I am going to get something else for petrol.'	<u>Pron</u>, <u>Adj</u>, <u>N</u>	**Pron**, *V*, **Prep**	
(6.110)	**Come on** in *Wohnzimmer*, *lesen eine* <u>lijepu</u> *Geschichte*, <u>molim</u>! (3;1) come on in living room to read a pretty story please 'Come into the living room to read (us) a nice story, please!'	*N, V, Det, N*	**VP**, <u>Adj</u>, <u>Int</u>	
(6.111)	**I** *kann alles* <u>pojedeti</u>. (3;2) I can everything to eat up 'I can eat up everything.'	Aux V, Pron	**Pron**, <u>V</u>	
(6.112)	*Guck*, mama, **I am** <u>držim</u>! (3;2) look mummy I am hold 'Look, mummy, I am holding on!'	<u>V</u>	*V*, **Pron**, **Aux V**	
(6.113)	**That** <u>smeta</u> *mich*. (3;2) that bothers me 'That bothers me.'	Pron	**Pron**, <u>V</u>	
(6.114)	<u>Tvoj</u> *Haare* **smell** <u>šampon</u>. (3;2) your hair smell shampoo 'Your hair smells of shampoo.'	<u>Det</u>, <u>N</u>	*N*, **V**	
(6.115)	**You** <u>potrga</u> *das*! (3;3) you break that 'You broke it!'	<u>V</u>	**Pron**, *Pron*	

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class		Equal Number of Morphemes
		ML	EL	
(6.116)	*Wenn draußen kalt* <u>biti</u>, **I need** *Strumpfhose.* (3;3) when outside cold to be I need tights 'When it is cold outside, I need tights.'	Conj, Adv, Adj, N	<u>V</u>, **Pron, V**	
(6.117)	<u>Ja sakri</u> *wenn* **you** *staubsaugen.* (3;3) I hide when you hoover 'I hide when you hoover.'	*Conj, V*	<u>Pron</u>, <u>V</u>, **Pron**	
(6.118)	<u>Ti imaš</u> **nice** <u>pidžama</u> *mit* **car**. (3;3) You have nice pyjama with car 'You have a nice pyjama with (the motif of) a car.'	<u>Pron, V, N</u>	**Adj**, *Prep*, **N**	
(6.119)	**I need** *Socken* <u>ne</u>! (3;3) I need socks no 'I don't need socks!'	**Pron, V**	*N*, <u>Adv</u>	
(6.120)	**I** <u>hoću</u> *trinke ein bisschen* **apple juice**. (3;4) I want drink a little apple juice 'I would like to drink some apple juice.'			**Pron**, <u>Aux V</u>, *V, Det, Adj*, **N, N**

Firstly, contrary to Myers-Scotton's (1993) proposal that closed class items are supplied exclusively by the ML, this is evidently not the case in EK's *trilingual* mixed utterances presented in Table 6.12. Auxiliary verbs, adverbs, conjunctions, determiners, pronouns and prepositions are all observed to occur in the ELs as well as in the ML.

Secondly, several observations can be made with regard to the data in Table 6.12: (i) in the majority of utterances, ML/EL identification by means of a majority morpheme count is possible; (ii) in five instances – (6.97), (6.102), (6.105), (6.108) and (6.120) - the ML is unidentifiable because the number of morphemes is the same between at least two languages; (iii) the majority

morpheme count is sometimes achieved by one item only (see examples (6.99), (6.101), (6.103), (6.112) and (6.115)).

The ultimate point made in the previous paragraph requires elucidation. The utterances in examples (6.99), (6.101), (6.103), (6.112), (6.113) and (6.115) are each of a length ranging between three and five words. Some of the words, however, are excluded from the majority morpheme count as they involve terms of address, that is, proper names (Franka) or words which are considered to function as proper names in this study (mama 'mummy', tata 'daddy') and are seen as non language-specific. The ultimate length of the utterances above is, therefore, three to four words. In these utterances, a single item is seen to achieve the majority morpheme count. The word class of the word which achieves the highest morpheme count per utterance involves a verb in five instances, and a pronoun in one instance. Of these 5 verbs, 3 are in Croatian (<u>pravi</u>-<u>l</u>-<u>a</u>, <u>drž</u>-<u>i</u>-<u>m</u>, <u>po</u>-<u>trga</u>) and 2 are in German (*bleib-e-n*, *aus-zieh-'n*). The pronoun in utterance (6.113) is German (*mi-ch*) and it is set in an utterance consisting of two other words, each of which has only one morpheme (**that**, <u>smeta</u>).

Due to the fact that English is an inflectionally poorer language compared to either Croatian or German (see Chapter 4, section 1 above), the finding that Croatian and German are the source languages for the majority morpheme count in utterances (6.99), (6.101), (6.103), (6.112), (6.113) and (6.115) may, therefore, not come as a complete surprise. Only one utterance is noted, in Table 6.12, in which the majority morpheme count is in favour of an English item. The item involves a VP in utterance (6.87): <u>To</u> *Luft* **coming out** ('that air coming out'). Here, the English VP consists of three morphemes, compared to two for German and one for Croatian. Evidently, however, it is a rare occurrence in which an English item commands the majority morpheme count in a trilingual mixed utterance.

In summary, the presentation and analysis of EK's trilingual mixed utterances has shown the following:

- the ML can be identified by virtue of the majority morpheme count in 31 of the 39 trilingual mixed utterances presented in this section (which amounts to 79.5%);

- closed class items occur in both the ML (as predicted by Myers-Scotton (1993)) and in the ELs (contrary to Myers-Scotton (1993));

- sometimes, the morpheme count is achieved by a single item, which, in 5 out of 6 cases, is a verb (see Table 6.12 above);

- the source languages of single items which have a majority morpheme count are predominantly Croatian and German, the two more highly inflected languages.

The following section involves the presentation and analysis of trilingual mixed utterances produced by the other child in this study, IF. It is expected that similar findings to the findings made for EK will be made in this child's case with regard to ML/EL identification and the source languages of, especially, closed class items.

2.5.c WHOLE-WORD MIXING BY IF

The previous section about the elder child EK has shown that trilingual mixed utterances are a relatively rare occurrence of her total number of recorded utterances (4.42%). The same is found to be true to an even greater extent for the younger child IF, for whom the percentage of trilingual mixed utterances is even lower. This can be seen in Table 6.13.

Table 6.13: Incidence of trilingual mixed utterances (data from both data sources)

Child	Total Number of Recorded Utterances	Trilingual Mixed Utterances
IF	664	7 (1.05%)

The examples presented in Table 6.14 include those trilingual mixed utterances which involve whole words from the participating languages. As with EK, trilingual mixed utterances in which some of the words contain elements from more than one language are dealt with separately in section 3 of this chapter. Due to the small size of IF's trilingual data relevant for the present section, the recorded utterances from both data sources, the audio recordings and the written notes, are presented jointly in Table 6.14.

Table 6.14: IF's trilingual mixed utterances and word classes involved

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class		Equal Number of Morphemes
		ML	EL	
(6.121)	**Where's** *meins* <u>čizme</u> **gone**? (1;4) where's mine boots gone 'Where are my boots?'	**Adv, aux V, V**	*Pron*, <u>N</u>	
(6.122)	**My** *wollte* <u>pisati</u>. (1;7) I wanted to write 'I wanted to write.'	Aux V	**Pron**, <u>V</u>	
(6.123)	Mama <u>gleda</u> *nur* <u>kako</u> **swimming**. (1;10) mummy watches just how swimming 'Mummy just watches how we swim.'			<u>V</u>, *Adv*, <u>Conj</u>, **V**
(6.124)	**I** *gepupst* in <u>gaće</u>. (1;11) I passed wind in knickers I passed wind in my knickers.	V	**Pron**, <u>N</u>	
(6.125)	<u>Ja ima</u> *viele* **mouth**. (1;11) I has many mouth 'I have many mouths.'			<u>Pron</u>, <u>V</u>, *Adj*, **N**
(6.126)	**I** *nur* <u>izvaditi</u>. (2;0) I only to take out 'I am just taking (the sleep) out (of my eyes).'	<u>V</u>	**Pron**, *Adv*	

There is evidence in Table 6.14 that open class and closed class items are provided by both the ML and the EL(s) in IF's trilingual mixed utterances. In (6.124), the ML, German, is seen to provide an open class word (V) and some

relevant morphological elements, while one EL, English, provides a closed class word (Pron) and the other, Croatian, an open class word (N) suffixed with the relevant inflectional ending. Similarly, in utterance (6.126), the ML, in this case Croatian, provides an open class word (V) with some morphological elements (inflectional affixes), while the ELs, English and German, provide a closed class word (Pron) and an open class word (Adv).

These examples show the variety of contributions made by the ML and the ELs respectively in mixed utterances. In two examples, (6.123) and (6.125), however, ML/EL identification is complicated. In (6.123), Croatian and English share the same number of morphemes, while German has a lower morpheme count. Alternative means of ML/EL identification (presented in section 2.2 of this chapter) suggest that an utterance's word order and functional architecture (Tracy, 2000) could be of assistance in such instances. If applied to utterance (6.123), it can be seen, however, that these are of no specific assistance. Compare:

(6.123) (IF 1;10) Mama <u>gleda</u> *nur* <u>kako</u> **swimming**
                mummy watches just how swimming
                'Mummy is just watching how we swim.'

with the translation equivalents in each of the languages respectively:

                'Mama gleda samo kako plivamo.'
                (mummy watches just how (we) swim)
                'Mummy is just watching how we swim.'
                'Mama guckt nur, wie wir schwimmen.'
                (mummy is just watching how we swim)

Instead of the English present continuous form of the main verb (**swimming**), the conjugated form of the main verb for 1-P-Pl (first person plural) is required. Only Croatian, a language which permits subject elision (cf. section 1 of Chapter 4), does not require the subject to be explicitly stated due to its person-specific verb inflection. So, the fact that IF does not produce the subject prior to the main verb in utterance (6.123) could be an indication that the utterance's syntax is possibly sourced from Croatian. However, due to the fact that word

order in all three languages (particularly with regard to the spoken word) is closely similar, and taking into account the child's linguistic immaturity with respect to the adult target(s), it is impossible to disambiguate the source language of this utterance. Word order in (6.125), too, is not a discriminatory feature with regard to ML/EL identification: the utterance's SVO word order is available in all three languages.

Therefore, IF's trilingual mixed utterances provide similar evidence to EK's trilingual mixed utterances analysed thus far, in that two languages are seen to share the same number of morphemes in an utterance, which complicates ML/EL identification. If word order is added as an alternative means to aid ML/EL identification, the outcome is not much clearer. This is due to the fact that the three participating languages in the present case study share features of syntax, such as are used by the children in this study. Another aggravating factor in ML/EL identification involves the immaturity of the children's linguistic systems with regard to the adult target language(s). Specifically, some functional elements are seen to be lacking in both children's trilingual mixed utterances.

The analysis of IF's trilingual mixed utterances has shown three things:

- open class and closed class items are supplied by both the ML and the ELs;

- the morpheme count as means of ML/EL identification is relatively fruitful;

- syntax as a distinguishing feature by which to identify the ML and the ELs is unhelpful due to the similarity which exists between the participating languages and also the immaturity of this child's linguistic systems with regard to the adult target.

2.6 SUMMARY

In brief, the focus of this chapter is on the children's mixed utterances involving whole-word mixing.The analysis of both bilingual and trilingual mixed utterances involves two major issues: (i) ML/EL identification, and (ii) diversity of open class and closed class items from each of the participating languages in a mixed utterance.

The first issue, identifying the ML and the EL(s) in a mixed utterance, is of importance with regard to testing parts of Myers-Scotton's (1993; 2006) Matrix Language Frame (MLF) model. The analysis performed in this chapter shows that two points of Myers-Scotton's model are not applicable in the case of mixed utterances from this study's data corpus. The points concern the role allocated to the so-called ML and EL, and the word class of ML and EL items. Myers-Scotton (1993; 2006) suggests that the ML sets the morphosyntactic frame of a mixed utterance, while the EL provides some lexical morphemes. In this chapter, the analysis of children's bilingual and trilingual mixed utterances shows that the ML (determined by means of a majority morpheme count) is not the only language which supplies morphosyntactic elements. There are numerous examples which reveal that one or more ELs also contribute to that utterance's morphosyntactic structure. Particularly apparent in this context are a variety of inflectional affixes from the ML and the ELs. An utterance's syntax is not always attributable to a particular language due to the similarities which exist in the syntax of the languages of Croatian, English and German, and also due to the children's exemplified linguistic immaturity with regard to the adult target. The ambiguity of syntax concerns primarily the SVO word order in main clauses. Because the children in this study are at a stage at which the majority of their utterances involve main (rather than a combination of main and subordinate) clauses, the word order, which is similar in some aspects in all three languages, is of limited assistance in the identification of their source language.

The second issue concerns the word class of EL items. According to Myers-Scotton (1993), the ML supplies both open class and closed class items, while

the EL can only provide open class items. More recently, however, Myers-Scotton (2006: 253) specified that closed class items, or what she terms system morphemes, "*generally* come from the Matrix Language" (present author's italics). This implies that, occasionally, closed class items may also come from an EL. Myers-Scotton (2006), however, also limits her MLF model to explaining instances of code switching (CS) only in the case of what she terms *classic CS* (Myers-Scotton, 2006: 241). This is CS in which only one of the participating languages is the source for the morphosyntactic structure of an utterance. Cases in which another language is seen to contribute "some of the abstract structure underlying surface forms in the clause" (Myers-Scotton, 2006: 242), Myers-Scotton terms *composite CS* (Myers-Scotton, 2006: 242). In the present case study, however, an EL is seen not so much to contribute to the abstract structure of a clause (or, at least, this is not unambiguously clear due to the syntactical similarities between the participating languages), but to contribute to the surface forms in that clause, in the form of inflectional affixes. To summarise, therefore, Myers-Scotton's (1993; 2006) MLF model is not suited to explain what happens in the bilingual and trilingual mixed utterances involving whole-word mixing from the children in this study.

In order to exemplify the incidence of open class and closed class items contributed by the EL (s) in mixed utterances from the children in the present study, a numerical count is undertaken in the available data. Tables 6.15 and 6.16 below present the numerical incidence of specific word classes depending on the participating EL. Adding up the numbers for each word class across the languages reveals the word class with the highest incidence. It transpires that one group of closed class items in particular is utilised most frequently in both children's productions. Specifically, this group involves pronouns. In second position is found a group of open class items in both children's productions: verbs for the child EK and nouns for the child IF. These are, in turn, followed by nouns or verbs respectively in third position and adverbs in forth position.

Table 6.15: Incidence of word classes as EL items in the speech of EK

Word class	Croatian	English	German	Total
N	5	7	4	16
V	7	5	6	18
VP	n/a	1	1	2
Aux V	n/a	n/a	12	12
Adj	n/a	n/a	1	1
Adv	6	2	8	16
Adv P	n/a	2	n/a	2
Pron	9	5	8	22
Prep	4	n/a	4	8
Prep P	n/a	1	n/a	1
Det	1	n/a	n/a	1
Int	4	1	1	6
Conj	1	n/a	n/a	1
Comp Part	n/a	n/a	1	1

Table 6.16: Incidence of word classes as EL items in the speech of IF

Word class	Croatian	English	German	Total
N	7	3	2	12
V	3	4	2	9
VP	n/a	n/a	n/a	n/a
Aux V	n/a	n/a	1	1
Adj	1	n/a	n/a	1
Adv	1	5	2	8
Adv P	n/a	2	n/a	2
Pron	n/a	12	3	15
Prep	1	n/a	2	3

Word class	Croatian	English	German	Total
Prep P	n/a	4	1	5
Det	n/a	n/a	n/a	n/a
Int	1	1	n/a	2
Conj	n/a	n/a	n/a	n/a
Comp Part	n/a	n/a	n/a	n/a

As can be seen in the case of the elder child EK (cf. Table 6.15), auxiliary verbs – which belong to a group of closed class items – also figure quite highly in this child's EL elements. By contrast, in the case of the younger child IF, auxiliary verbs take up a far less prominent place on the list of word classes contributed by the EL. More frequently utilised items in IF's case are prepositional phrases, which in EK's recorded data feature only once.

The next section presents and analyses mixed utterances from the present data corpus which involve word-level mixing. Poplack's (1980) Free Morpheme Constraint is particularly relevant in this context because it attempts to govern what may and may not occur within a single word. Accordingly, no language switch is allowed between the root of a word and its affix, unless the root has been phonologically integrated into the language of the affix (cf. Chapter 2, section 2.8).

3. WORD-LEVEL MIXING

The previous section presented an analysis of mixed utterances involving whole items (words) from another language. They involved both open class and closed class items. The present section presents and analyses mixed utterances which involve one or more items whose constituent morphemes belong to different languages. The present study chooses to refer to such use of more than one language in individual words as *word-level mixing*. Use of this term has previously been made by Lanza (1997b: 147) in her study of a

bilingual English-Norwegian child. Other terms previously used in the literature for the same phenomenon are *morphological interference* (Taeschner, 1983: 175) and *word-internal code switching* (Petersen, 1988: 486). The fact that terminology for this type of phenomenon has been in existence for some time is proof that the phenomenon is not out of the ordinary. Indeed, it has been reported several times in the existing literature (e.g. De Houwer, 1990; Gawlitzek-Maiwald and Tracy, 1996; Hoffmann and Stavans, 2007; Lanza, 1997b; Redlinger and Park, 1980; Saunders, 1988; Stavans and Swisher, 2006; Taeschner, 1983; Vihman, 1998). Such combinations of free morphemes from Language A and a bound morpheme from Language Alpha are, reportedly, "pretty rare" (De Houwer, 2009: 292) though.

Examples of word-level mixing from some of these studies are provided here because they involve two of the three languages acquired by the children in the present study. For example, word-level mixing involving English and German has been reported by three studies (Gawlitzek-Maiwald and Tracy, 1996; Redlinger and Park, 1980; Saunders, 1988), while one study exemplifies word-level mixing involving English and Croatian (Kovačević, Jelaska and Brozović, 1998). The ages of the children in these studies (apart from Saunders, 1988) range between 1;11 and 3;1 and are similar to the ages of between 1;4 and 3;6 of the children in the present study.

Other examples of word-level mixing involve various other *bilingual* combinations: Italian-German (Taeschner, 1983), English-Dutch (De Houwer, 1990), English-Norwegian (Lanza, 1997b), and English-Latvian (Vihman, 1998). *Trilingual* word-level mixing is reported by Hoffmann and Stavans (2007) in a case study involving English-Hebrew-Spanish. The sole example reported in that study involves a trilingual noun, **gar***di*na (**E: garden**, *Sp: jardin*, Hebrew: gina). Other examples from this *trilingual* case study involve *bilingual* word-level mixing (although the entire utterances themselves could, in fact, be classified as trilingual):

(6.127) Ima, **look for it in the** aron*es!*
'Mum, look for it in the closets.'

(6.128)   *está* <u>mitlabesh</u>**ing**
               'she is getting dressed'

According to the findings by Hoffmann and Stavans (2007), *trilingual* word-level mixing appears to be a rare occurrence. Several instances are reported, however, of *bilingual* word-level mixing. Such mixing is also reported by Hoffmann and Widdicombe (1999), who cite an instance of French-Italian word-level mixing (*cri-*<u>ato</u> 'shouted') in the data from their trilingual French-Italian-English subject.

The relative scarcity of trilingual case studies (cf. Chapter 2) means that no definitive conclusion can be drawn from the findings of Hoffmann and Stavans (2007), but it might be indicative of a general trend in TFL acquisition.

Returning to word-level mixing involving some of the languages being acquired by the children in the present study, examples from the existing literature are provided (in chronological order), which involve the language pairs English-German and English-Croatian.

Redlinger and Park (1980: 346), for example, report word-level mixing involving the languages of English and German. The instances of mixing consist of lexical morphemes from one of the participating languages and grammatical morphemes from the other.

(6.129)   *Pfeif*f**ing**
               'whistling'

(6.130)   *Da Polizei ge*-**tick***tet.*
               there police ticketed

(6.131)   *Der* **push***t der kleine Josef.*
               'He pushes the little Joseph.'

Saunders (1988: 181 - 183) reports three instances of word-level mixing which involve a German lexical morpheme and an English grammatical morpheme respectively:

(6.132)   **How many *Kugel*s are you going to get, Tom?**
            'How many (ice-cream) scoops are you going to get, Tom?'

(6.133)   **Daddy *kitz*led me**.
            'Daddy tickled me.'

(6.134)   **I'm just *schraub*ing this on.**
            'I'm just screwing this on.'

One instance reported by Saunders (1988: 183) involves an English lexical morpheme appended with a German grammatical morpheme :

(6.135)   *Warum wollen sie das Frau* **shoot***en?*
            'Why do they want to shoot the woman?'

It is not known to what extent such utterances featured in the children's overall language production as no reference is given of this. What is known, however, is that three of these utterances were produced by two children between the ages of 3;8 and 4;0, while example (6.135) is recorded as occurring at age 8;9.

In the case reported by Gawlitzek-Maiwald and Tracy (1996), word-level mixing involves English lexical morphemes appended by German grammatical morphemes:

(6.136)   *Du hast ge***buyed them**?
            'You bought them?'

(6.137)   *Ich hab' ge***made you much better**.
            'I have made you much better.'

(6.138)   **Clean***st du dein* **teeth**?
            'Are you cleaning your teeth?'

(6.139)   Esther, *du* **cut***st dein* **toe**!
            'Esther, you cut your toe!'

These instances of word-level mixing involve verbs. Gawlitzek-Maiwald and Tracy (1996) also report an instance of word-level mixing involving a mixed (reflexive) pronoun:

(6.140)   *Ich* **cover** *mich***self up**.
                 'I am covering myself up.'

As for the language combination English-Croatian, Kovačević and colleagues (1998) present the following examples:

(6.141)   **Let's make** <u>valovi</u>**s**.
                 'Let's make waves.'

(6.142)   <u>Ja ću</u> **elephant**<u>a</u>.
                 'I'll (have) the elephant.'

(6.143)   **Bob the Builder**<u>u</u>, **come here**!
                 'Bob the Builder, come here!'

Based on these examples alone, it can safely be said that Poplack's (1980) Free Morpheme Constraint, which prohibits a switch to another language between the root of a word and its affix (unless the root has been phonologically integrated into the language of the affix), is disobeyed by children acquiring more than one language from birth. (It is important to remember that this constraint was originally proposed for data involving *adult* speakers rather than *children*.) According to some linguists, word-level mixing is considered to "bridge not just lexical but also structural gaps" (Gawlitzek-Maiwald and Tracy, 1996: 901) and to underscore "the resourcefulness of the bilingual child" (Gawlitzek-Maiwald and Tracy, 1996: 901).

Child data contributed by the present thesis serves to confirm the finding with regard to the non-applicability of Poplack's (1980) Free Morpheme Constraint, as will be seen next. The relevant examples stem from both the audio recordings and the written notes.

Transcriptions of the fourteen audio recorded sessions in this thesis reveal only one example of *bilingual* word-level mixing, and this is produced by the younger of the two children, IF, at the age of 2;1. The relevant example from the speech of the child IF involves a German root morpheme (*ess-*) coupled with a German inflectional suffix (-*e*-) *and* a Croatian inflectional suffix (-<u>m</u>):

(6.144)   IF (2;1)   Mama, *essem*!
                     mummy eat + German INFL PRES -1-SING +
                     Croatian INFL PRES-1-SING
                     'Mummy, I am eating!'

However, this mixed verb can also be analysed as involving a German root morpheme *ess-* and a Croatian PRES -1-SING inflectional ending –em. It is unclear which of the two explanations is correct in describing this child's production. Instances of ambiguity in the data have previously been reported by Tracy (1996), in the case of the plural suffix –s, which could be interpreted as either an English or a German plural morpheme. Tracy (1996) concludes that an ambiguity of this kind cannot always be resolved locally, "i.e. by looking at individual utterances or even utterance-context pairs" (Tracy, 1996: 19), which has implications for the overall outcome of the analysis.

Such an ambiguous utterance is produced by the child IF, aged 1;10. The child pointed to a jacket and declared it was her father's:

(6.145)   IF (1;10)   *Das* tatin*s!*
                      that daddy's
                      'That is daddy's!'

In this utterance, the element tatins involves a double case marker: the noun involves the correct Croatian marker for the Genitive case (tatin) as well as the German or English Genitive case marker -s. This utterance can be interpreted in two ways: (i) it is a *bilingual* mixed utterance involving a German (demonstrative) pronoun, a Croatian noun and a German –s suffix; (ii) it is a *trilingual* mixed utterance involving a German pronoun, a Croatian noun and an English –s suffix. The ambiguity in this example involves the source language of the suffix at the end of the Croatian noun. As it is impossible to resolve this ambiguity, this example is excluded from any other analyses in this thesis. However, it is of significance in this context because it confirms the existence of ambiguous data, previously reported by Tracy (2000).

No instances of bilingual word-level mixing are found in the audio data for the elder child, EK.

The written notes, however, reveal a different picture from the audio recorded data: word-level mixing is recorded in 20 utterances produced during the period of observation by the elder EK, and in 6 utterances produced by IF. Because only a limited number of utterances are recorded in which EK and IF make use of word-level mixing, each one of the utterances is presented and analysed in turn in this section. The utterances are presented in chronological order in Tables 6.15 and 6.16.

3.1 WORD-LEVEL MIXING PRODUCED BY EK

This section presents word-level mixing as recorded in the written notes in the speech of the elder child EK. Of interest is whether a pattern is observable as to the word class of the mixed word and as to the source language of the word's lexical and grammatical morphemes respectively. In column three, the word class of the relevant word is coded for language (Croatian – underlined, **English – bold**, *German – italics*).

3.1.a IN BILINGUAL MIXED UTTERANCES

Table 6.15 presents data involving word-level mixing in EK's bilingual utterances. The gloss includes an explanation of the grammatical morphemes in the mixed words, for the purpose of demonstrating the make-up of that particular word.

Table 6.17: Word-level mixing in EK's bilingual utterances (data from written notes)

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of Mixed Word	Source Language of Grammatical Morpheme
(6.146)	Striček *müssen* essati. (2;9) men must eat-INF 'Men must eat.'	V	C

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of Mixed Word	Source Language of Grammatical Morpheme
(6.147)	*Mehr Toastbrot*a molim. (2;9) more toast-MASC-GEN-SING please 'More toast please.'	N	C
(6.148)	*Guck*, mama, to *macht*ala. (2;9) look mummy that do-PAST-FEM 'Look, mummy, I did that.'	V	C
(6.149)	*Nur so macht*ala sam. (2;9) only so do-PAST-FEM have-PRES-1-SING 'I only did like this.'	V	C
(6.150)	Igra Kira, Franka *Mann*om. (2;11) play Kira Franka man-INST-SING 'Kira and Franka are playing with the man/puppet.'	N	C
(6.151)	Molim **picture** od **fish**a, mama. (2;11) please picture of fish-MASC-GEN-SING mummy 'Please give me the picture of the fish, mummy.'	N	C
(6.152)	*Ich* **lik**e [laike] Kakao. (2;11) I like-PRES-1-SING cocoa 'I like cocoa.'	V	G
(6.153)	*Bein*om. (3;0) leg-FEM-INST-SING 'With the leg.'	N	C
(6.154)	*Ich habe das ge***found**. (3;1) I have that PTM-found 'I have found it.'	V	G, E
(6.155)	Nešto jestiti i *trink*ati, molim. (3;1) something eat and drink-INF please '(Give us) Something to eat and to drink, please.'	V	C
(6.156)	Kira bila u **plane**u. (3;1) Kira was in plane-MASC-LOC-SING 'Kira was in a plane.'	N	C
(6.157)	Mama, **you** *ge***waved**! (3;1) mummy you PTM-waved 'Mummy, you waved!'	V	G, E

Example Number	Mixed Utterance (Child's Age) / Gloss / Meaning/Translation	Word Class of Mixed Word	Source Language of Grammatical Morpheme
(6.158)	<u>Da, tvoj</u> *groß*<u>i</u>. (3;2) yes your(s) big-MASC-SING 'Yes, yours is big.'	Adj	C
(6.159)	**I have** *Sack***ling**. (3;2) I have sack-SING-DIM 'I have a little sack.'	N	E
(6.160)	**I** *ge***try that to do.** (3;2) I PTM-try that to do 'I tried to do that.'	V	G
(6.161)	**I** *ge***try that**. (3;2) I PTM-try that 'I tried that.'	V	G
(6.162)	**I** *ge***eat that**. (3;2) I PTM-eat that 'I ate it.'	V	G
(6.163)	*Nein*, <u>u</u> *Schornstein*<u>u</u>. (3;5) no in chimney-MASC-LOC-SING 'No, in the chimney.'	N	C
(6.164)	<u>Ja</u> *ge*<u>jedeti puno povrća.</u> (3;6) I PTM-eat lots vegetables 'I have eaten lots of vegetables.'	V	G, C
(6.165)	<u>Ja</u> *ge*<u>budila tatu.</u> (3;6) I PTM-woken daddy 'I have woken up daddy.'	V	G, C

Of EK's 20 utterances,

- 5 involve English verbs with the German past participle prefix *ge*-: examples (6.154), (6.157), (6.160), (6.161) and (6.162),

- 4 involve German verbs suffixed with Croatian verbal inflections: examples (6.146), (6.148), (6.149) and (6.155),

- 4 involve German nouns with Croatian noun inflections: examples (6.147), (6.150), (6.153) and (6.163),

- 2 involve Croatian verbs prefixed with the German past participle prefix *ge*-: examples (6.164) and (6.165),

- 2 involve English nouns with Croatian noun inflections: examples (6.151) and (6.156),

- 1 involves an English verb with a German inflection in example (6.152),

- 1 involves a German adjective with a Croatian adjectival inflection in example (6.158), and

- 1 involves a German noun with an English diminutive suffix in example (6.159).

These results are summarised more clearly in Table 6.16 below: use of Croatian grammatical morphemes is made in 11 instances of recorded word-level mixing, while German grammatical morphemes are in evidence in 8 of the examples. Only one instance, example (6.160), shows evidence of an English grammatical morpheme at the end of a German lexical morpheme.

Table 6.18: Distribution of languages in EK's word-level mixing

Number Of Instances	Lexical Morphemes	Grammatical Morphemes
9	German	Croatian
6	English	German
2	English	Croatian
2	Croatian	German

Number Of Instances	Lexical Morphemes	Grammatical Morphemes
1	German	English

The particular distribution of language-specific *grammatical* morphemes in Table 6.18 could be indicative of three points: (i) the richness of inflectional morphology of each of the languages (see Chapter 4), (ii) the level of EK's grammatical development in each (with the grammatically most developed language featuring the highest number of grammatical morphemes), and (iii) the amount of exposure to each language (which, at this stage, is comparatively highest in the case of Croatian). These points are elaborated in turn in what follows.

With regard to the degree of the richness of inflectional morphology, it was seen in Chapter 4 above that Croatian is the morphologically more highly inflected language than either German or English. This may also be reflected in Table 6.18 through the number of mixed words involving grammatical morphemes from Croatian as opposed to the grammatical morphemes from either German or English.

This morphological richness in Croatian has an interesting bearing on Croatian children's level of grammatical development. Obviously, "Croatian speaking children have to acquire much more morphology for an effective use of their lexicon than their English speaking peers" (Kovačević, Jelaska and Brozović, 1998: 373), but, equally, "Croatian inventories indicate that children master inflected word forms" (Kovačević, Jelaska and Brozović, 1998: 374) earlier than English speaking children master English inflected word forms. This general trend is found to affect Croatian children's vocabulary in as much as the mastery of inflection in Croatian may come at the cost of a comparatively smaller vocabulary. Nevertheless, research also shows that "after the basic grammatical forms are acquired, the child catches up with vocabulary development" (Kovačević, Jelaska and Brozović, 1998: 374). Therefore, the

abundance of Croatian inflection in evidence in EK's word-level mixing follows the general trend observed in previous research with regard to inflectional development: (i) in an inflectionally comparatively richer language (such as Croatian), some forms of inflection are acquired earlier on in development than in a language which is comparatively inflectionally poor (such as English), which may or may not have those forms of inflection itself; (ii) inflectional development in one language may affect the size of a child's vocabulary in that language.

A similar finding is made by Döpke (2000a: 84), who, in her study of bilingual German-English children, finds "that finiteness develops faster in the bilingual children's German than in their English" and that this "is in keeping with German monolingual children attaining finiteness marking more quickly than English monolingual children" (*ibid*).

Another possible explanation for the observation regarding the greater use of Croatian inflection compared with German or English inflection may be the fact that, at this stage, EK is exposed to Croatian most (cf. Chapter 4), and the quantity of grammatical morphemes from Croatian may be directly related to the degree of exposure to this language.

These findings, however, have to be qualified more closely in as much as instances of word-level mixing displayed in Table 6.17 come from a data collection source which is potentially biased to a degree. It has already been said previously that the focus of the written notes in the present study was on instances in which more than one language is involved in an utterance (cf. Chapter 3). It is possible that the person taking the notes (in this case, the children's mother) was more biased or attuned to her own two native languages, Croatian and German, than to the third language, English. Yet, the fact that English *lexical* morphemes are recorded in 8 instances of word-level mixing may weaken this explanation.

In short, therefore, EK's 20 mixed utterances in Table 6.17 show evidence of word-level mixing apparently involving predominantly German or English *lexical*

morphemes, and Croatian or German *grammatical* morphemes. Evidence of use of English grammatical morphemes with Croatian or German lexical morphemes is minimal. This may imply that, for the most part, English grammatical morphemes occur with English lexical morphemes. For this to be verified, it would be necessary to analyse these children's monolingual English utterances. This, however, is outside the scope of the present thesis.

In the context of word-level mixing produced by EK (in Table 6.17), the following observations are made for each of the three languages: lexical morphemes from each of the three languages are observed to occur with grammatical morphemes from each of them. The difference is in the degree of participation of each type of morpheme. It is seen that Croatian supplies the most grammatical morphemes and English the least. By contrast, the highest number of lexical morphemes is supplied by German (10), followed by lexical morphemes from English (8). Only two instances are recorded in which the lexical morphemes in word-level mixing are supplied by Croatian.

Before concluding this section on EK's word-level mixing, it is worth pointing out that the most striking feature of some of EK's mixed words in Table 6.17 involves the German past tense marker (PTM) *ge-* and an other-language main verb: at age 3;1, EK attaches the German PTM to the past tense of English verbs, while at age 3;2, EK adds it to the root morphemes of English verbs. This observation is an indication that EK is still in the process of acquiring the past tense in both languages. Mixed verbs are discussed further in section 3.4 below.

3.1.b *IN TRILINGUAL MIXED UTTERANCES*

Word-level mixing in EK's *bi*lingual utterances is seen to involve only two languages (cf. Table 6.17). The main question concerning EK's trilingual mixed utterances is whether all three languages are ever used in a single word. We have seen in section 3 of Chapter CHAPTER 1 that trilingual utterances in general make up a small percentage (4.42%) of EK's overall number of

utterances during the period of observation. It is, therefore, not expected that a large number of trilingual utterances with word-level mixing are recorded. Table 6.19 presents examples of EK's trilingual utterances with word-level mixing. Included in the analysis are a gloss and the interpreted meaning or translation for each mixed utterance.

Table 6.19: Word-level mixing in EK's trilingual utterances (data from written notes)

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of Mixed Word	Source Language of Grammatical Morpheme
(6.166)	*So was Bett* **I** *ge*spavala. (3;3) Such bed-SING I PTM-sleep-PAST-FEM-SING 'In such a bed I have slept.'	V	G, C
(6.167)	Franka **dropped** *ihr Sock*u. (3;4) Franka drop-PAST her-NEUT-ACC-SING sock-FEM-ACC-SING 'Franka has dropped her sock.'	N	C
(6.168)	Anne *ge*nosila **teddy**ja od Carle. (3;5) Anne PTM-carry-PAST-FEM-SING teddy-MASC-ACC-SING from Carla-FEM-GEN-SING 'Anne carried Carla's teddy.'	V, N	C C
(6.169)	**I** *ge***touched** tatu žaba i on skočio u vodu. (3;6) I PTM-touch-PAST daddy-MASC-ACC-SING frog-FEM-NOM-SING and he-MASC-NOM-SING jump-PAST- MASC-SING in water-FEM-ACC-SING 'I touched a daddy frog and he jumped into the water.'	V	G, E

Only 4 examples are found in the written notes (and none in the audio recordings) of EK's trilingual utterances involving word-level mixing. This mixing only ever involves two languages: three instance of German-Croatian, in (6.166), (6.167) and (6.168); one instance of English-Croatian, in (6.168); one instance of German–English, in (6.169). The mixed words themselves involve the word classes of V in three instances and of N in two instances.

As is the case with word-level mixing in EK's *bi*lingual utterances, so in her *tri*lingual utterances, too, each mixed word apparently only ever involves two languages:

- the German PTM *ge-* with the past tense of a Croatian verb ((6.166) and (6.168)), or in combination with the past tense of an English verb (6.169),

- a German lexical morpheme (a noun) and a Croatian grammatical morpheme in (6.167), and

- an English lexical morpheme (a noun) with a Croatian grammatical morpheme in (6.168).

Immediately observable is the fact that mixed verbs occur more frequently than mixed nouns. The prevalence of mixed verbs over mixed nouns or adjectives is also seen in EK's bilingual utterances above and is recorded in some other relevant case studies involving bilingual children (Gawlitzek-Maiwald and Tracy, 1996; Lanza, 1997b; Taeschner, 1983).

The gloss in each example in Table 6.19 illustrates the complexity of the grammar behind each mixed utterance:

(i) in examples (6.166), (6.168) and (6.169), Croatian and English verbs in the past tense are paired with the German PTM;

(ii) in example (6.167), a German possessive pronoun NEUT-ACC-SING is paired with a German noun FEM-SING + Croatian inflectional suffix FEM-ACC-SING;

(iii) in example (6.168), an English noun-SING co-occurs with a Croatian inflectional suffix MASC-ACC-SING.

The form of word-level mixing involving verbs in (i) is comparable to the mixed verb forms observed in Table 6.17 in EK's bilingual utterances. However, the

examples in (ii) and (iii) are particular in that they illustrate the combinatorial complexity of a mixed word's grammar. In (6.167), for example, the German feminine noun *Sock-* is appended with a Croatian inflection for feminine nouns in the Accusative –u. This can be explained either by the fact that the German noun is a feminine noun and, thus, the child feels it should have an inflection for feminine nouns, or it can be explained by the fact that the Croatian equivalent of the German noun, 'čarapa', is a feminine noun requiring a feminine case ending. Interestingly, the pronoun which precedes this mixed noun apparently involves no inflection. This form of the pronoun ('*ihr*') can, therefore, be seen to involve the Accusative singular Ø-inflection, which is characteristic of the German grammatical gender neuter.

What follows is the presentation and analysis of IF's instances of word-level mixing. The resulting findings are subsequently compared to those made for EK above.

3.2 WORD-LEVEL MIXING PRODUCED BY IF

This section is an exploration of word-level mixing recorded in the speech of the younger child IF. The aim of this exploration, which is similar to that performed for EK in the preceding sections, is to identify the word-classes involved in this type of mixing. Of specific interest is whether this analysis will establish a similar pattern with regard to the word-class of the mixed word, namely that verbs are observed to be more commonly utilised and the apparently preferred word-class for word-level mixing.

3.2.a *IN BILINGUAL MIXED UTTERANCES*

In contrast to her sister EK, whose data shows evidence of word-level mixing in twenty instances, this phenomenon is observed in only six instances in IF's case. All six are presented in Table 6.20 below.

Table 6.20: Word-level mixing in IF's bilingual utterances (data from written notes)

Example Number	Mixed Utterance (Child's Age) Gloss Meaning/Translation	Word Class of Mixed Word	Source Language of Inflectional Affix
(6.170)	Kira ge<u>tuc</u>t. (1;10) Kira PTM-hit-PAST INFL 'Kira hit (me).'	V	G
(6.171)	Grandma bring<u>ela</u>. (1;11) Grandma bring-PAST-FEM-SING 'Grandma brought (it).'	V	C
(6.172)	Kira ge<u>uzela</u>. (1;11) Kira PTM-take-PAST-FEM-SING 'Kira took (it).'	V	G, <u>C</u>
(6.173)	<u>U</u> *Schrank*<u>u</u>? (1;11) in cupboard-MASC-LOC-SING 'In the cupboard?'	N	C
(6.174)	Oh, <u>moje čarape</u> ge<u>skliznule</u>. (2;1) oh my-NOM-PL socks-NOM-PL PTM-slip-PAST-FEM-PL 'Oh, my socks have slipped.'	V	G, <u>C</u>
(6.175)	Nicht **throw**en! (2;1) not throw-INF 'Do not throw!'	V	G

On first inspection, it is observed that word-level mixing in IF's bilingual utterances involves the word-class of verbs in five instances and of a noun in one instance. A closer inspection also reveals that the source languages of the inflectional affixes in each of the mixed words are Croatian or German. This is similar to the findings for the elder child EK.

Of IF's 6 mixed utterances,

- 3 instances involve Croatian verbs prefixed with the German PTM (*ge*-): examples (6.170), (6.172) and (6.174),

- one instance illustrates a Croatian verb suffixed with a German grammatical morpheme (-*t*): example (6.170),

- one instance has a German verb with a Croatian grammatical morpheme: example (6.171), and

- one instance sees an English verb suffixed with a German grammatical morpheme: example (6.175).

- In example (6.173), a German noun is given a Croatian grammatical morpheme.

The make-up of the mixed verbs in examples (6.170), (6.172) and (6.174) attests to the fact that the child IF is in the process of acquiring the use of the German and the Croatian past tense: the mixed verbs involve lexical and grammatical morphemes from both languages. In examples (6.172) and (6.174), the German past participle prefix (*ge-*) is effectively superfluous because the Croatian past tense form is correct in itself. However, this double use of a past tense marker (involving the German PTM *ge-* and, respectively, the Croatian suffixes *–e-la* and *–u-le*) show that grammatical morphemes from both languages are in this child's repertoire but that the child has, apparently, not yet fully mastered the correct form of the past tense in either language. Example (6.171) shows evidence of another attempt at the past tense. Here, however, the German PTM is not part of the past tense form. Instead, IF utilises the root morpheme of the German verb, *bring-*, and adds onto it the correct Croatian past tense suffix, marked for person and gender (FEM-SING *–e-la*).

While still involving a verb, example (6.175) does not involve the past tense. Instead, the utterance *Nicht* **throw**en ('Not throw.') involves the German adverb *nicht*, and an English verb whose root morpheme, **throw**-, is suffixed with the German infinitival suffix *–en*. This utterance may be interpreted in terms of being patterned on the German (or, also Croatian) general way of expressing a prohibition, which involves the negation *nicht* (or <u>ne</u>) and the infinitive of the

main verb. Therefore, while, arguably, showing evidence of some linguistic immaturity (by using two languages in the same utterance), example (6.175) also shows IF's pragmaticism in that she utilises a correct form for expressing a prohibition.

In example (6.173), word-level mixing involves a noun. The whole utterance begins with a Croatian preposition u̱ ('in'), followed by a German noun (MASC-SING) with a correct Croatian case ending, as required by the preposition, marked for gender, number and case (MASC-SING-LOC). Both the German noun and its Croatian equivalent ('ormar') are, coincidentally, of the masculine gender. For this reason, it is unclear whether the use of the German noun or its Croatian equivalent prevailed in triggering the use of that particular inflection.

It is generally observable in all of the mixed utterances in Table 6.20 that IF utilises the appropriate grammatical feature for the specific context (be it, for example, the German past tense marker or a Croatian suffix), and that this can be interpreted as evidence of the child's grammatical ability. However, the fact that more than one language is involved in the utterances and the fact that some grammatical features are duplicated (eg. in examples (6.172) and (6.174), where the past tense is marked both by the German PTM *ge-* and the past tense of the Croatian main verbs), is evidence of this child's developing linguistic maturity.

The predominance of verbs in word-level mixing in the case of IF (in 5 out of 6 utterances) confirms the general trend found in word-level mixing in the case of bilingual utterances produced by EK in section 3.1.a of the present chapter. Also, this finding is found to tally with the findings from some previous studies (e.g. Gawlitzek-Maiwald and Tracy, 1996; Lanza, 1997b; Taeschner, 1983).

The next step in our exploration of word-level mixing involves IF's trilingual utterances. Section 3 of Chapter 5 has shown that trilingual utterances make up a very small percentage of IF's total recorded output (1.05%). The number of trilingual utterances involving word-level mixing is, therefore, expected to be

relatively small. Furthermore, based on the finding from section 3.1.b, by which word-level mixing in EK's trilingual utterances only involves two languages, it is expected that a similar finding will be made in the case of trilingual utterances in IF's case.

3.2.b IN TRILINGUAL MIXED UTTERANCES

The whole data corpus reveals only a single example of word-level mixing in a trilingual utterance for the child IF, and the mixed word is found to consist of two languages only. This is presented in Table 6.21.

Table 6.21: Word-level mixing in IF's trilingual utterances

Example Number	IF's Age	Mixed Utterance Gloss Meaning/Translation	Word Class of Mixed Word	Source Language of Inflectional Affix
(6.176)	1;10	**I** *ge*prdi. I PTM-pass wind-PRES-3-SING 'I passed wind.'	V	G, C

On the basis of the fact that only one instance of word-level mixing is recorded in IF's trilingual utterances, our analysis cannot consider the most/least frequently utilised word-class. However, it may be significant that this one instance involves a mixed verb.

The mixed verb in (6.176) involves elements from German and Croatian, and, judging by its immature form (involving the German PTM *ge*-, the Croatian root morpheme prd- and the Croatian PRES-3-SING –i), can be interpreted as evidence of IF's incomplete mastery of the past in both relevant languages (previously also seen in Table 6.20). However, the correct use of the German PTM marker *ge*- with the German past participle of 'to pass wind' is recorded two days later in the trilingual utterance **I** *gepupst* in gaće. (literally: 'I passed wind in (my) knickers.'). Although the past participle form of the German main verb (*gepupst*) is correct, lacking here is the required auxiliary verb. This supports the previous observation that the past tense had not yet been fully

acquired by IF. (In this example, the source language of the preposition 'in' is indeterminable due to its existence in both English and German.) The whole utterance in (6.176) is a short one, consisting of only two words. These words involve one grammatical morpheme from each of the three languages (**I**, *ge-*, -i̲) and one Croatian lexical morpheme (p̲r̲d̲-). It is worth pointing out that IF is, at this stage, repeatedly noted to refer to herself with an English pronoun despite the fact that both the Croatian and the German equivalents are evident in utterances from this period.

3.3 DISCUSSION

In this chapter, sections 3.1 and 3.2 analyse word-level mixing in EK's and IF's bilingual and trilingual utterances respectively. With the exception of a single utterance, (6.144), which is recorded on audio tape, the remainder of the examples (a total of 31) are taken from the written notes. It is noted that the mixed words in these mixed utterances, recorded in examples (6.145) and (6.147) to (6.177) above, only ever involve two languages. It is also noted that the word classes involved in word-level mixing involve *inflected* word-classes, first and foremost verbs, followed by several instances of nouns and a single instance of an adjective, in (6.159).

The following two sections present a closer analysis of the language combinations involved in mixed words: one language provides the lexical, the other the grammatical morpheme. A comparison is subsequently performed of the incidence of mixed words and the participating languages in the speech of each of the two children in this study. Analysed in the first instance are mixed verbs, followed by mixed nouns and mixed adjectives.

3.4 MIXED VERBS

Table 6.22 presents the language combination involved in each instance of a mixed verb in EK's recorded speech. Table 6.23 (further below) shows the same for the younger child IF.

Table 6.22: Language combinations in mixed verbs (EK)

Example Number	PTM (ge-)	Lexical Morpheme	Grammatical Morpheme
(6.146)		G	C
(6.148)		G	C
(6.149)		G	C
(6.152)		E	G
(6.155)	G	E	E
(6.155)		G	C
(6.157)	G	E	E
(6.160)	G	E	
(6.161)	G	E	
(6.162)	G	E	
(6.164)	G	C	C
(6.165)	G	C	C
(6.166)	G	C	C
(6.168)	G	C	C
(6.169)	G	E	E

Of the 14 mixed verbs recorded for EK in Table 6.21, nine involve the German PTM *ge-* (a grammatical morpheme), either in combination with an English lexical morpheme (in 6 instances), or with a Croatian lexical morpheme (in 3 instances). In four instances, a German lexical morpheme is followed by a grammatical morpheme (a suffix) in Croatian. In one instance, an English lexical morpheme is followed by a German grammatical morpheme. In three instances, (6.160) to (6.162), the English lexical morpheme receives no grammatical suffix.

In the case of mixed verbs which do *not* involve the German PTM *ge-*, 4 out of 5 instances involve a German lexical morpheme in combination with a Croatian grammatical morpheme (suffix), while there is only one instance of an English

lexical morpheme in combination with a German grammatical suffix, in example
(6.153).

Overall, due to the variety of combinations involving lexical and grammatical
morphemes from the three participating languages in the case of EK's mixed
verbs, it is not easy to find a common denominator which binds them all.
However, it is possible to make some general observations. While in mixed
verbs involving the German PTM *ge-*, English or Croatian lexical morphemes
are followed by a Croatian, an English, or a null suffix (as in example (6.162)
'*ge-***eat**'), in those mixed verbs which do *not* involve the German PTM
(examples (6.146), (6.148), (6.149) and (6.155)), the general trend is that the
lexical morpheme stems from German and is followed by a Croatian
grammatical morpheme.

English grammatical suffixes occur in three instances in EK's mixed verbs, and,
in all three cases, the suffix follows an English lexical morpheme which is
prefixed with the German PTM *ge-* (examples (6.155), (6.158) and (6.170)). A
Croatian grammatical suffix follows a German lexical morpheme in four
instances (example (6.147), (6.149), (6.150) and (6.156)), and it follows a
Croatian lexical morpheme also in four instances each (examples (6.165),
(6.167), (6.169)). A German grammatical suffix is seen to follow an English
lexical morpheme in only one instance (6.153).

In the case of the younger child IF, mixed verbs occur in the following language
combinations:

Table 6.23: Language combinations in mixed verbs (IF)

Example Number	PTM (ge-)	Lexical Morpheme	Grammatical Morpheme
(6.144)		G	C
(6.170)	G	C	G
(6.171)		G	C
(6.172)	G	C	C

Example Number	PTM (ge-)	Lexical Morpheme	Grammatical Morpheme
(6.174)	G	C	C
(6.175)		E	G
(6.176)	G	C	C

In IF's data, the mixed verbs may or may not involve the German PTM *ge-*. In those examples which do possess this prefix, the lexical and the grammatical morphemes (suffixes) are observed to come from Croatian in (6.172), (6.174) and (6.176), while (6.144) and (6.171) involve instances of a German lexical morpheme which is followed by a Croatian grammatical morpheme. Also recorded is an instance of an English lexical morpheme is followed by a German grammatical morpheme (6.175).

In order that both types of mixed verbs seen in Table 6.23 (those with and those without the German PTM *ge-*) be put on a more equal footing, the German PTM *ge-* will be disregarded in our subsequent morpheme count (so as not to prejudice the morpheme count in favour of German). It can be seen that the incidence of Croatian lexical morphemes (4) is greater than that of German (2) and English (1) lexical morphemes. Also, the incidence of Croatian grammatical morphemes (5) is greater than that of German grammatical morphemes (2). No English grammatical morpheme is noted in the examples in Table 6.23. This means that, in the case of IF's mixed verbs, Croatian contributes more lexical and grammatical morphemes (9) compared to German (4) and English (1).

In the case of the child EK (cf. Table 6.22), the analysis provides a different tally (again, disregarding the German PTM for the moment): 10 morphemes come from Croatian, 10 from English and 5 from German.

The proportion of participation of each of the languages in the children's mixed verb production is evidently different, although Croatian figures as the biggest contributor of morphemes in both children's cases. In EK's case, English is as frequently used as Croatian, while German is used half as often. In IF's case,

English is the least-used language in mixed verbs, while German figures half as frequently as Croatian.

For the sake of clarity, the participation of each language in providing lexical and grammatical morphemes in the mixed verbs produced by the two children in the present study is given first, second or third place in Table 6.24.

Table 6.24: Order of apparent participation of each language in providing lexical and grammatical morphemes

	EK	IF
Croatian	1	1
English	1	3
German	3	2

A similar analysis is now performed on the other two word-classes observed to participate in word-level mixing, that is, nouns and adjectives.

3.5 MIXED NOUNS AND MIXED ADJECTIVES

Due to the limited size of the data set involving mixed nouns and mixed adjectives, these are presented jointly for the child EK in Table 6.25. Only one example, that of a mixed noun, is in evidence for the younger child IF, and it is presented in Table 6.26.

Table 6.25: Language combinations in mixed nouns (EK)

Example Number	Lexical Morpheme	Grammatical Morpheme
NOUNS		
(6.147)	G	C
(6.150)	G	C
(6.151)	E	C
(6.153)	G	C

Example Number	Lexical Morpheme	Grammatical Morpheme
(6.156)	E	C
(6.159)	G	E
(6.163)	G	C
(6.167)	G	C
(6.168)	E	C
ADJECTIVE		
(6.158)	G	C

In the case of mixed nouns produced by EK, of which there are 9, it can be seen that the majority of lexical morphemes, that is, 6, come from German, and only 3 from English. What is striking in Table 6.25, however, is the fact that grammatical morphemes are supplied by Croatian almost exclusively (in 8 instances out of 9). Only one grammatical morpheme is provided by English in (6.159).

In the case of mixed adjectives, only one instance is recorded during the period of observation, and it involves a German lexical and a Croatian grammatical morpheme (example (6.159)).

Table 6.25, therefore, shows that Croatian is the language which provides the majority of the grammatical morphemes in the mixed nouns and the mixed adjectives. This is due to that fact that both English and German are less inflected languages and do not require noun case endings as does Croatian. Although nouns and adjectives *are* inflected in the German language (albeit to a lesser degree than in Croatian), no instance is recorded in which German provides the grammatical morpheme (for example in combination with the recorded English lexical morphemes in examples (6.151), (6.156) and (6.168)), and only one instance shows an English grammatical morpheme being utilised (example (6.159)). As mentioned previously in section 3.1 in the context of word-level mixing in bilingual utterances, the abundance of Croatian

grammatical morphemes may come as a result of the fact that Croatian is the comparatively more highly inflected language compared to English and German. In addition, it was seen that Croatian children are reported to master some aspects of inflection at an earlier time than their English counterparts in their own language (cf. Kovačević, Jelaska and Brozović, 1998).

For IF, only one example, that of a mixed noun, is found in the data corpus from the audio recordings and the written notes (see Table 6.26).

Table 6.26: Language combination in a mixed noun (IF)

Example Number	Lexical Morpheme	Grammatical Morpheme
(6.182)	G	C

This mixed noun, in example (6.182), is seen to involve a combination of a German lexical morpheme (*Schrank-* 'cupboard') and a Croatian grammatical morpheme (-u). In IF's case, too, the grammatical morpheme is supplied by Croatian (similar to the instances of mixed nouns in the case of EK in Table 6.25). However, due to the fact that only one example of a mixed noun is in evidence for IF, there can be no talk of a general trend in this child's production with regard to mixed nouns.

3.6 SUMMARY

The section on word-level mixing sets out with examples from some existing bilingual studies (cf. Gawlitzek-Maiwald and Tracy, 1996; Lanza, 1997b; Taeschner, 1983) and a trilingual study (Stavans and Swisher, 2006). It is seen that word-level mixing in these studies involves two languages, and that each language provides the lexical or the grammatical morpheme in a particular word. Furthermore, it is established that verbs make up a large proportion of the reported examples of word-level mixing, but, in the literature, a mixed reflexive pronoun is also reported (Gawlitzek-Maiwald and Tracy, 1996), as are mixed nouns (e.g. Hoffmann and Stavans, 2007; Lanza, 1997b; Taeschner, 1983).

Thus, in the literature, the majority of word-level mixing appears to involve open class items (verbs and nouns), but, in one instance, mixing is also seen to involve a closed class item, that of a pronoun (Gawlitzek-Maiwald and Tracy, 1996).

This study's data provides evidence for the following findings on word-level mixing:

- Word-level mixing is observed to involve inflected word classes.

- The word classes involve verbs, nouns and a single adjective.

- Only ever two languages are involved in the make-up of a mixed word, even in otherwise trilingual utterances.

- Overall, all three languages are recorded as providing lexical and grammatical morphemes in word-level mixing, but they do so to different extents.

- The morphologically richest of the three languages in this study, Croatian, provides the overall majority of the grammatical morphemes (cf. Tables 6.22, 6.23, 6.25 and 6.26): in 17 out of 24 mixed words for EK, and in 6 out of 8 mixed words for IF.

- German provides grammatical morphemes in 10 out of 24 mixed words for EK, and in 6 out of 8 mixed words for IF.

- English provides grammatical morphemes in 4 out of 24 mixed words for EK (in examples (6.155), (6.157), (1.59) and (6.169)). No record exists of an English grammatical morpheme in mixed words produced by IF.

- The prevalence of Croatian grammatical morphemes in mixed words from the present study supports the finding made by Kovačević and colleagues (1998) with regard to the mastery of inflected word forms.

Apparently, inflected word forms are utilised by children acquiring an inflectionally comparatively richer language (in this case, Croatian) sooner than inflected word forms from an inflectionally less rich language (for example, English).

The present study is seen to concur with the studies by Gawlitzek-Maiwald and Tracy (1996), Lanza (1997b) and Taeschner (1983), who find that verbs are the word class most frequently involved in word-level mixing. This could be due to the degree of inflection required for this word class compared to the other word classes in the relevant languages (English, German, Norwegian and Italian).

Compared to these studies, which provide *some* representative examples of word-level mixing, the present study goes one step further by presenting and analysing *all* recorded examples of word-level mixing from its subjects EK and IF.

Although a total of 32 examples of word-level mixing are recorded for both children jointly, if their occurrence is spread over the ten-month period of observation, then their incidence can be considered to be low. The rarity of utterances involving mixed words is exemplified further by calculating the percentage these make of the total number of recorded mixed utterances from this period (see Table 6.27) and the overall percentage of recorded utterances (see Table 6.28).

Table 6.27: Percentage of utterances involving mixed words from the total number of mixed utterances (from audio recordings and written notes)

	Utterances Involving Mixed Words	Number of Mixed Utterances	Percentage
EK	24	195	12.31%
IF	8	85	9.41%

Table 6.28: Percentage of utterances involving mixed words from the total number of utterances (from audio recordings and written notes)

	Utterances Involving Mixed Words	Total Number of Utterances	Percentage
EK	24	972	2.5%
IF	8	664	1.2%

It can, therefore, be concluded that the incidence of word-level mixing in the overall context is very small indeed for both children.

Before concluding this section, it needs to be said that the focus here was on the applicability of Poplack's (1980) Free Morpheme Constraint, on a qualitative analysis of word-level mixing and on a quantitative analysis of the incidence of this type of mixing in the children's overall production.

As far as Poplack's (1980) Free Morpheme constraint is concerned, it was seen that it is not applicable in the case of language data from children (from the present thesis and previous studies) aged between 1;4 and 3;6 due to the existence of instances in which this constraint is contravened (in the case of word-level mixing).

The qualitative analysis of data shows that mixed verbs make up the majority of word-level mixing, followed by nouns. Only one instance is recorded in which an adjective participates in word-level mixing. The qualitative analysis has also shown that Croatian, the morphologically richest of the three languages, supplies the greatest number of grammatical morphemes in the data. By contrast, English, the morphologically least rich language of the three, supplies grammatical morphemes in a mere handful of examples.

A quantitative analysis of the incidence of word-level mixing in the children's overall production makes clear that the incidence amounts to under 3% in both children's cases.

Addressed previously in the section on *whole-word* mixing, the issues of ML/EL identification and of the word classes involved in the so-called EL are not taken up in the discussion of *word-level* mixing. It is assumed that what lacks applicability in the case of mixed utterances involving whole-word mixing will be lacking in the case of mixed utterances involving word-level mixing. Indeed, a preliminary analysis of the latter shows that ML identification according to the distinction between content and system morphemes (as suggested by Myers-Scotton, 1993; 2006) is not applicable. The suggestion that the ML supplies the mixed utterance's morphosyntactic structure is not upheld in the data involving word-level mixing, just as it was not upheld in the data involving whole-word mixing either. Closed class items, which should only be provided by the ML, are found to be also present in EL items (such as aux V, Adv, Pron, the German past participle prefix (PTM) and various inflections. In whole-word and word-level mixing, identification of the ML by means of a majority morpheme count is found to be more fruitful than by means of Myers-Scotton's (1993; 2006) constraints within the Matrix Language Frame (MLF) model. The decision to omit the relevant analysis involving word-level mixing from the main body of this thesis was correct, because it reflects the findings made previously in the context of whole-word mixing.

The outcome of ML identification by means of a morpheme count is shown in Table 6.29. In both children's data, the ML is identified as involving Croatian in the majority of mixed utterances. Either German or English are identified as being involved most frequently as the ELs in the children's mixed utterances.

Table 6.29: Incidence of the participating languages as ML and EL respectively

Child	Mixed Utterance	ML	EL
EK	Bilingual	Croatian 8 English 5 German 3 ambiguous 4	German 11 English 4 Croatian 1

Child	Mixed Utterance	ML	EL
	Trilingual	Croatian 2 English n/a German 1 ambiguous 1	English 3 Croatian 2 German 2
IF	Bilingual	Croatian 4 English n/a German 2	German 4 English 1 Croatian 1
	Trilingual	ambiguous 1	

It can be seen that the majority morpheme count, although a generally productive means of ML identification, cannot resolve all instances involving mixing. In some mixed utterances, two or even three languages may share the same number of morphemes, regardless of whether these mixed utterances involve whole-word or word-level mixing.

The ultimate chapter of this thesis, Chapter 7, is a review and discussion of relevant issues. It underlines the significance of the analyses performed here and evaluates the impact of the thesis's contributions.

CHAPTER 7

FINDINGS AND IMPLICATIONS

An investigation of the nature of trilingual children's utterances involves a complex array of intertwined issues. This is exemplified not only in the present study, but also in previous research. This section seeks to present the main findings from the present thesis and to qualify them by comparing and contrasting them with previous findings.

The original research questions which led this investigation concern the children's language performance and the tools available to the investigator for analytical purposes. In concrete terms, the questions address the issues of (i) the distribution of the three languages available to the children in this study in interactions with other family members and with the wider community, (ii) the distribution of these languages in the children's mixed utterances, and (iii) the availability of an analytical framework to account for utterances recorded in the data corpus. These issues are discussed further below.

By investigating these issues, the present study sought to contribute not only to the understanding of the language performance and communicative competence of the Trilingual First Language (TFL) children under observation, but also to the understanding of the issues which need to be taken into consideration in analysing and evaluating recorded data in such a case study. The insights gained were also assisted in refining existing analytical frameworks.

In order to provide the fullest account of the communicative competence of the children in this study, the main focus in this thesis was on the children's language performance, but their underlying language competence was also considered. In addition, relevant information was provided about the circumstances in which the children make use of mixed utterances and the frequency with which they do so.

In the present thesis, mixed utterances are recorded throughout the period of observation, which spans ten months (between the children's ages of 1;4 and 2;1 and between 2;9 and 3;6 respectively). Indeed, the period of observation

was selected on the basis that it provided evidence of mixed utterances, involving both two and three languages. While trilingual utterances ceased altogether at the end of this period, the children continued to produce bilingual utterances. It would be the aim of a future study to investigate the time span during which the bilingual utterances continued to be produced and to explore their make-up. Such an analysis could provide a chronological overview of whether and how the use of mixed utterances changed.

In what follows, review is passed of the availability of analytical frameworks, of the distribution of the three languages available to the children in this study in interactions with other family members and with the wider community, and, lastly, of the distribution of these languages in the children's mixed utterances. Concluding remarks round off the present thesis.

1. AVAILABILITY OF ANALYTICAL FRAMEWORKS

In the present study, two frameworks were chosen for analytical purposes. They involve Myers-Scotton's (1993; 2006) Matrix Language Frame (MLF) model and Poplack's (1980) Free Morpheme and Equivalence constraints. These were selected for the reason that they had been utilised in existing literature involving multilingual children's productions (e.g. Lanza, 1997b; Stavans and Swisher, 2006; Vihman, 1998). However, although findings from these case studies suggest that the constraints are generally applicable to multilingual children, exceptions are also recorded.

Myers-Scotton's (1993; 2006) Matrix Language Frame (MLF) model operates on the assumption that the participating languages in mixed utterances each have a separate role: the ML supplies the morphosyntactic frame of that utterance *and* some lexical items, while the Embedded Language (EL) is thought to provide lexical items to the exclusion of all else. The proposed model builds on and explains *adult* mixed utterances. As no model exists which would account for relevant *child* data, some studies in the literature have resorted to Myers-Scotton's (1993) *adult* model for the purpose of investigating and

explaining *children's* mixed utterances (e.g. Lanza, 1997b; Paradis, Nicoladis and Genesee, 2000; Vihman, 1998). The model's application has encountered some difficulties, however: although adherence to one aspect of the model is generally in evidence, exceptions have also been observed and reported. For example, Lanza (1997b) and Paradis et al. (2000) note that one language, which, coincidentally, is the community language in these two case studies, generally supplies the morphosyntactic frame of the utterance. Occasional shifts of ML in mid-utterance, reported by Vihman (1998), involve English grammatical morphemes in combination with Estonian lexical morphemes in utterances which, based on the notion of context, are identified as Estonian. Vihman (1998), for example, notes the occurrence of items such as *ilusa***st** ('prettiest') and *sooj***est** ('warmest'), where the Estonian lexical item is supplied with an English grammatical element in utterances which are identified as having Estonian as their ML.

In the present thesis, it is noted that grammatical words and morphemes – also called system morphemes by Myers-Scotton (1993; 2006) – from one language, the EL, are used in *bilingual* mixed utterances in which the ML is identified (by morpheme count) as the other participating language. For example, one of EK's bilingual utterances at age 3;6 involves Croatian as the ML and English as the EL: **May I have the** muziku na ovu kazetu? ('May I have the music on this tape?', meaning 'May I listen to the music on this tape?'). The EL, however, contains grammatical elements such as an auxiliary verb ('**may**'), a pronoun ('**I**') and a determiner ('**the**'). The ML too contains grammatical elements, such as noun case suffixes ('-u', in the case of the nouns 'muziku' and 'kazetu'), a preposition ('na') and a pronoun with the required case ending ('ovu'). Further examples of this can be found in Chapter 6, sections 2 and 3.

System morphemes *from more than one language* are also in evidence in trilingual mixed utterances recorded in the present study (cf. Chapter 6, sections 2 and 3). Indeed, frequently all three participating languages contribute grammatical elements to a trilingual utterance in which only one of them, according to a majority morpheme count, is the ML. For instance, in EK's

utterance (at age 2;9) **Please could** *mir* <u>to</u> *gebe*? ('Please could you give it to me?'), the ML is German, but the grammatical elements involve an interjection and an auxiliary verb from English ('**please**', '**could**'), a pronoun and a verbal suffix from German ('*mir*' '-*e*') and a pronoun from Croatian ('<u>to</u>').

In some bilingual and trilingual utterances from the data corpus in the present study, the number of morphemes from all three participating languages is the same, as in IF's (aged 1;11) utterance <u>Ja ima</u> *viele* **mouth**. ('I have many mouths.'), where there are two morphemes per language ('<u>ja</u>', '<u>ima</u>', '*viel-*', '-*e*', '**mouth**-' '-**Ø**'). Such utterances are ambiguous with regard to ML and EL identification, which could pose a difficulty in *quantitative* analyses of particular mixed utterances. However, such utterances are interesting in themselves, in the qualitative analysis, and the ML/EL differentiation is not necessarily key. For this reason, in the present thesis, examples of trilingual utterances with an equal morpheme count per participating language were retained for the *qualitative* analysis of trilingual mixed utterances. In addition, in view of the general scarcity of 'truly trilingual' (Hoffmann and Widdicombe, 1999: 53) utterances in the existing literature, the presentation and discussion of the whole corpus of trilingual utterances as recorded in audio and written form was considered by the present author to be beneficial for research into TFLA in general.

Due to these fundamental contraventions of Myers-Scotton's (1993; 2006) proposed MLF model, reported both in the present study and in other literature (e.g. Lanza, 1997b; Vihman, 1998), it is suggested by the present author that this model be considered not fully applicable to data involving children's mixed utterances. The diversity and variation of mixed utterances in the present thesis and, indeed, in some existing studies (Lanza, 1997b; Paradis, Nicoladis and Genesee, 2000; Vihman, 1998) have apparently defied a unified explanation. More recently, Myers-Scotton (2002; 2006) herself suggested that the MLF model is designed to explain mixed utterances in which *only one* language supplies the morphosyntactic framework. According to Myers-Scotton (2002; 2006), this is *classic codeswitching*. Utterances in which *more than one*

language supplies the morphosyntactic framework is referred to by Myers-Scotton (2002; 2006) as *composite codeswitching*. This type of codeswitching is said to occur "when speakers do not have full access to the desired ML" (Myers-Scotton, 2002: 22), that is, "when there is competition between languages for the role of ML" (Myers-Scotton, 2002: 22). Interestingly, according to Myers-Scotton (2006: 242), composite codeswitching is "less frequently described and its structure is less well explained just because its structure is less 'neat'".

Other rules about what is permitted to occur in (adult) mixed utterances, such as Poplack's (1980) Free Morpheme and Equivalence constraints, have also limited applicability to child data. The Free Morpheme Principle, for example, prohibits a switch to another language to occur between the root of a word and its affix. However, this is exactly what is observed in some data not only from the present thesis but also in data reported in several case studies in the literature (cf. Chapter 6, section 3). For example, instances in the present data involving the German PTM *ge-* being added to either Croatian or English verbs (as in '*ge*-skliznule' ('ge-slipped') and '*ge*-**eat**') are not infrequent.

Poplack's (1980) Equivalence Constraint, by contrast, suggests that a switch to another language in an utterance is possible solely at points which are common to the participating languages (cf. Chapter 2, section 2.8a). In the present thesis, this principle is applicable to some of the mixed utterances. However, due to the children's linguistic immaturity (with regard to the adult-target word order), examples are also identified in which the Equivalence Constraint is not applicable. A bilingual mixed utterance produced by the younger child IF at age 1;5 is a particular case in point: Mrkva drži jedan *meins.* ('carrot holds one mine', that is, ' I am holding my carrot' or 'I am holding a carrot and it is mine.'). In this utterance, produced in a single breath, the sentence structure and its word order are incompatible with any structure from the languages available to this child. It has previously been suggested that Poplack's (1980) Equivalence Constraint is not applicable to data involving typologically different languages (Romaine, 1986). In the present study, there is some typological diversity

between the participating languages, such as the fact that Croatian and German are nominative-accusative languages, while English is a language which, due to the lack of morphological case distinction between nominative and accusative, relies on word order for the distinction between the subject and the object (cf. Chapter 4, section 1).

Violations of proposed constraints, such as the one in the previous paragraph (and others, reported by Lanza, 1997b; Stavans and Swisher, 2006), have been attributed to the children's insufficient morphosyntactic development (Meisel, 1994a; Paradis, 2007). In other words, it has been proposed that because children are not yet in full possession of grammatical competence, they are not in a position to adhere to the proposed rules. This non-compliance with suggested constraints and with criteria for ML identification has prompted some changes in thinking. Paradis et al. (2000), for example, suggest that the ML should be "the language from which the *majority* of the child's morphemes come in a stretch of discourse" (Paradis, Nicoladis and Genesee, 2000: 251; present author's italics), irrespective of whether they are grammatical (system) or lexical (content) morphemes. By contrast, Myers-Scotton (1993; 2006) proposes that all *system* morphemes must come from the same language, that is, the language which functions as the mixed utterance's ML.

Tracy (2000) is in agreement with the majority morpheme count as one of the criteria for identifying the ML. Tracy (2000) suggests that Myers-Scotton's (1993; 2006) rules of ML identification according to the MLF model were designed for *adult* mixed utterances, and that the majority morpheme count and the so-called 'language of the conversation' (Tracy, 2000: 18) are tools to be utilised in the analysis of *child* mixing:

> "it is typically assumed that the base language can be determined by considering (a) the language requirements of the situation or conversation, in particular the language of the participant, and (b) sentence- or utterance-internal criteria, such as the language of the majority of words or morphemes or the types of categories involved, as in the Matrix Language Frame model." (Tracy, 2000: 17).

However, both criteria for establishing the ML are said to have their shortcomings: (i) the language of the conversation may be problematic in that "children may have an altogether different perspective of what the language of the conversation should be" (Tracy, 2000: 18), while (ii) the criterion of 'the majority rule' (Tracy, 2000: 18) is problematic especially in the case of children's short utterances. Short utterances, which make up a significant number of utterances in children's early phases of language acquisition (Tracy, 2000), can involve the same number of morphemes from each participating language (cf. Chapter 6, sections 2 and 3).

A majority morpheme count can, furthermore, encounter difficulties in utterances containing items which are ambiguous with respect to their source language (such as the preposition 'in', which exists in both English and German). Alternatively, the majority count can, reportedly, also be frustrated by a mixed utterance's word order. Due to Tracy's (2000: 19) finding that some ambiguities in data involving mixed utterances "cannot be resolved locally", the author suggests considering data from the remainder of the data corpus, because such an analysis may affect a decision with regard to a mixed utterance's ML. However, Tracy (2000: 21) also suggests that "whatever criteria we employ, they need not converge in any simple way and may be contradictory" with regard to determining the ML in a mixed utterance. Tracy speculates that "a different baseline" (Tracy, 2000: 20) needs to be adopted in different communicative situations. This means that different approaches need to be considered in analysing children's mixed utterances: in Lanza's (1997b) case study, for example, the child's use of a Norwegian item in conversation with her English-speaking mother is considered a mix. Here, the utterance (and its ML) is analysed according to the context. In interactions with both parents, however, involving an English-speaking mother and a Norwegian-speaking father, a mixed utterance was analysed for context (that is, which parent is addressed at that instance) *and* a majority count before the ML is identified.

In the present study, the situation is found to be similar, in that more than one criterion for the identification of the ML was seen to be required. It was found

that in conversations between the children with each other or with their mother, there was a degree of flexibility with regard to which language was utilised (cf. Chapter 4, section 4). This means that, although the context of the interaction needs to be considered (i.e. who is speaking to whom), the majority morpheme count may provide a less ambiguous outcome in the matter of language choice than does the criterion of the context. In interactions with the father, however, where the expected language is German (apart from infrequent situations which involve monolingual English speakers and in which the expected language of interaction between the father and the children is English), ML identification is simpler and can be achieved by context alone.

The criterion of context, however, may be of no assistance in situations involving children's isolated utterances. Such utterances are sometimes recorded after a long period of silent play, for example, and may not be followed by any other conversation. In such an instance, the majority count is the only criterion for ML identification, as the criteria of language of conversation and context are unavailable.

Despite the use of various criteria for ML identification (depending on the demands of the situation), other instances of ambiguity have been recorded in the present study. These involve short utterances in which the context is unavailable or ambiguous and in which the majority count is in favour of none of the participating languages (cf. in particular some trilingual utterances produced by the children in the present study and reported in Chapter 6, section 3).

Both the present thesis and previous studies suggest, therefore, that the choice of analytical tool in the context of ML identification depends on the circumstances surrounding the mixed utterances to be analysed. In other words, if, for example, ML identification is impossible according to Myers-Scotton's (1993; 2006) criteria, then the criterion of context can be taken into consideration, as can a morpheme count and the utterance's word order. The criterion of 'language of conversation' is not such a reliable criterion in this context.

Ambiguities in this thesis involve children's short utterances as well as those utterances in which the morpheme count and/or the word order are ambiguous. It is possible that, in typologically more diverse languages, the incidence of such ambiguities is rarer (owing to, for example, distinct word order). This aspect, however, requires further investigation before it is confirmed.

Future studies could, furthermore, also contemplate whether ambiguities in the application of some analytical frameworks are not caused by the degree of linguistic maturity: as children mature, so the applicability of specific analytical frameworks might improve.

On the other hand, in cases of lasting ambiguities, it has been suggested (Tracy, 2000), it may be necessary to accept that there may be multilingual children's utterances which do not have "a definite language" (Tracy, 2000: 21) but, instead, are "rich in multiple representations" (Tracy, 2000: 21).

It was seen above that the criterion of context can be the only criterion required for ML identification in communicative situations involving one particular language. In circumstances in which the other speaker is a multilingual who is known to the child to negotiate a variety of communicative situations involving a variety of languages, language choice may be more fluid. This will require that not only is the criterion of context considered in ML identification, but also the criterion of morpheme count and maybe that of word order. This, however, implies that not all communicative situations will be assessed using the same means. Nevertheless, the outcome of this analysis, whether by context, morpheme count or word order, will be the same, that is, the identification of an utterance's ML.

The tool found to be most useful in the present study involves the morpheme count, even though several utterances remained ambiguous.

2. DISTRIBUTION OF THREE LANGUAGES IN INTERACTIONS WITH FAMILY MEMBERS AND THE COMMUNITY

This study has shown that the children under observation display a good degree of sociolinguistic sensitivity, by generally adhering to the language of communication required in a particular situation. This was especially visible in interactions with the father and the wider community: in interactions with the father, German was predominantly utilised by both children, while in interactions with the wider community, mainly anecdotal evidence suggests that the required language, English, was adhered to throughout the period of observation (apart from very rare instances of mixed utterances).

With their mother and with the other sibling, on the other hand, the children were recorded to utilise all three of the languages in their repertoire, both monolingually as well as bi- and trilingually (cf. Chapter 4, section 4). Adherence to Croatian, the language chosen by the mother for interactions between herself and the children, was seen to be at an average of just under 64% for the elder child EK, while it stood at about 84% for the younger child IF. The use of English, the community language, in interactions with the mother increased during the period of observation, while the use of German was seen to decrease (cf. Chapter 4, section 2.2 and sections 4.1 and 4.2).

This is most likely to be a result of the increase in exposure to English through attendance of nursery by the elder child EK. The use of German in the setting with the mother was seen to decrease as a result of an increase in the children's use of Croatian (cf. Chapter 4, section 4). With regard to bilingual utterances in interactions with the mother, their number generally decreased for both children during the period of observation (cf. Chapter 4, section 4). In the audio data, trilingual utterances in this setting were recorded only for the elder child EK, and then only during the second half of the period of observation.

The data from the written notes, however, revealed a different picture. Chapter 3, section 2 shows that written notes were taken at times when audio recordings were unavailable and that their focus was on capturing, among others,

utterances involving the use of more than one language. The written notes, therefore, were partially biased towards mixed utterances. Accordingly, an analysis of the relevant data from the written notes shows the incidence of mixed utterances to be generally greater than in the data from the audio recordings (cf. Chapter 5), with a number of trilingual utterances recorded in the speech of both children. Nevertheless, in the present case study, trilingual mixed utterances ceased altogether to be recorded and observed at the end of the period of observation. Bilingual utterances, by contrast, continued to be utilised in accordance with the children's perceived need and depending on the sociolinguistic context.

In the TFLA literature, accounts of the distribution of the participating languages in different interactional settings are, generally, reported. However, these accounts tend not to involve quantification. This is in contrast to the present thesis, which performs a quantitative analysis with regard to the distribution of the languages (cf. Chapter 5). Nevertheless, it is reported that children in trilingual case studies are generally exposed to one language from each parent (e.g. Hoffmann, 1985; Hoffmann and Widdicombe, 1999; Quay, 2001; Stavans and Swisher, 2006), while the third language is that of the community. As a rule, little use of mixed utterances is reported in the monolingual interactive setting. In the multilingual setting, however, mixed utterances are commonplace. For example, Stavans (1992: 47) reports that the highest number of mixed utterances in her case study occurs "when the interactive setting was trilingual (i.e. parents-children, the most frequent setting)". Therefore, when the potential for mixed utterances was wider, the incidence of mixed utterances was reported to be greater (Stavans, 1992). This is a finding which was also made by Lanza (1997b) in the field of BFLA: the child was more likely to use words from both languages in the same interaction in a bilingual rather than in a monolingual context.

Based on the finding in the present thesis, whereby mixed utterances are reportedly extremely rare in the predominantly monolingual community setting, very infrequent in the setting with the bilingual father, but a relatively frequent

occurrence in the settings with the trilingual mother and the trilingual sibling, Stavans' (1992) observation appears to be very pertinent.

Sociolinguistic sensitivity, therefore, seems to be a strong feature of trilingual children's communicative competence, both in this thesis and in the relevant literature. There is evidence that BFL and TFL children have the ability to use language appropriately in diverse social settings. This thesis suggests that evidence of limitations in a child's lexical and grammatical resources, which can be manifested in the form of mixed utterances, should be seen as a sign of the children's developing competence. In addition, based on the finding that the MLU values are generally higher in mixed utterances, it is reasonable to state that the children are able to produce more complex utterances (potentially expressing more complex ideas) when they employ the resources of the other language(s).

3. DISTRIBUTION OF THE LANGUAGES IN THE CHILDREN'S MIXED UTTERANCES

The distribution of the languages in the children's mixed utterances is related to two issues: (i) which languages are utilised, and (ii) how they are distributed in mixed utterances in terms of word class membership.

With reference to (i), it was seen in the present thesis that the mixed utterances produced by the children in this study show evidence of the involvement of all three languages – either in a bilingual combination or trilingually – throughout the period of observation (cf. Chapter 5). Preference for a particular bilingual combination is difficult to establish, though as the variety of interactive settings and topics of conversation needs to be taken into consideration in this context.

Because the written notes were taken by the investigator less regularly, and because part of their focus was, as already mentioned, on mixed utterances in particular, data from this source was thought to be less representative of the children's overall language production than data from the audio recordings. If,

therefore, the audio recordings are singled out for analysis in the first instance, the preferred language pair in mixed utterances for both children involved Croatian-English (cf. Chapter 5). Croatian is the language selected by the mother for interactions between the children and herself, while English is the community language.

In the written notes, however, preference for a particular language pair involved Croatian-German in the case of the elder child EK. The younger child, on the other hand, displayed a slight preference for Croatian-English over the two other language combinations, Croatian-German and German-English. As pointed out in the previous section, though, it is difficult to generalize these findings due to the bias identified in collecting data in the written notes and due to the variety of socio- and psycholinguistic factors affecting language choice (ranging from the situation and the topic of conversation to the speaker's preference for a particular language or language combination at a particular time).

Myers-Scotton's MLF model (1993; 2006) was used to investigate (ii), the distribution of each of the three languages in the children's mixed utterances according to word class membership. This model specifies that a mixed utterance's main language, the Matrix Language (ML), can involve both open class and closed class items. The other language in a mixed utterance, the so-called Embedded Language (EL), is said to contribute open class items only.

The analysis in this thesis, however, has shown that the EL of the children's mixed utterances (based on a morpheme count) provided not only open class items (N, V, Adj, Adv), but also a large variety of closed class items (Aux V, Pron, Prep, Det, Int, Conj, Comp Part). The analysis furthermore showed that the EL provided a particular group of word class items most frequently in mixed utterances from the children in the present study. This group involves the closed class items of pronouns (see Tables 6.15 and 6.16 in Chapter 6, section 2.6). In frequency of appearance, this group of items was followed in second and third

place by verbs and nouns for EK, and by nouns and verbs for IF. In fourth place were adverbs.

This finding is in contrast to findings previously reported in the literature. Redlinger and Park (1980), and Stavans and Swisher (2006) found that members of open class items – *nouns and verbs* – were the most frequently mixed word class items.

In the present study, a striking similarity can be seen between the two children under observation: the ELs are recorded to supply a large number of pronouns, a closed class group of items, in the children's mixed utterances. In decreasing order, pronouns are followed by nouns and verbs, adverbs, auxiliary verbs and prepositional phrases. Because there is evidence that the children in the present study tend to have pronouns at their disposal in each of the three languages, it is not immediately evident why they should use another language's pronouns in their utterances. A possible explanation could be that the acquisition of pronouns in each of the languages is as yet incomplete and that the children make use of items which are most readily available at a particular point in time. This similarity between the siblings is all the more striking given the difference in the children's ages and their linguistic abilities.

A distributional analysis of mixing in a *bilingual* study by Redlinger and Park (1980) found nouns to be the most frequently substituted word class in the speech of four two-year-old bilingual children. Other word classes involved in the children's mixed utterances differed from one child to the next: while frequently mixed word classes for the child Danny also involved adverbs, determiners and pronouns, in the case of the child Henry, they involved adverbs and pronouns, while in the child Marc, the use of adjectives, adverbs and prepositions was noted. The reasons contemplated in Redlinger and Park's (1980) case study were that an *acquisition lag* accounted for the occurrence of mixing: "the acquisition of an item in one language would be a session or two behind that of the corresponding item in the other language" (Redlinger and Park, 1980: 349).

In the *trilingual* study by Stavans and Swisher (2006), nouns and noun phrases figured most highly in the children's mixed utterances, followed by verbs and verb phrases. In order of appearance, these word classes are followed by adjectives, adverbs, conjunctions and prepositions.

In the existing literature, therefore, word class membership of EL elements is frequently seen to involve open class items, as proposed by Myers-Scotton's (1993; 2006) MLF model. However, closed class items, equally, provide a fair share of EL elements, as was seen above. In the present case study, the list of word classes constituting EL elements is headed by pronouns, a group of closed word class items, followed by verbs, nouns and adverbs, which are considered open class items. Although the data stem from two children of the same family, which means that the children may have an influence upon each other's productions, the fact that *closed* word class items feature as EL elements in mixed utterances of children from various case studies merits still further attention and investigation. At the same time, however, the existence of closed word class items as EL elements strengthens the case made by the present study that Myers-Scotton's (1993; 2006) MLF model is not applicable to child studies.

4. CONCLUDING REMARKS

In this investigation into the nature of trilingual children's utterances, a variety of inter-related issues were explored, ranging from the sociolinguistic circumstances surrounding the TFL children's upbringing, the assessment of their language development and the applicability of some existing analytical tools to quantitative and qualitative analyses of the children's recorded utterances, that is, of their actual language performance. It is concluded that the children in this case study show clear evidence of sociolinguistic sensitivity by generally selecting the appropriate language(s) for specific communicative interactions. The children's mixed utterances, generally recorded in the presence of the children's mother and the sibling, show that the children combine lexical and grammatical elements from each of their languages in

order to produce an utterance of generally greater complexity and overall length than if the utterance were produced monolingually (cf. Chapter 4, sections 3.1.e and 3.3.c). This finding shows that mixed utterances should not be regarded as a sign of language deficiency, but rather as a sign of the children's linguistic creativity, assisting the production of utterances which satisfy the children's communication needs in a given situation. In this, the present thesis concurs with Genesee (2006), who highlights multilingual children's "linguistic resourcefulness and communicative competence" (Genesee, 2006: 58).

The applicability of previously proposed constraints (Myers-Scotton, 1993; 2006; Poplack, 1980), originally proposed in the context of adult mixed utterances, was demonstrably limited in the context of child data. Both the present study and some previous studies find that these constraints are not applicable in their entirety to child data (e.g. Stavans and Swisher, 2006; Tracy, 2000; Vihman, 1998).

Some alterations to these constraints, previously suggested in the literature, found greater applicability to data from the present study. For example, Tracy's (2000) suggestion that the Matrix Language (ML) of a mixed utterance be identified by means of a majority morpheme count was successfully applied. Myers-Scotton's (1993; 2006) previously proposed means of establishing the ML as the language which provides *all* of a mixed utterance's *grammatical* morphemes was generally inapplicable due to the presence of grammatical morphemes from at least two participating languages.

Also inapplicable to data from the present thesis was Myers-Scotton's (1993; 2006) proposal that only *open class* items can be supplied by the Embedded Language (EL) in a mixed utterance. The EL provides open class as well as closed class items in the present study.

Last but not least, it was found that Poplack's (1980) Free Morpheme constraint is inapplicable to child data. This principle does not permit a switch to another language between the root of a word and its affixes. However, evidence from

the present thesis and from previous case studies shows that this is exactly what is seen to occur in the speech of multilingual children (cf. Chapter 6, section 3). It is observed that verbs are the word class which is most prone to word-level mixing in the present thesis. This finding corroborates that made by some previous studies in the context of BFLA (e.g. Gawlitzek-Maiwald and Tracy, 1996; Lanza, 1997b; Taeschner, 1983).

Grammatical immaturity (with regard to the adult standard) is apparently part of the reason for mixed utterances and mixed words, but so is the morphological complexity of the participating languages. In accordance with the finding by which children learning a morphologically more complex language will use some bound morphology earlier on than children learning a morphologically less complex language (De Houwer, 2009; Kovačević, Jelaska and Brozović, 1998; Sinka and Schelletter, 1998), it was found in the present study that the morphologically more complex language – Croatian – is the language which tends to provide the grammatical morphemes for lexical morphemes which stem from either English or German.

Based on these findings and the fact that relevant data show great diversity in the make-up of mixed utterances, it was found that, while existing constraints may be inapplicable to mixed utterances from children, a combination of some other criteria for ML identification is of assistance (the context of the communicative situation and the morpheme count). At present, it seems impossible to formulate a constraint which would be applicable to children's mixed utterances. It is necessary for a series of studies to be undertaken, involving a wider range of languages, with the specific task of exploring the mixed utterances of children. The cumulative effect of such investigations will shed more light onto what happens when two or more languages contribute to the make-up of an utterance and will improve existing understanding of child productions (cf. Döpke, 2000b). However, it would appear from existing research into BFL and TFL children's language production that pragmatics plays a more important role than form: the children seem to make use of linguistic features from the participating languages as and when it is felt these

are required, in situations which the children deem appropriate. This is exemplified by Cruz-Ferreira (2006: 255) with a child's retort to the mother's question (both originally in Portuguese) about the language the child is speaking:

Mother: 'Sweetheart! Which language are you speaking?!

Child (9;4):   'Whichever, to say what I want to say!'

When exploring the nature of TFL children's utterances, this thesis makes no comparisons to monolingual counterparts because it supports Romaine's (1989: 282) observation that "a reasonable account of bilingualism cannot be based on a theory which assumes monolingual competence as its frame of reference". In this thesis, this observation is extended to include trilingualism. In addition, comparative studies "usually have a judgemental purpose, often that of showing that bilingual children are in some way lacking in linguistic competence, or are at least different" (Cruz-Ferreira, 2006: 4). However, bilingual speakers, and also trilingual speakers, are different from monolingual speakers. According to Cruz-Ferreira (2006: 5), "whether they are found lacking is a matter of analysis, and of what to count as the norm". The present thesis demonstrates that, rather than lacking in linguistic competence, multilingual children have additional resources at their disposal and are able to express more complex thoughts when using these combined resources than when speaking monolingually.

Cruz-Ferreira (2006: 310) also believes quite strongly that "more insight can be gained into language and its acquisition from studies of what different multilinguals do with their different languages than from any comparison between multilinguals and monolinguals". The present thesis is in agreement with this view and offers support by means of its very own investigation. Much remains to be learned as yet in the area of trilingual acquisition. Moving research forward by means of a case study like the present one, however, is a step in the right direction.

As such, this thesis will be of interest to different audiences: (i) to linguists working in related areas because it discusses both empirical and relevant theoretical issues, (ii) to language practitioners (teachers and other language specialists), who will find useful information about the variety of utterances produced by multilingual children, and, not least, (iii) to families bringing up their own children with more than one language.

DEFINITIONS

BFLA – Bilingual First Language Acquisition, i.e. acquisition of two languages from birth (De Houwer, 2009; Genesee, 2001; Genesee, 2006; Meisel, 1989; Meisel, 1994b);

Closed word classes – word classes which rarely admit new words (e.g. pronouns, determiners, auxiliaries, conjunctions, prepositions) (Greenbaum, 1991);

Embedded Language (EL) – according to Myers-Scotton (1993; 2006), one of the languages which participates in a mixed utterance; the language which supplies lexical morphemes;

Grammatical morphemes – also termed system morphemes by Myers-Scotton (1993; 2006); generally belong to closed word classes (Brown and Miller, 1991);

Lexical morphemes – also termed content morphemes by Myers-Scotton (1993; 2006); generally belong to open word classes (Brown and Miller, 1991);

Matrix Language (ML) – according to Myers-Scotton (1993; 2006), the language which supplies morphosyntactic elements in a mixed utterance; in other words, this is the language which builds the morphosyntactic frame of an utterance;

Mixed utterance – an utterance which involves a combination of elements from more than one language (De Houwer, 2009; Deuchar and Quay, 2001; Lanza, 1997b);

Morpheme – the smallest unit of meaning or grammatical function (Crystal, 2002; Katamba, 2005);

Open word classes – word classes which are readily open to new words (e.g. nouns, adjectives, main verbs, adverbs) (Greenbaum, 1991);

TFLA – Trilingual First Language Acquisition, i.e. acquisition of three languages from birth (Quay, 2001);

Utterance – a length of speech which is bounded by silence (Crystal, 1992);

Word classes – traditionally, parts of speech (Greenbaum, 1991): verbs, nouns, adjectives, conjunctions, adverbs, prepositions, etc.

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