

Katja F. Cantone

Studies in
Theoretical Psycholinguistics 37

Code-switching in Bilingual Children



Springer

CODE-SWITCHING IN BILINGUAL CHILDREN

STUDIES IN THEORETICAL PSYCHOLINGUISTICS

VOLUME 37

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CODE-SWITCHING IN BILINGUAL CHILDREN

by

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A C.I.P. Catalogue record for this book is available from the Library of Congress.

ISBN 978-1-4020-5783-0 (HB)
ISBN 978-1-4020-5784-7 (e-book)

Published by Springer,
P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

www.springer.com

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ACKNOWLEDGEMENTS

On April 14th in 1997, a phone call opened up great new perspectives for me: *Natascha Müller* asked me to work in her new research project on bilingualism. Thank you, Natascha, for calling me that day, for introducing me to the world of research in bilingual language acquisition, and for being my supervisor.

I am very much indebted to *Jeff MacSwan*. First of all, I want to thank him for his assistance, for bringing to my attention several important theoretical topics regarding code-switching and for discussing with me child and adult CS data. Plus, thank you, Jeff, for tons of fruitful and helpful discussions via email (Hamburg-USA) and for your visit to Hamburg in December 2004. Thanks for supporting me and being my supervisor!

I want to thank *Hans-Joachim Roth*, for introducing me into a more educational viewpoint with respect to child data, for being a member of my committee, and for useful comments on the data.

I am really grateful to *Leonardo Boschetti*, who played a significant role in my decision to do linguistics: He was the teacher who made generative grammar interesting to me! Thank you, Leonardo, for encouraging me and following all my steps as a student.

Many thanks to *Gisella Ferraresi* for introducing me to Minimalism & for exchanging literature books, since linguistics is not everything.

The first book I read on bilingual research was *Regina Köppe's* work, which made me curious about code-switching. Regina, thanks for inspiring me.

Thank you to all those who worked with me, in particular my project colleagues *Katrin & Tanja* and everyone who contributed to data collection.

Thanks to *Linda Reams-Behboud*, for chats in and on English, for your helpful comments & for reviewing all previous manuscripts!

My gratitude goes to Springer, to the editors of the series *Studies in Theoretical Psycholinguistics*: *Lynn Frazier*, *Tom Roeper*, and *Kenneth Wexler*. Special thanks to *Jolanda Voogd* and *Helen van der Stelt* for helping me in publishing this book.

Thanks to everyone I met at the SFB (Research Center on Multilingualism) and at all the conferences I was able to attend in these years, and thank you to all who inspired my work.

I would like to warmly thank all children who participated at the Italian part of the research project: *Carlotta*, *Lukas*, *Jan*, *Aurelio*, *Franziska*, *Antonio*, *Lilli*, *Marta*, and *Luca-Daniele*.

Un grazie speciale a **Carlotta, Lukas, Jan, Aurelio e Marta** per aver giocato con noi, e grazie infinite alle loro famiglie per la loro cooperazione e disponibilità ☺

Last but not least, thanks to all those who are always with me, in happy and in difficult times: my boy-friend, my long-time friends, and my family. I want to particularly thank my Mother, who always supports me: This book is dedicated to her.

voglio essere la hexe del rathaus (Carlotta, 4;1,0)

vogliamo il il pirati la angel klauen (Lukas, 3;7,15)

**e aladin è andato con suo ehm ehm con suo teppich volante
(Jan, 4;10,6)**

queste sono le füße e questo pah pah! (Aurelio, 3;6,14)

gleich wenn ich so mach werd ich ein tricheco (Marta, 3;8,4)

**Maybe in doing research you only understand what you were
doing LATER...**

**first you do it and later, if you are lucky,
you understand what you were trying to do and
these questions become sort of clarified through time.**

Noam Chomsky,

An Interview on Minimalism (in Belletti & Rizzi (eds.)2001:155)

NOTE TO THE READER

I decided to hyphenate code-switching, and I will consistently do so in this work. For the sake of simplicity, citations will reflect the spelling convention in the cited work (e.g. *codeswitching* or *code switching*). I will also use the abbreviation CS.

With respect to the topic of this book: The terms switch and mix are used as equivalents. In the examples, the switching points, hence the mixed elements, are always underlined. Please consider that the English translation is literal.

Finally, the abbreviations and conventions used in this work are following:

Age e.g. 4;2,11	Four years, two months, eleven days
Ca	Carlotta
Lu	Lukas
Ja	Jan
Au	Aurelio
Ma	Marta
IC	Italian Context
GC	German Context
Ka, An	Italian Interlocutors
Na, Ta, Jn, Kt	German Interlocutors
/	end of an utterance
,	pause
(x)	illegible item

INTRODUCTION

This study investigates the issue of code-switching in young bilingual children, in particular, intra-sentential switches, that is, mixing within an utterance. The data come from five bilingual Italian/German children (age 1;8 to 5 years), who grew up in Hamburg, Germany. The term *bilingual* is used in order to describe a person who has been exposed to both languages from birth on (Meisel 1989:20). Hence, this work is placed within the research field of *Bilingual First Language Acquisition*.

The present book discusses three main issues.

The first assumption concerns language mixing in young bilingual children. Differently from former studies on mixing in children, I claim that bilingual children's mixed utterances should be analyzed in the same way as adult mixing. I further argue that child grammar is organized in the same way as adult grammar. Therefore, a grammatical development should not explain a different type of switching. In fact, I claim that there is no relation between the development of grammar in child speech and the quality of language mixing. The data rather show that language mixing depends on an individual choice, that is, either children mix throughout or they do not. Following Cantone & Müller (2005), slightly higher rates at the beginning of language production might be due to a performance factor. Since the operation *Select* has no full practice to pick items according to the language context yet, some *errors* might occur as long as fluency has not been reached.

A second claim is that code-switching should not be constrained by external rules. In the study of adult code-switching, a considerable number of restrictions have been proposed in order to account for the grammaticality of mixing two languages in a discourse, and,

more specifically, within a sentence. The underlying idea is that code-switching should be restricted and regulated by grammatical constraints. However, this discussion leads to formulating rules of a *third grammar*, a grammar of code-switching. By contrast, MacSwan (1999, 2000, 2004, 2005a,b) proposes that in code-switching no *third grammar* is required. The consequence is that what is allowed in monolingual grammar will also be allowed in code-switching. The analysis of the present data will confirm this approach. I agree with MacSwan (1999:146) that ‘nothing constrains code-switching apart from the requirement of the mixed grammars’.

A further important assumption of the present work concerns the grammatical analysis of code-switching. I claim that functional categories are crucial in studying word order in mixed utterances. The idea is that, in order to predict which language determines the structure of a mixed utterance, one has to look at functional categories. I will particularly discuss certain aspects, namely when the two grammars involved make different (and incompatible) predictions with respect to a specific grammatical phenomenon. I assume the following claims:

- (g) **C⁰ determines the features of the code-switched complements**
- (h) **T⁰ determines the features of the code-switched complements**
- (i) **The switched noun determines the gender of the determiner**

The analysis in chapter 7 will show that (i) cannot be maintained in full. As a matter of fact, the mixed utterances analyzed indicate that what occurs within the VP (Verbal Phrase) is independent of the language of T⁰. However, I argue that these claims make correct predictions for the analysis of code-switching.

I finally argue that the present data confirm the latest minimalist assumptions on the architecture of the mind, and moreover, that they shed light on some specific notions, which are difficult to account for with monolingual data.

The content looks as follows.

In chapter 1, the basic definitions used in this work are introduced, namely, bilingualism, and Bilingual First Language Acquisition (BFLA). Additionally, an overview on studies on these topics is given.

Chapter 2 discusses the issue of early mixing in young bilingual children. Several accounts which try to explain mixing in the earliest stage of language acquisition will be presented.

Chapter 3 is concerned with the theoretical framework this book is based on. Accordingly, both latest generative accounts (including the analysis of functional categories) and research on language acquisition are outlined.

Chapter 4 focusses on the issue of code-switching. In reviewing the literature, several constraints proposed in order to regulate this speech style are presented. A recent proposal to assume that code-switching is grammatical as long as the two grammars of the languages involved are respected will be sketched. The chapter ends with explaining why child mixing can be accounted for in terms of code-switching.

In chapter 5, the corpus which will be analyzed in this book will be introduced. Information on data collection, on the methodology and on the children studied is given. Additionally, the research design and the three main claims proposed here in order to make prediction about the language which determines word order in code-switching are sketched out.

Chapter 6 includes the empirical analysis of language mixing in the early stage of language acquisition. A quantitative as well as a qualitative discussion is pursued. The results show that the children mix to a low extent.

Chapter 7 is concerned with the analysis of the grammaticality of the mixed utterances produced by the children from approximately age 2;4 onwards. Some complicated instances of mixing, which at first sight seem to be ungrammatical, will also be discussed. In addition, it will be checked whether the claims formulated are corroborated by the present data.

Finally, in chapter 8, the findings of the analysis of code-switching data coming from five children are summed up. Furthermore, some proposals for further research in this field are raised.

CHAPTER 1

BILINGUALISM AND BILINGUAL FIRST LANGUAGE ACQUISITION

This chapter introduces the terms bilingualism and bilingual first language acquisition (BFLA), presenting several definitions of concepts regarding these topics which have been put forward in research over the last 50 years and more. It is important to clearly state which definition is being used when discussing topics with such different interpretations in the literature as well as in everyday life. The notion of bilingualism is especially overused in an informal way, in that a person is said to be bilingual when s/he knows more than one language.

Basically, research on bilingualism is concerned with two topics: One is to find appropriate methods of classifying bilinguals and their behavior with respect to their two languages, in the sense of language choice and language use. A crucial aspect is the question of how the bilingual individual deals with her knowledge of two languages, which involves studying phenomena like language competence and proficiency. Weinreich (1968) introduces a discussed model in which he proposes three types of bilingualism. In the field of psycho-linguistics, a very important contribution to the study of bilingualism has been made by Grosjean (1982, 1992, 1998, 2001). The other topic is to discover how these languages are stored in the brain, and whether or not they interact.

The acquisition of two languages from birth on is also an important topic in the studies of bilingualism. One could say that the main goal in the research field of BFLA is to prove that language acquisition in a bilingual child is comparable to that of a monolingual child. The difference is, of course, that bilinguals develop two language systems instead of one. The prediction that children do not distinguish the two

languages from the beginning has dominated the analyses of bilingual children language development. However, at present researchers are mostly concerned with the interplay of the two languages though they suppose them to develop separately.

Most studies on BFLA are also concerned with giving an explanation for language mixing in young bilinguals. It is usually claimed that language mixing in children, in contrast to adult's code-switching, has to be interpreted as evidence for confusion in the bilingual's language acquisition, in the sense that the two languages are not acquired separately, but start out as a single system. In the following pages, I will take a closer look at the first goal, that is, the evidence that BFLA is comparable to monolingual language acquisition.

1.1 DEFINITIONS

In trying to find an appropriate terminology for the term *bilingual*, one first has to clarify whether we are talking about an individual's ability to use more than one language (Fishman 1965), or about an ability that is delimited to the period of acquisition (cf. among many others Genesee 1989, Meisel 1989, De Houwer 1990, Köppe 1997). One also needs to distinguish between bilingual communities, where everyone has mastery of two languages, although mostly differently categorized (and even perhaps stigmatized), and individual bilingualism, viz. when a single person grows up bilingual living in a monolingual community, as in the case of the present study and of most studies concerning bilingual language acquisition (for bilingual acquisition in a bilingual setting, cf. the studies by e.g., Genesee 1989, Genesee, Nicoladis & Paradis 1995 concerning the French/English situation in Quebec, Canada).

Of course, several factors have to be taken into account when defining a person as bilingual. First of all, there are external as well as internal factors to be considered. External factors include the socio-political status of the languages, the attitude towards language mixing, the language community around the speaker (whether it is a bilingual setting or a case of individual bilingualism), and finally the function of speech in a certain context. Internal factors include language proficiency, the interaction between the languages, the degree of formality and intimacy,

the content of the message being uttered, and other factors belonging to the study of the grammatical development of the two languages.

It is also very important to study the bilingual's attitude toward the use of the two languages. Grosjean (1998:134) proposes analyzing it by looking at which language is used with whom and for what. This approach implicates the study of language choice, too. Language choice means that bilinguals have the possibility to choose which language they want to speak. Of course, this choice is normally restricted to the hearer's language competence: If the hearer is monolingual, the bilingual must use the shared language. If the hearer is bilingual, both speakers can freely switch between the two languages. The studies on language choice and use often concentrate on social behavior, since language choice is strongly affected by the social environment a bilingual person is exposed to.

The bilingual competence of a person cannot only be assessed by looking at external language factors, but also involves the study of internal language factors, such as language proficiency. Researchers study the development of the two languages and compare them with each other. Also, the readiness and fluency of the two languages in daily use or in test situations are elicited. Based on the degree of mastery of both languages, bilinguals are classified by using adjectives like *full*, *true*, *ideal*, or *balanced*.

Some of the definitions of bilingualism involve the term language use: bilinguals are 'people who need and use two (or more) languages in their everyday lives' (Grosjean 1992:51). Imagining a continuum of bilingualism (Romaine 1995:11), one can find at one end a definition like 'native-like control of two languages' (Bloomfield 1935:56, cited in Romaine 1995), and at the opposite end the popular idea that everyone who is able to speak a second language is bilingual, as mentioned above.

A general terminology of bilingual acquisition could be the 'simultaneous acquisition of more than one language during the period of primary language development' (Genesee 1989:162). The acquisition of two languages has been dubbed BFLA by Meisel (1989:20). This term implies that both languages must be seen as a first language, hence stating a simultaneous acquisition. It has been proposed to regard acquisition as simultaneous as long as it takes place up to age 3 (McLaughlin 1984).

If a language is acquired later than this, one has to talk about successive acquisition. Other researchers claim that only exposure to both languages from birth on can be considered simultaneous. De Houwer (1990:3), for example, demands that language input begins at the latest 1 week after birth, and that an input of both languages be present on a daily basis.

The present study adopts a definition based on the onset of acquisition, and not on the fluency or proficiency shown by speaking the two languages: someone is classified as bilingual when s/he meets the condition of having been exposed to two languages from birth on, following Meisel (1989).

1.2 BILINGUALISM

Research on linguistic theory over the last 50 years has primarily focussed on the study of each human's grammatical competence, that is, on the knowledge of formal rules concerning the grammar of a language. This research agenda has mainly been addressed from a monolingual perspective, the 'simple case' (Milroy & Muysken 1995:2). Subsequently, if consensus already exists about the difficulty presented by studying language competence, acquisition, development and use, then problems can only increase when studying bilingualism. In fact, analyzing language acquisition and development in bilinguals means studying the development of two languages, and eventually trying to find specific skills with respect to the individual's knowledge of more than one language. Furthermore, in testing language use, methodological accounts have to consider the fact that the individuals analyzed do not speak only one language. In other words, knowledge about a second language may have an impact on the understanding, on the readiness, or on the use of the other language during a test, which for example, requires translation or is submitted to time.

There have been several important contributions which have had a particularly strong impact on the study of bilingualism (for a historical overview cf. Milroy & Muysken 1995:4ff). The idea underlying most studies up to now has been to find an appropriate scale in order to measure an individual's proficiency in two languages, and thus to

categorize the speakers into different groups, according to their fluency, which is considered a fundamental criterion for defining proficiency and language dominance, and for language production and use (for a detailed discussion and overview on studies concerning the degree of bilingualism, cf. Romaine 1995:11ff). One of the most discussed works on individual bilingualism is the contribution by Weinreich in 1968. Although the distinctions he put forward have not been confirmed by psycho-linguistic research, his proposal is still the focus of much debate.

Weinreich (1968:9–11) underscores three types of bilingualism, naming them *compound*, *coordinate*, and *sub-coordinate*. Basically, the way one learns a language is said to have an impact on how concepts are encoded and stored in the brain. *Compound bilingualism* stands for an individual who learns the two languages in the same context and situation, so that two words (one in each language) have one common meaning and representation in the brain, thus creating an interdependence of the two languages. In contrast, *coordinate bilingualism* state an independency between the two languages: The individual learns the two languages in different contexts, so that each word has its own specific meaning. The third type of bilingualism proposed by Weinreich is the *sub-coordinate*. In this case, one language is stronger and faster than the other one, which results in establishing one meaning, namely the one of the language which has been acquired first. Whenever the second, weaker language (WL) is used, the representation recalled will be that of the stronger language (SL).

Weinreich's model has been rejected by empirical evidence. However, the underlying idea is fascinating, since it leads to a concept of different types of bilingual learners.

An important contribution in the study of bilingualism in the psycho-linguistic field is the work by Grosjean (1982, 1992, 1998, 2001). Studying adult bilinguals, Grosjean points out that in order to accurately analyze the phenomenon of bilingualism, one has to consider a bilingual person not as the sum of two monolinguals, but rather to see a bilingual as 'an integrated whole which cannot easily be decomposed into two separate parts' (Grosjean 1992:55). Language history, proficiency, use, fluency and other factors have to be taken into account in order to categorize bilingual participants for research

questions. He explicitly calls the ‘lack of understanding who bilinguals really are’ a problem shared by several researchers (Grosjean 1998:135). He furthermore criticizes research on bilingualism for being too fractional, in the sense that studies only check whether bilinguals speak according to how monolinguals do. Along these lines, most tests exhibit methodological problems, in that they have mainly been conducted following the schemata of monolingual investigations, which of course influence the interpretation of the results and produce a narrow-minded and insufficient interpretation. Moreover, taking monolingual standards as a scale for evaluating the languages of bilinguals leads to the false conclusion that bilinguals are less proficient than monolingual speakers (Grosjean 1992:53). A proposed solution is to develop more appropriate tests for bilinguals, without comparing them to monolinguals, and, more generally, to change the view of bilingualism from a monolingual, fractional one, to a multilingual, more *wholistic* one (51).

At first sight, considering bilinguals not as the sum of two monolinguals could be misinterpreted as assuming that they *cannot* separate their two languages. This could result in language mixing, or in getting confused while speaking the two languages, both during language acquisition and later. But taking a closer look at Grosjean, it becomes clear that he is not arguing in favor of a unitary language system in bilingual children and adults. On the contrary, he is mainly proposing to consider that bilinguals deal with two languages in their everyday life, and not just with one, as monolinguals do. Therefore Grosjean calls for a more careful interpretation of bilingual’s language data. I will return to the discussion of the separation of the two languages and the temporary deactivation of one of them in section 4.1 when introducing Grosjean’s *language mode* (Grosjean 1998, 2001).¹

1.3 OVERVIEW OF STUDIES ON BILINGUAL FIRST LANGUAGE ACQUISITION

The acquisition of two languages from birth has been the focus of several studies in language acquisition in the last century (for a detailed overview cf. Romaine 1995). A question of particular significance is how bilingual children organize and use their languages. Furthermore, it is also

interesting to analyze how children become bilingual. In other words: What role do external factors, such as language input, language community, and the strategies applied by parents, play? Past linguistic research has been concerned with case studies on bilingual children, analyzing longitudinal data collected the form of diaries, and later tape-recorded or video-recorded (for an overview of the studies on bilingualism in childhood cf. Romaine 1995:183ff, Köppe's appendix 1997, Müller, Kupisch, Schmitz & Cantone 2006:49ff).

The common idea formulated in studies up to the end of the 1980s is that bilingual children who acquire two languages simultaneously start out with two different linguistic systems, one for each language (Genesee 1989, Meisel 1989). Although evidence for language separation can be said to be widely accepted nowadays in the bilingual acquisition research field, one nevertheless has to take into account those scholars who still have doubts as to whether children do indeed separate their languages from early on (cf. Quay 1995, Deuchar & Quay 1998, 2000). The strongest advocates of this approach are Volterra & Taeschner (1978, cf. also Taeschner 1983), who studied the language development of two bilingual Italian/German children. The authors try to corroborate the hypothesis that children start out with only one linguistic system, which develops into two systems with time. In studying their data, which has been collected in a longitudinal way, Volterra & Taeschner establish three different linguistic stages a child passes through in the simultaneous acquisition of two languages. They also look at what strategies the children use in order to get through this acquisition process.

In the first stage, children are said to have only one system (which contains lexical elements) for both languages. In the second stage, there is still only one system of syntactic rules for the two languages, but children have already established two separate lexical systems. In the final stage three, the children have built up two systems, differentiating both the lexicon and the syntax of the two languages involved. Interestingly, the authors claim that this differentiation only becomes visible when children talk to someone they associate with one of the languages (Volterra & Taeschner 1978:311).

These assumptions make important predictions about BFLA. First of all, children are said to become bilingual only gradually, establishing

two different systems for their languages during a three-stage process. In addition, language choice and use are said to be strictly connected with the interlocutor to whom the child speaks.

The developmental scenario in Volterra & Taeschner looks like this: Stage one is determined by the existence of only one lexicon, which contains words from both languages. Of course, without any neuro-linguistical evidence it is difficult to prove that the words uttered by the children are all stored in one lexicon. But it is even more complicated to show the beginning of stage two, namely, the division of this lexicon into two language-specific vocabularies. In stage two the children are said to have established two lexicons, while using one syntactic system for both languages. The evidence for this phenomenon is given by looking at three different syntactic rules in the two languages: the use of possessive constructions, adjective placement, and placement of negative adverbials/elements. Interestingly, the data are not as evidential as the authors claim. With respect to the use of possessives, one can only state that the child being investigated is producing neither German nor Italian possessives. But German and Italian differ with respect to the position of adjectives: While they always occur in a pre-nominal position in German, in Italian, outside of a few exceptions (which, however, occur frequently), they are post-nominal. What the data show is that the child produces pre-nominal as well as post-nominal adjectives in both languages. This may be a hint of language transfer, but it does not support the claim of having only one syntactic system for both languages. However, there are more pre-nominal adjectives in German (according to Volterra & Taeschner's *Table 6* 28 pre-nominal vs. 4 post-nominal), and more post-nominal in Italian (11 vs. 9). This use does not seem to be at random, but rather reflects that the child has discovered adjective position in the two languages. Hence, in order to explain the few incorrect adjective placements, the more reasonable hypothesis is to consider them as a transfer or influence phenomenon.

In a recent study, it has been tested whether different word order in adjective-noun strings in English and French caused transfer in young bilingual children's monolingual utterances (Nicoladis 2006). Given that French (as Italian) has some few adjectives which also occur pre-nominally, this could confuse the children. Nicoladis (2006:18)

predicts that if transfer occurs, it will show up in the production of French post-nominal adjectives in pre-nominal position. The results are that the bilingual children use more French pre-nominal adjectives in post-nominal position than the other way around. Additionally, they also put some pre-nominal English adjectives in post-nominal position. Nicoladis claims that these results are a manifestation of speech production rather than evidence for cross-linguistic influence. Summing up, the occasional incorrect position of adjectives does not conclusively prove that there is only one syntactic system for both languages, but could rather be due to either cross-linguistic influence or to speech production errors.

With respect to negative placement, Volterra & Taeschner give an explanation for why the child places the adverbial element *no* in final position, for example in *Lisa va da la no* (2;7), instead of saying *Lisa non va là*. However, since it has been observed that monolingual Italian children show the same pattern in early utterances with negative elements (1978:324), the question arises whether this is indeed evidence of a single syntactic system.

In the third stage, the children are said to have two different linguistic systems. The evidence for this assumption comes from complex utterances in both languages. At the same time, the authors admit that there are still target-deviant sentences in both children. This leads to the question of how the third stage is categorized, and what exactly the difference between stage two and stage three is. Furthermore, is stage three the final stage in language acquisition? In sum, there are several methodological problems with respect to these three developmental stages. In fact, research in the last decades has found no evidence for the existence of this model.

Meisel (1989) remarks that the whole notion of establishing three stages is not sufficiently defined by the authors: No independent criteria, like for example MLU (Mean Length of Utterance, cf. Brown 1973), are given, and moreover the authors themselves do not delimit the stages they have applied (1989:15ff). He also argues that, if claiming the existence of a unitary system, one should look at where the two grammars of the languages differ and then provide *structural* evidence for a fused system, for example by looking at word order. If there is no

evidence that the two languages are used in the same way, it follows that there are two different language systems. Meisel does not exclude the possibility that *transfer* shows up in the acquisition of two languages, in the sense that some specific structures of one language may be used in the other one for a certain period. But he notes that transfer occurs less frequently than estimated (Meisel 1983). There can be indeed an interaction of the two systems: 'if one system interferes with the other, this is by definition, not the same as when only a single grammar exists' (Meisel 1989:19). As I briefly discuss in section 5.5, there can be indeed an interaction of the two systems of young bilinguals.

Since all these open questions cannot be answered on the basis of Volterra & Taeschner's own data, one comes to the conclusion that their hypothesis about the three developmental stages in bilingual children's acquisition is far from being verified and established. As suggested in Genesee (1989) and Meisel (1989), it seems that, rather than a lexical or syntactic confusion in language development, the two children discussed in Volterra & Taeschner show an error-prone use of their languages with respect to the interlocutor. Moreover, the examples they discuss bring to light methodological problems in the data collection.

One of the most influential contributions to the question of how two languages develop in bilingual children is the work by Genesee in 1989. He argues against the common presupposition that bilingual children pass through a stage in which they are not able to distinguish between their two languages. This assumption had been drawn from interpreting children's mixing as evidence for a unitary language system in the first stages of language acquisition, generating the so-called *unitary language system hypothesis* mentioned above. Genesee argues that there is empirical evidence that bilingual children are psycho-linguistically able to differentiate their two languages from very early on, and that they can choose the language appropriate to the situation, or to the interlocutor.

Another important contribution to the research on simultaneous language acquisition is the study by Meisel 'Early differentiation of languages in bilingual children', also published in 1989. The title itself makes Meisel's hypothesis clear: Similarly to Genesee, his claim is that children do differentiate their language from the very beginning. The evidence that bilinguals do differentiate their two language systems is

given by showing that they use them target-like, as monolinguals do. The author confirms the existence of two separated language systems in that he analyzes some linguistic phenomena (word order, subject-verb agreement), which are different in the two languages. Indeed, the two children analyzed develop the two target systems (French and German) according to the requirements of each of the two languages. Meisel emphasizes that this can be accounted for by *syntactic* differences, so that grammatical concerns can be said to be worked out from early on, even before other strategies. This is in contrast to several studies (on monolingual and bilingual language development), which claim that semantic and pragmatic tasks organize child speech at the very beginning (Meisel 1989:36).

1.4 CONCLUSIONS

This chapter presented several aspects of the terms *bilingualism* and *bilingual first language acquisition*. Frequently used definitions have been outlined. Furthermore, the main factors which account for the terminology of BFLA have been introduced, sketching some of the pioneer studies.

For the present study, the term *bilingual* is used in order to describe a person who has been exposed to both languages from birth on, according to Meisel's (1989:20) definition. The data which will be discussed in the empirical study come from bilingual Italian/German children. Since the children are considered to be balanced bilinguals who acquire their languages simultaneously, there is no need to be concerned neither with successive language acquisition nor with phenomena regarding early *Second Language Acquisition*. The corpus to be studied is placed within the research agenda of BFLA.

Socio-linguistic aspects will be left aside in the present work, since the children studied here are all cases of individual bilingualism, that is, they grew up in a monolingual setting, with only their parents supporting multilingualism.

NOTE

1. For an overview of studies on bilingual speech processing and the bilingual's neural organization cf. Wei (2000), chapter 14 to 17.

EARLY MIXING

This chapter discusses mixing in young bilingual children. The general term *language mixing* is also used when referring to this phenomenon. Language mixing means when a word of language A or an utterance which contains elements from languages A and B is mixed into the language context of language B. The term *early mixing* states that we are dealing with language mixing at an early stage of language acquisition.

The presentation of the literature on mixing in bilingual children during the earliest stage of language acquisition concentrates on three main questions. First, what does the phenomenon of mixing look like in young bilingual children? Most of the studies on bilingual language acquisition state that there is a stage in which children tend to mix to a great extent. This stage is said to suddenly disappear. Second, why do bilingual children mix at all? Does language mixing depend on the development of the two lexicons? This presupposes that the mixed word is only available in one language, that is, that the equivalent word has not been acquired yet. Or is the mixing due to a different development of the two grammars, in the sense that children tend to mix words from the more developed language into the slower one? The third question to be answered is what kind of elements do children mix, in order to reveal whether children mix different elements than adults do.

Most of the studies on language mixing try to explain mixing in young bilinguals by referring to a lack. It is either a lack of *pragmatic competence*, in the sense that children are not yet capable of separating the languages with respect to the interlocutor; or it is the absence of *lexical competence*, meaning they do not know the word in one language and therefore use the equivalent word in the other language; or

finally a lack of *grammatical competence*, that is, the children will use certain structures which have already been acquired in one language in the *other* language.

Despite claiming that in bilinguals the two languages develop separately, some kind of interaction might still show up. The most evident *interference* is language dominance, namely, when one language is stronger than the other. This might lead to unidirectional mixing, because most words are only available in one language (hence, dominance becomes visible in the different size of the two lexicons when compared to each other). More evidence in favor of dominance is given when structures of the more developed language are mixed into the less developed language. Another instance of interaction between the two languages is mixing due to the lack of language separation.

In discussing all these approaches we will see that they all consider language mixing in young children to be different from mixing in adults. By contrast, one of the main claims in the present work is to show that early mixing can be viewed as identical to code-switching.

2.1 DEFINITIONS

Nearly all studies on early bilingualism have observed that children mix their languages, independently of the environment being monolingual or not (Vihman 1985, De Houwer 1990, Lanza 1992, Köppe 1997, Deuchar & Quay 2000, among many others). Mixing is considered to be less constrained than in adults: 'What is thought to distinguish bilingual children's mixing from adult mixing is the lack of systematicity or compliance to linguistic rules in the case of the children' (Sridhar & Sridhar 1980:164). Since grammar develops in children, structural rules will not be applicable at an early stage of language acquisition. Hence, language mixing either follows no rules, or it depends on rules which are different from those governing adult mixing. Given that early child mixing is considered to be structurally different from later mixing, it also has to be defined differently. Meisel (1989) points out that there is some confusion in the literature when it comes to defining the terms *language mixing* and *code-switching*. He thinks it would be more appropriate to

use the latter when children have already acquired proficiency in both languages. Interestingly, most definitions of *code-switching* describe adult mixing, whereas terminology concerning the terms *mixing* and *code-mixing* mostly refers to child mixing, which is not supposed to be well-formed.

In the discussion on early mixing there is a crucial need to discriminate between *language separation* and *language differentiation*. The former outlines the capacity to use two languages in separate interactions, and thus points out the adequacy of choosing the appropriate language in the pertinent context (hence pragmatic competence). The latter is concerned with the differentiation of the two languages on the level where the two systems are stored in the brain. In the literature the term *differentiation* is also used when discussing the ability to choose the appropriate language in accordance with the language situation (Genesee, Nicoladis & Paradis 1995). However, it seems tenable to distinguish between the study of bilingual children's use of a specific language with a specific interlocutor, that is, a socio-linguistic approach, and the investigation of whether children develop two discrete language systems from early on, that is, a grammatical approach. Along these lines, in the present work *language separation* is used when discussing the socio-linguistic aspect, and *language differentiation* when discussing the development of two language systems.

Whereas previous studies (e.g., Vihman 1985) claimed that language differentiation in young bilinguals comes to the fore at around the third year of life, today it is a common assumption that children have two different language systems from early on. Most studies have shown that children are perfectly capable of differentiating their two languages (De Houwer 1990, Meisel 1990, Lanza 1992, 1997, Gawlitzek-Maiwald & Tracy 1996, Köppe 1996, 1997, Paradis & Genesee 1996), at least in the multi-word stage of development.

Children are also able to use their languages in accordance with socio-linguistic and pragmatic principles (Lanza 1992, 1997, Köppe 1996, 1997). If mixing occurs, the children's awareness of using the inappropriate language with respect to the language context becomes visible by hesitations, self-corrections, or metalinguistic comments, as reported in Köppe (1996, 1997).

In a pioneering study on language separation, Genesee (1989:162) defines language mixing as follows:

‘.. (it) refers to the interactions between the bilingual child’s developing language systems. Mixing has been used by other researchers to refer to the co-occurrence of elements from two or more languages in A SINGLE UTTERANCE (caps by the author, KFC). The mixed elements may be phonological, morphological, lexical, syntactic, phrasal or pragmatic’.

By definition, if there is an interaction between two language systems, as pointed out by Genesee, these systems have to be separated. It has been observed that almost all children pass through a stage in which they mix both languages to a very large extent (cf. among others Lanza 1992, Köppe & Meisel 1995, Deuchar & Quay 2000). However, there is no consensus on how to analyze these mixes, whether as instances of a lack of language separation or of language differentiation, or perhaps as a result of missing equivalent words. What researchers do agree on is that the early mixing stage holds until approximately the age of three, and that it ends abruptly. Again, this abrupt end is not attributed to a lack of language differentiation. As Genesee already stated in 1989 (166):

‘Evidence of declining rates of overall mixing does not constitute sufficient proof that the child has only one language system. Mixing may decline with development, not because separation of the languages is taking place but rather because the children are acquiring more complete linguistic repertoires and, therefore, do not need to borrow from or overextend between languages’.

Some studies report a U-shaped development in the data of bilingual children. Accordingly, an early stage characterized by a high number of mixes is followed by a period in which there are almost no mixings. Later, the mixing increases again. This *second* stage of mixing is said to be different from the first one (Meisel 1994, 2004, Köppe & Meisel 1995, Köppe 1996), because the mixed utterances seem to be grammatically and pragmatically constrained by regularities, whereas in the early stage mixings can be explained by a restricted grammatical competence and

therefore a lack of knowledge about grammar and lexicon. According to Meisel (1994), the second stage of mixing does not necessarily appear in every child, since it is an individual choice, depending on whether the child is willing to code-switch or not.

2.2 MIXING AND THE IDEA OF A SINGLE LANGUAGE SYSTEM

As discussed in section 1.3, Volterra & Taeschner (1978) claim that bilingual children start out with one system for both languages, which later develops into two discrete systems. By implication, one must assume that children are not able to separate the two languages. This is confirmed by the fact that the two children analyzed by Volterra & Taeschner combine words from both languages in one utterance. In their view, mixing is a direct consequence of the fact that neither language separation nor differentiation takes place in the bilingual child, at least in stage one of their model (1978:312ff). However, one can state that the presence of mixing is by no means evidence for the existence of a single lexicon. Unfortunately, the *unitary language system hypothesis* uses mixed utterances as an explanation for its own existence: 'As a result [of having one lexical system, KFC], words from both languages frequently occur together in two- to three-word constructions' (Volterra & Taeschner 1978:312).

Recall that in the first stage of language development the children are said to have only one linguistic system for both languages. This system contains lexical items, syntactic structure not being available at this time. The authors distinguish words from both languages, but they also build a category of words that seem to belong to both languages, calling it 'IG' (Italian German, 1978:313, *Table I*). Words belonging to this category are, for example, proper names, or onomatopoeia like *tic tac*, *baubau/wauwau*, *cocò*. The words categorized as German are 29% in Lisa and 40% in Giulia, the Italian ones amount to 44% in Lisa and 33% in Giulia. The percentage of items which cannot be identified as belonging to one of the two languages is 27% out of all words in both children. The (non-existing) criteria for establishing the existence of this third lexicon are very difficult to accept. Moreover, it is not clear

in which context these words have been uttered. This would have helped to categorize them as belonging to one of the two languages, which they definitely do.

In arguing against the *unitary language system hypothesis*, Genesee (1989) makes two basic claims with respect to *language separation*.

Firstly, most studies on mixing in bilingual language acquisition show several methodological faults, therefore generating a high amount of mixed utterances. In most of the cases, the research methods themselves seem to establish a bilingual situation. This facilitates the children's mixing. Consequently, if there are a lot of mixed utterances in child speech, this might be due to the situation, and not be actual evidence for a confused and/or mixed-language system. If no language context is established by the adults or the researchers, the inappropriate use of both languages cannot be compared to the use of mixed words in a monolingual situation. At the least, in order to confirm a unitary system, the children must be checked in both languages in the same contexts of communication, so that it can be guaranteed that the same words have been requested in both languages. It is unreasonable to say that mixing is evidence for a unitary system when no monolingual situation has been established in the studies. If the data are collected in a mixed situation (e.g., with speakers of different languages present), this has an impact on children language choice.¹ Only if there are two separate contexts of communication, and only if there is consistent evidence that the child is not able to stick to one language and to use the two languages in a discrete way (i.e., that s/he cannot denominate things in both languages), then mixing might be considered as evidence for a unitary language system. Genesee considers the research data gathered so far as largely inadequate to be able to conclude that children have only one, undifferentiated language system.

Secondly, Genesee states that bilingual children are psycholinguistically able to separate the two languages from early on. This becomes evident by looking at how children choose the language with respect to the situation, or to the interlocutor, hence by how they make use of the two languages. Again, in order to find this piece of evidence, it is necessary to collect data in different and separated language contexts, hence to provide clear linguistic situations. Finally, it is important

to document the children's input during and apart from the interaction situation. Genesee outlines why a more careful examination of language mixing in the earliest stage of language acquisition is desirable.

Another interesting topic is the existence of equivalent pairs in young bilinguals' lexicons. If there are equivalent pairs (words with the same meaning, e.g., English *moon*, Spanish *luna*) in both languages, and if there is evidence of the existence of equivalents to words which have been mixed in the early stage of language acquisition, this could explain away both the existence of a single lexicon and the fact that lexical gaps are the reason for language mixing. Unfortunately, most of the studies on bilingual language acquisition in the past 20 years do not meet specific conditions which permit an accurate analysis of the lexicons, because it is very difficult to establish a language context during data collection. Therefore, one cannot know if the child used the appropriate language (i.e., the language *wanted* in a specific context) or not. A methodical analysis of language production can depict what is present in the two lexicons and hence explain away these kinds of mixes which have been accounted for in terms of lexical need.

Clark (1987) tries to find out whether there are two lexical systems from the beginning, and how early it is possible to produce two words with the same meaning. Her *Principle of Contrast* (1987:13) predicts the absence of synonyms in early lexical development. This principle is based on economy and will last until the child has about 150 words in the *unitary* lexicon. Along these lines, children will not have equivalent words in the two languages at the beginning of the development of the lexicon. What remains unclear is whether translation equivalents carry the same meaning. For example, Taeschner (1983) claims that the equivalents *specchio* and *spiegel* were used referring to two different mirrors according to the owner, respectively the Italian father and the German mother. One could argue that it is never the case that two words mean exactly *the same*.

Quay (1995), Deuchar & Quay (1998, 2000) and Deuchar (1999) study the acquisition of the lexicon in the young bilingual Spanish/English child Manuela. In particular, the authors are interested in how Manuela develops the lexicon with respect to the acquisition of words coming from two languages, especially words with the

same meaning. Looking at translation equivalents, Quay (1995) and Deuchar & Quay (1998, 2000) do not corroborate both the existence of a stage with no equivalents and the *Principle of Contrast*. In Manuela, translation equivalents appear very early, that is, at age 0;11. They claim that Clark makes wrong predictions by assuming that bilingual children reject cross-linguistic synonyms at an early stage of language acquisition. Although confirming the existence of equivalents, the authors, following Volterra & Taeschner (1978), say that it remains unclear whether the child has two separate lexical systems or not. Their argumentation is based on the fact that the existence of translation equivalents is related to input and to vocabulary learning. The first argument means that if the language environment does not provide equivalent pairs, it will subsequently be difficult to find them in child speech. The second argument involves individual strategy, in the sense that some children seek equivalent words, whereas others reject them. The authors thus claim '(..) that the appearance of translation equivalents is not a sufficient condition for establishing lexical differentiation. It will certainly be a necessary one, however'. (Deuchar & Quay 2000:64). Additionally, Deuchar (1999) claims that some words (the so-called class of *function words*) might be treated as non-language-specific, which also pleads for the lack of language differentiation at this stage of development.

This assumption meets with some criticism. In fact, if translation equivalents come to the fore from the beginning of speech production, by implication this should be evidence for the differentiation of two distinct lexical systems in the bilingual child. Why should two translation equivalents, as for example, *moon/luna* be stored in a unitary lexicon? This is untenable for reasons of economy. Moreover, is language context responsible for the child's decision to pick one word and not the other? It is not plausible to affirm the existence of two lexicons and to evasively label the object of analysis *bilingual lexicon* in order to avoid a statement on this topic. The problems the authors have in categorizing Manuela's first words as English or Spanish seem to depend on data collection methods. They are a consequence of language separation difficulties during the data collection and not evidence of lack of language differentiation in the child.

With respect to language mixing, Volterra & Taeschner (1978) explain the fact that there are fewer translation equivalents in the bilingual children by saying that monolingual children have also been shown to have fewer synonyms in their early vocabulary. Taeschner (1983:24) finds *nearly* no equivalents and generalizes that the bilingual child does not make use of equivalents. Peculiarly, the authors never ask whether the collecting methods had any impact on the data they analyzed. Deuchar & Quay (2000) believe that the existence of translation equivalents is the ground on which language choice in bilingual children can be attested. If there is evidence that children have the choice between two equivalent words, if they use for example, a Spanish word with a monolingual English person, they choose an inappropriate word. Thus, translation equivalents reflect the ability of language choice, and reject the hypothesis of lexical gaps in language use. If the equivalent to a mixed word is already in the child's lexicon, then lexical need cannot be the reason for language mixing. The existence of translation equivalents should also explain away the hypothesis that mixing is due to language dominance. If it can be shown that a mixed word has already appeared in the other language, then there must be other reasons for why the child produces that word in the other language, for example, speech processing.

In closing, the lack of an appropriately defined language context leads to two problems. Firstly, it becomes difficult to classify words as belonging to one or the other language and corroborates the view that there is only one lexicon, which contains words from both languages. Secondly, language mixing increases if the language context cannot be identified, or if it is artificial.² The lack of language separation in data collection might thus have contributed to some unfelicitous results. This is not to say that children are perfectly able to separate the two languages with respect to the interlocutor at this early stage of acquisition. The data simply cannot provide an answer to this.

2.3 MIXING AND THE DEVELOPMENT OF THE TWO LANGUAGES

According to Köppe & Meisel (1995), it is crucial to analyze qualitative aspects of language mixing in bilingual children, in that 'the distinction

between different categories of words which are mixed may help us to distinguish code-mixing [which involves the violation of syntactic or pragmatic constraints, KFC] from code-switching in early child language' (280). The kind of elements mixed should therefore be taken into consideration in an analysis of language mixing.

Vihman (1985) studies an Estonian/English bilingual child from age 1;8 to 2;0 and states that *function words* are the most frequently mixed elements. This category includes for example, deictic elements, negation, affirmation. Elements which do not belong to this category are called *content words*, for example, nouns, verbs. Meisel (1994, 2001) notes that the term function word 'is rather misleading (...), since it clearly does not refer to a morpho-syntactic category, as opposed to "function words" in traditional grammars and "functional categories" in generative theory'. (2001:23). He argues that these elements might have a pragmatic function rather than a grammatical one. Although stating shortcomings of this category, particularly the fact that it implies grammatical words to be mixed most often (e.g., words like particles which are used instead of verbs), Meisel (1994), Köppe & Meisel (1995) and Köppe (1996) also find a high rate of these elements in their data.

As child speech develops, mixing is supposed to become more adult like, that is, other elements (mostly nouns) are mixed. Veh (1990) finds both a qualitative and a quantitative difference, namely, a decrease of mixing at age 2;5,7 in Ivar and 2;0,17 in Annika.³ Meisel (1994) points out that most of the mixed function words are available in both languages, in the sense that translation equivalents are attested in the two lexicons. Consequently, there is no plausible explanation for why these elements have been mixed. Meisel proposes comparing them to *tag-switches*, because they are elements which are not structurally connected to other elements, and because no syntactic constraint applies to them.

In accordance with Sridhar & Sridhar (1980), Meisel claims that young bilingual children lack both pragmatic competence and grammatical categories. Therefore, mixing must be different from adult code-switching. He even goes further and argues that it is irrelevant to look for structural constraints which govern code-switching at the early stages of language acquisition. Linguistic principles become operative only after grammar has been developed in children. Before

that, no grammar constrains early children's utterances. This is stated in the *Grammatical Deficiency Hypothesis* (Meisel 1994:417). As soon as there is evidence of functional categories to have been instantiated (and the morpho-syntax related to them has been acquired and produced), mixed utterances can be analyzed as adult ones. Moreover, Meisel claims that mixing will decrease at this point.

Following Bickerton (1990) and Radford (1990), Meisel (1994) and Köppe & Meisel (1995) make an important prediction of how mixing might be related to the development of grammar in bilingual children. They argue that children use grammar only after functional categories, for example, INFL, have emerged in their speech (Köppe & Meisel 1995:290). The data show a correlation between the absence of the functional category INFL and a qualitative difference in mixing, that is, early mixing is characterized by a high mixing rate of so-called function words. From this they conclude that in this stage mixing is not constrained syntactically (cf. the *Grammatical Deficiency Hypothesis*). At a later stage, when syntactic constraints are not violated anymore, usually single nouns are mixed and no more function words. Consequently, they assume that '(..) the emergence of the category INFL in Ivar's grammar at around the age of 2;5 largely accounts for the passage from the first to the second stage' (1995:293).

In a recent study, Köppe (2007) addresses the question of how grammatical constraints on code-switching can account for the early stage of mixing in bilingual children. Along the lines of earlier works (cf. also Meisel 1994), Köppe proposes that mixing is related to the development of the two languages. She again assumes a grammatical development in child speech: A so-called *proto-grammar* is operative at the beginning of language acquisition, whereas functional categories emerge later. Köppe confirms Meisel's (1994) hierarchy of grammatical constraints on code-switching in that she provides evidence that the children under investigation follow constraints on code-switching as soon as they acquire the relevant grammatical structure. The outcome of her research contains two results which should be emphasized.

Firstly, there are no instances of code-mixing, understood as ungrammatical cases of mixing, in child data anymore, because grammatical constraints should only be checked when the child has acquired certain

structural properties of the single language. As soon as those properties are visible, the children never violate constraints (e.g., Object Verb/Verb Object (OV/VO) word order in respectively German and French). This assumption meets with some criticism. Besides agreeing that no grammatical constraints should be used in order to check whether mixing in young children is rule-governed, this view is strongly connected to the theoretical assumptions the research is based on. Köppe supposes a grammar which has to develop. By implication, child language *has* to develop, since a newborn baby does not speak. The question which arises is whether it is tenable to suppose that no grammar is operative at the beginning of language acquisition, or if even the earliest utterances, although structurally less complex, have grammatical properties which are just not yet visible. For example, what happens to the DP (Determiner Phrase)? This is the first functional phrase to be acquired (roughly speaking, at around age 2), but generally, researchers only start to discuss grammatical development with the acquisition of the IP (Inflectional Phrase).

Secondly, following Köppe, language mixing in children develops as grammar does. The mixing becomes structurally more complex when language also becomes more complex. For instance, at the beginning of language acquisition, some kind of proto-grammar constrains early one-word and two-word utterances. As soon as the functional category INFL emerges, mixing will include verbs (e.g., mixes occur in the subject/verb domain, and in the verb/object domain). This leads to the conclusion that the so-called function words cease to be mixed once grammar has been instantiated. I claim that what is mixed at later stages of language mixing depends on individual strategies and not on the development of grammar. Some children might mix at all possible boundaries in a clause, including switching within functional domains, and do so throughout. Others will only mix single elements, as for example, nouns or *function words*, in the early phase of language acquisition and later.

In sum, proposing a *maturational* account of language development leads to establishing two stages in grammatical acquisition: A stage in which grammar is being developed, and a later stage in which grammar is fully instantiated. Consequently, two stages are demanded in language mixing in children, too: A stage in which mixing cannot follow grammatical requirements, because they are absent in child speech, and a

stage in which children mix their two languages following grammatical principles.

Studying the type of elements mixed as well as at the grammatical development of the two languages are said to be helpful for analyzing early mixes in child speech, since language mixing will show different patterns before and after the acquisition of lexical items and the instantiation of grammar.

2.4 MIXING AND LANGUAGE DOMINANCE OR IMBALANCE

This section reviews studies which propose that an imbalance of the two languages in the bilingual child is the reason for language mixing, although they all assume that children have two different language systems from the beginning.

Language *dominance* is said to be an indicator of the directionality of mixing. In this sense, children mix from the dominant to the non-dominant language, but not vice versa. This is based on the assumption that bilingual children may have an unbalanced language development, in particular with respect to the lexicon and the development of the two grammars. Petersen (1988:486) formulates the *Dominant Language Hypothesis* (DLH):

‘The dominant language hypothesis states that in word-internal code-switching, grammatical morphemes of the DOMINANT language may co-occur with lexical morphemes of either the dominant or the non-dominant language. However, grammatical morphemes of the NON-DOMINANT language may co-occur only with lexical morphemes of the non-dominant language’.

Petersen predicts that grammatical morphemes (functional categories) will be mixed into the non-dominant language, whereas non-dominant grammatical morphemes will not be mixed into the dominant language. For example, in a bilingual Italian/English child with English as the dominant language, an English determiner can occur with an Italian noun, for example, *a casa* (*house*), but the non-dominant language will never provide the functional category.

Schlyter (1993) analyzes bilingual Swedish/French children with an unbalanced language development. She also claims that, since one language is stronger than the other, this will have an impact on the elements mixed. Pursuing this line of inquiry, Lanza (1992, 1997) states that functional categories (e.g. determiners) from the dominant language are mixed into the non-dominant one in her data of a Norwegian/English bilingual child. In her view, the directionality of mixing could be one indicator (although not the only one) of language dominance (1997). She furthermore assumes that the SL is the one that provides grammatical elements as functional categories, or function words.

The question arises whether this argument is not circular, in the sense that directionality and dominance are used to explain each other. It should be studied whether a child mixes in only one direction independently of having a dominant language or not. As a matter of fact, directionality can be the outcome of language dominance, but, in my opinion, dominance cannot be determined by the directionality of mixing. The latter is not a necessary requirement of the former (cf. also Cantone 2006). The fact that a child mixes more in one language than in the other might be due to socio-linguistic and pragmatic aspects, as for example, one language is more accepted than the other (cf. the *situational code-switching* in Gumperz 1976).

Genesee, Nicoladis & Paradis (1995) investigate early bilingual English/French language acquisition in five children from age 1;10 to 2;2. The data consist of interactions with parents (English-speaking and French-speaking). In order to check whether the children are able to determine the appropriate language to use, the researchers introduce a monolingual English-speaking stranger to them. Genesee et al. (1995) observe language mixing despite language differentiation. They try to shed light on whether the mixing is due to language dominance or to input, that is, to the parental mixing. The rate of intra-utterance mixing (i.e., utterances containing words from both languages) is extremely low, namely, below 7% in all children. The percentage of inter-utterance mixing (i.e., mixing between utterances, which also included single words) is different among the children: Some produce 50% to 70% of mixes in one language context, and in the other language either no mixing or 5%; other children mix in both languages to approximately 10% to 30%.

With respect to the issue of *language separation*, that is, the ability to select a language according to the interlocutor, the study (where in fact the term *language differentiation* is used in order to describe this topic)⁴ shows that the children are capable of using the appropriate language. Even the dominant children use the non-dominant language when speaking to the appropriate parent. Furthermore, a high level of linguistic control is attested to even in an unfamiliar situation, that is, when interacting with a stranger.

Genesee, Nicoladis & Paradis (1995) argue that mixing and the issue of language dominance are related. The three children with an unbalanced language development tend to mix more when using their non-dominant language, at least in inter-utterance mixing. It is important to point out that the authors establish several indices in order to accurately state language dominance. The four criteria used are mean length of utterance (MLU) per recording, multimorphemic utterances, upper bound, and word types. Parental input does not seem to play a role in the children's mixing. By contrast, Goodz (1989) states that parental mixing and children's mixing are related. Her data show a correlation between the frequency of parents mixing and the one of children mixing. However, since Goodz's data have been collected longitudinally, a lasting exposure to mixing may have had an impact on the children's mixing. In fact, Genesee Nicoladis & Paradis (1995) point out that parental mixing may indeed influence the children, at least when it is systematic in the input. This discussion has direct consequences for the study of language mixing in young children, because, as Genesee already stated in 1989, if mixing depends on the presence of mixed input, it is not tenable to consider early mixing as a necessary stage children have to pass through. Furthermore, one could predict that the amount of mixing is higher the more the development of the two languages is unequal, that is, differs in terms of quality and time.

Paradis & Genesee (1996) address the question of whether the development of the two *differentiated* language systems might be *autonomous* or *interdependent*. In their view, interdependence can manifest itself in different ways: It might lead to *transfer*, *acceleration*, or *delay*. They point out that influence is meant to be '(.) at the level of the representation or competence, sustained over a period of time' (1996:3). In this

sense, transfer means that grammatical properties of one language are incorporated in the other one. Acceleration means that certain properties emerge earlier in one language because they are acquired earlier than in the other language. Finally, delay means that in one language certain properties slow down due to properties of the other language. Studying the acquisition of finiteness, negation, and pronominal subjects in French/English bilingual children, all of them being aspects which differ in the two languages, the authors do not find evidence that any of the three manifestations show up. In contrast, the children develop the studied phenomena as monolinguals do. Additionally, finiteness emerged earlier in French than in English, which is in accordance with a language-specific pattern, given that in French all verbs must raise to INFL, whereas in English this is not the case (Pollock 1989). Paradis & Genesee interpret these findings as evidence for the autonomous development of the two languages in the bilingual children.

Another type of *imbalance* has been proposed in a work on mixed utterances in a bilingual English/German child: Gawlitzek-Maiwald & Tracy (1996) propose considering child mixing as a strategy rather than as negative evidence for the inability to separate the two languages, calling this strategy *Bilingual Bootstrapping* and describing it as follows: 'something that has been acquired in language A fulfills a booster function for language B. In a weaker version, we would expect at least a temporary pooling of resources' (903). The new idea in this approach is that the syntactic level in mixed utterances in language acquisition is involved and not, as traditionally, only the lexical level.

The authors first discuss different patterns of development in bilingual children, ending up taking two of them with respect to the child they studied: The two languages in the child Hannah develop independently, as in monolingual children. However, they develop differently regarding specific constructions, in the sense that 'the language that develops at a slower rate for one particular type of construction profits from the faster language as compared to monolinguals' (908). The latter assumption is supposed to account for the mixed utterances found in the data. In fact, the analysis of Hannah's monolingual utterances shows that she developed the main clause according to predictions made for respectively German and English: From the start on, she shows OV word

order in German and VO in English. Then, at age 2;4, there is evidence for the IP in German, while in English such evidence is only found at age 2;7, which is consistent with results on monolingual children. Finally, at age 3, the CP (Complementizer Phrase) comes up in both languages (for a more detailed analysis of the CP, cf. Gawlitzek-Maiwald 2001).

What the authors then propose is to take a closer look at the mixed utterances at exactly the period between age 2;4 and 2;7, when the IP is evident in German but not in English. Gawlitzek-Maiwald & Tracy claim that the mixed utterances are evidence for the use of a German IP in English constructions. Since she does not have the possibility to access the English structure yet, Hannah takes advantage of the German structure she has already acquired and fills the gaps in her English with it. Here some examples from Gawlitzek-Maiwald & Tracy (1996:911–915):

- (1) Ich hab geclimbed up
 I have climbed up
- (2) Ich habe gemade you much better
 I have made you much better
- (3) Kannst Du move a bit
 Can you move a bit

Note that in (1) and (2) not only the IP is German, but also the prefix of the participle ‘ge-’. The child marks the past participle with both the German and the English affixes. Given that Hannah seems to borrow the left periphery of the main clause from German, in that she projects it instead of the English one, which she has not acquired yet, but only has a bare VP, the authors claim that Hannah knows how to build an IP and that this must be similar in both languages. In contrast to monolingual children, the bilingual child can profit from the fact that she has already acquired a strategy in one of the languages, and thus fill the temporary gap in the other language with the structure of the (let us call it) *faster* language. The authors enlarge this assumption, which has mostly been put forward to explain lexical mixing, to include the syntactic level of language mixing. Furthermore, they claim that this kind of syntactic borrowing decreases as soon as the English IP has been acquired (1996:915).

Gawlitzek-Maiwald & Tracy argue that the difference in development (the German IP acquired before the English one) is evidence in favor of

the separation of the two language systems from the beginning, which is in line with, for example, Genesee (1989), Meisel (1989), and Paradis & Genesee (1996), and in sharp contrast to Volterra & Taeschner (1978), Taeschner (1983) and Deuchar & Quay (1998, 2000). How to account for development in child language, namely, if assuming that child grammar has to mature, or whether grammar is there from early on, but just not spelled out until functional elements have been acquired, is irrelevant to the *Bilingual Bootstrapping Hypothesis*. If the language-pair under discussion (here German/English) provides evidence that a structure is available earlier in one language (in this case, the IP in German), then the other language will benefit from this.

What is problematic with this account is that one has to raise the question why this strategy is not used by every bilingual child who acquires two structurally slightly different languages. To put it differently, this strategy predicts that everything acquired sooner in one language than in the other will cause a booster effect, and will be used in the language where the structure has not been acquired yet. But this is not the case in, for example, the language-pair German/French studied by Meisel & Müller (1992), where the children never use the IP in the other language.

One weak point of the data collection is that the language context in Gawlitzek-Maiwald & Tracy's study has not consequently been separated during the recordings, which might have strongly influenced the results. The child speaks German in an English context because she knows that her mother, an English native speaker, also speaks German. This situation causes a bilingual mode (Grosjean 1998, 2001) and might explain the relatively high number of mixed utterances found, at least in the first stage of the recordings, which is 20% of all utterances analyzed (Gawlitzek-Maiwald & Tracy 1996:910, *Table 1*). The authors themselves admit that it is unrealistic to speak of an English context in the recordings at all, since both languages were always activated to a high degree (912).

A similar proposal to explain early language mixing in bilingual children has been put forward by Bernardini & Schlyter (2004). The authors suggest that in code-mixing, functional categories from the SL are mixed into the WL. Based on Petersen's *Dominant Language Hypothesis* (1988), they claim that mixing in bilingual children who are unbalanced

is unidirectional, namely from the SL to the WL. At the same time, they do not pretend that their hypothesis (dubbed *Ivy Hypothesis*) generally applies to all unbalanced children.

Different from *Bilingual Bootstrapping*, here it is claimed that all functional elements are involved when a bilingual has a SL and a WL. Children do not bootstrap a structure they have acquired faster in one language, but they have one language which is *stronger* throughout and influences the other one, causing mixed utterances. Ideally, in a mixed utterance (Swedish/French) the child uses a content word, for example a noun, from the WL, adding the functional category D coming from the SL (example (4) below). Similarly, as soon as the DP level has been acquired in the WL, the IP comes from the SL (example (5)). Subsequently, a CP from the SL is used together with an IP as long as it is not available in the WL (example (6)) (examples from Bernardini & Schlyter 2004:51):

- (4) ett table
 a table
- (5) det är une table
 that is a table
- (6) att il a cassé la voiture
 that he has broken the car

Bernardini & Schlyter assume that children develop their SL like monolinguals do, but that the WL develops differently, namely slower and gradually, even lacking evidence for some functional categories in the data studied. In the authors' opinion, this phenomenon is not evidence for a unitary system, but rather demonstrates that one of the two languages in the bilingual children develops with some delay compared to the other. Bernardini & Schlyter take the view that the syntactic development of each language is separated and that it is related to the lexical learning in each of the two languages (Clahsen, Eisenbeiss & Penke 1996). The prediction is that the less input a child has, the less developed the lexicon will be, so that syntactic development will be delayed compared to monolinguals and compared to the other language. Thus, the *unidirectionality* of mixing is due to the less developed lexicon in the WL. The criteria for establishing a language as the weaker one include such aspects as

MLU, word types, presence of determinate elements (as e.g. modals, or subordinators), as well as criteria like fluency and language preference (Schlyter 1993, Genesee, Nicoladis & Paradis 1995).

Bernardini & Schlyter's notion of the SL is not comparable to either the DHL or the *Matrix Language Framework* (Myers-Scotton 1993). In fact, the dominant language does not seem to be sensitive to development, whereas the SL is. Furthermore, Petersen states that the dominant language is not the more proficient one, whereas Bernardini & Schlyter say that exactly the SL is supposed to be the more proficient and developed one (54). The notion of a *Matrix Language* (ML) is inconsistent with the *Ivy Hypothesis* either, in that it is unrelated to first language acquisition (cf. the critical remarks in Köppe 2007), and moreover because it may change from sentence to sentence, according to for example, Myers-Scotton (1993). Bernardini & Schlyter's notion of the SL stresses that one of the two languages in a bilingual is more developed than the other one during a significant time span during the development of syntax.

I agree with Bernardini & Schlyter's theoretical account, which lies within a minimalist theory, thinking that the claim that syntactic development is lexically driven is very attractive in order to explain language mixing, particularly when functional categories are involved. However, I plead for caution in claiming that input has such a direct influence on syntactic development. Surely a reduced input has an impact on the size of the vocabulary and, consequently, on the grammar. Nevertheless, in the account the authors put forward it seems that the lack of functional categories in the WL grows exclusively out of the reduced input of the child. Does this mean that specifically functional elements were not in the input? Or does it mean that the size of the lexicon affects whether the child acquires functional elements? Neither alternative seems reasonable. It is untenable to assume that functional categories are not in child input. Moreover, the lexicon's size is not related to the acquisition of a specific word, consequently it is also unrelated to the acquisition of functional words. There still must be found a satisfactory solution to why unbalanced children do not acquire functional categories. Furthermore, it remains open why some children use functional categories which they have already acquired in the SL, while others do not.

Finally, in a recent study Licerias, Spradlin & Fuertes (2005) analyze mixes between a determiner and a noun in bilingual children and make two interesting predictions: According to the *grammatical features spell-out hypothesis* (Licerias 2002, Spradlin, Licerias & Fernandes 2003, cited in Licerias, Spradlin & Fuertes 2005) the authors predict that in mixed DPs, the functional category D(eterminer) will be provided by the language which has the largest array of uninterpretable features (Chomsky 2000). If both languages manifest a similar array, no language will be preferred (Licerias, Spradlin & Fuertes 2005:228).

In the case of mixed Spanish/English DPs, since the Spanish determiner carries two uninterpretable features (gender and number), whereas the English noun has only one (number), Spanish will *dominate*. The consequence is a Spanish determiner accompanied by an English noun (e.g. *la* house), but not vice versa (e.g. the *casa*). In fact, the results show that this sequence occurs in 98% of the cases (Licerias, Spradlin & Fuertes 2005:230). The authors argue that the language which provides functional morphemes is the dominant one: 'the child will select the one Determiner with the richer array of uninterpretable features (...) and this system will be the dominant one' (Licerias, Spradlin & Fuertes 2005:231). The term *dominant* is not used in the general sense of Petersen (1988), but only includes the discussion of single structures (in this case, the mixed Determiner Phrase). Licerias et al. (2005) do not look at the time of acquisition of a certain structure, as Gawlitzek-Maiwald & Tracy (1996) do, nevertheless they refer to the fact that, due to the existence of proto-articles (cf. e.g., Bottari, Cipriani & Chilosi 1993/94), it could be that children who acquire a Romance language show earlier evidence for the use of the DP than children acquiring a Germanic language. Along these lines, the prediction that the order of succession Spanish determiner and English noun is preferred to the order English determiner and Spanish noun could also have developmental reasons (according to the *Bilingual Bootstrapping Hypothesis*). Notwithstanding, their analysis of Italian/German from Volterra & Taeschner (1978) and Taeschner (1983) confirm that no preference of either order Italian determiner and German noun or German determiner and Italian noun is visible. This is a very promising approach, insofar as it tries to account for child mixing by examining the interaction of formal aspects of the two languages.

2.5 CONCLUSIONS

This chapter evaluated several studies on language mixing in young bilingual children. For a few researchers, mixing is evidence for a single language system, which is only separated later. This hypothesis has however been largely rejected. Despite asserting two different stages of mixing, the first characterized by a high mixing rate, the second comparable to adult mixing, most researchers believe that languages are differentiated in children from early on (among various works, cf. Köppe & Meisel 1995, Paradis & Genesee 1996).

Mixing is not the outcome of a lack of language separation in bilinguals, in the sense that young children are not able to choose the correct language in accordance with the language context and the interlocutor. It has been shown that children are quite capable of using the correct language according to socio-linguistic and pragmatic aspects (Köppe 1996, 1997). High mixing rates should rather be attributed to the methodological shortcomings (Genesee 1989) of several studies than to the children's incorrect language choice towards monolingual speakers.

It is crucial to analyze what elements are mixed in this early stage of mixing. Most studies have shown that only a certain type of words, namely, the so-called function words, are mixed to a high extent, whereas later mixing can occur at any boundary. The question whether early mixing underlies the same grammatical constraints as adult code-switching has been answered by assuming that some kind of proto-grammar rules early utterances in child language, also affecting mixing, in the sense that language mixing in child language might be analyzed differently from adult mixing. As soon as grammar begins to mature, and functional categories emerge, a qualitative change in mixing might show up. Other studies which try to account for grammatical constraints in child language by assuming that child grammar (even if not fully developed) is as structurally constrained as adult grammar is. A further explanation for mixing is language dominance, a phenomenon that can come to the fore in terms of a bigger lexicon in one of the two languages. Early mixing is then due to the lack of the appropriate word in the so-called WL. Another outcome of language dominance is mixing within the syntax. Along these lines, the less developed language will profit from the more

developed one. A third type of dominance refers to specific grammatical properties of the two languages involved (such as uninterpretable features).

In closing, the analysis of mixing in young children is strongly related to the analysis of the grammatical development of the two languages in a bilingual child. In particular, the emergence of functional categories has been of greatest interest in most of the studies. A common idea is that the development of the two languages plays a crucial role in analyzing the quality of language mixing, in the sense that child mixing seems to be different from adult code-switching, in that grammar has not been acquired in children. This is said to have an impact on mixing.

The present work aims at showing that this is not corroborated by the data of five bilingual children who have been recorded in separated language contexts. In other words, if methodological aspects of data collection are respected, it comes to the fore that the quantity and the quality of mixing only differs with respect to the single individual children, but not according to a theory of either language acquisition or development.

NOTES

1. For an analysis of children behavior according to Grosjean's (2001) monolingual and bilingual mode, cf. for example, Kroffke & Rothweiler (2004).
2. Deuchar & Quay (2000:19) state that Manuela's monolingual English mother sometimes takes part in the Spanish recordings, speaking Spanish. Can one still speak of inappropriate language choice if the child addressed her in Spanish?
3. These children belong to the DUFDE project, which, headed by Jürgen M. Meisel, collected data from French/German bilingual children longitudinally in Hamburg, Germany.
4. Regardless of the term one prefers, it is important to check whether bilingual children are capable of using the appropriate language in the correct language context.

THE THEORETICAL FRAMEWORK

This chapter is concerned with the theoretical framework underlying the present investigation. It also provides an overview of current studies on language acquisition. The two languages being studied here, Italian and German, are part of the focus of both the presentation of specific grammatical structures and the discussion on language development.

After briefly characterizing the development of generativist linguistic research (for a detailed introduction cf. e.g. Radford 1988, 1997, Cook & Newson 1996), some specific details within the *Minimalist Program* (MP) will be sketched out. The architecture of the mind, the operation *Select*, the role of the lexicon, and the items stored in the lexicons of the two languages of a bilingual will be outlined. In particular, functional categories are discussed. Assuming such a model of the architecture of the mind gives a big significance to the lexicon, that is, to lexical items. Additionally, if indeed lexical items are responsible for generating clause structure, this is of greatest importance for the study of code-switching, where by definition items from different languages interact.

Some important differences in the analysis of the two languages being investigated, Italian and German, are outlined, in order to point out possible problematic domains for the analysis of code-switching. Particularly, differences within the CP and Tense Phrase/Inflectional Phrase (TP/IP) domain are discussed in view of the analyses in chapter 7.

Different proposals have been put forward in the literature on child language regarding the early stage of acquisition and the access to grammar. The researchers' opinions range from the claim that in children grammar is not operative from the beginning, but has to mature, to the assumption that children have full access to grammatical structures from early on.

For a better understanding of language mixing, it is crucial to analyze whether mixing is related to the development of grammar. Therefore, it is also indispensable to study *how much* grammar is accessible in child language. After reviewing the literature, the approach that will underlie the analysis of the present data is described in detail.

The presentation of studies on monolingual language acquisition is far from being exhaustive. However, the present work is not interested in discussing language development in relation to language mixing or code-switching. By contrast, I claim that code-switching in young children and in adult speakers should be analyzed in the same way.

3.1 GENERATIVE GRAMMAR AND THE MINIMALIST PROGRAM

The idea of *Generative Grammar* (Chomsky 1955, 1957 among many other works) is to address the question of the study of language in a more particular way, by shifting the focus to each individual speaker and his/her knowledge of a language, the capacity to speak it, and also on how s/he uses the linguistic system s/he has mastered. The basic assumption is the existence of the so-called *Faculty of Language* (FL), an innate component of each human's brain which is responsible for language acquisition and storage. Language is thus part of the cognitive and biological system of humans.

The research agenda is to show that the capacity to produce and understand an infinite number of utterances and expressions is based on specific models, which can be explained by sets of rules that express the grammaticality of a certain language. A Universal Grammar (UG) is said to be the theory of the initial state, the innate and invariant base in each human being. The specific grammar humans reach in the stable state, led by linguistic experience, is what we call Italian, English, and so on. If we abstract away from the concept of language as necessarily satisfying criteria like having a grammar, a written tradition, and so forth, what remains is that differences between languages only depend on different parameter settings.

In 1995, a new theoretical framework was introduced, the MP. This program aims at forming new assumptions about the organization of

the human mind with respect to language. The main attempt of this approach to the language faculty is to answer two important questions: First, how might the architecture of the mind look like? And second, which implications does this have on the language acquisition of each human being? The fundamental goal is that only a minimum of linguistic devices should be used in order to account for language phenomena. Following the *Principle and Parameter Theory* (Chomsky 1981), the MP also reduces language variation to the existence of different principles and parameter settings. What is new is that Minimalism aims at sketching out how the FL might look (cf. among many other works and also authors Chomsky 1995, 2000, 2001). Chomsky assumes that no more than a minimum of *levels of representation* and a set of *principles of representational and derivational economy* are necessary in order to organize a language system.

The model of the mind's architecture is supposed to consist of two main components: a Lexicon, which includes all language-specific information and variation, and a Computational System for Human Language (C_{HL}), which is invariant and fixed.

Two outstanding assumptions can consequently be drawn: Firstly, all syntactic variation is lexically encoded. This means that the whole system is driven by the lexical items and their morphology. The items will build individual trees taking account of the information included in the lexicon. Secondly, the I-Language is unchanging; there is only one underlying structure which means that all surface differences derive from movement operations. The I-language is defined as consisting of a computational procedure and a lexicon. Assuming that the underlying structure is only one in any language follows the economical requirements imposed by the MP itself.

Within this system, several operations work and interact. The operation called *Select* is responsible for taking items from the lexicon and introducing them into the *Numeration*, which has recently been relabeled in *Lexical Array* (Chomsky 2000, 2001). *Select* will play a crucial role in the analysis of mixed utterances (cf. chapter 6).

In the MP, all parametric differences are encoded within the lexicon. It follows that all variation in syntax is associated with the lexicon. Under such a view, parametric differences can be explained not only across

languages but also within the same language. Thus, the lexicon gains an important role: one lexical item may choose one value, a second lexical item may choose a different one. All items contain features which drive the derivation to be computed in the Computational System. Phrase structure, which has no independent status in C_{HL} but is derived from the lexicon, is therefore constrained by only one condition: The lexically encoded features must match in the course of derivation, whereas the uninterpretable ones are erased.

3.2 SPECIFIC NOTIONS

Assuming a lexicalist account which presupposes that features stored in items in the lexicon are responsible for projecting structures, hence generating clauses (Chomsky 1995), we can account for the infinite number of possible sentences and structures in human language. Taking this to be correct, some specific items contained in the lexicon, namely, the *functional categories* will now be outlined.

Ever since the *Government and Binding* approach, items have been categorized into *lexical* (for example, verbs, V; nouns, N) and *non-lexical*, for example, I(nflection) and C(omplementizer), which are also referred to as functional categories (Chomsky 1981). They are said to carry information about the grammatical function of items. All these elements are heads and generate phrases like VP, TP, and so on.

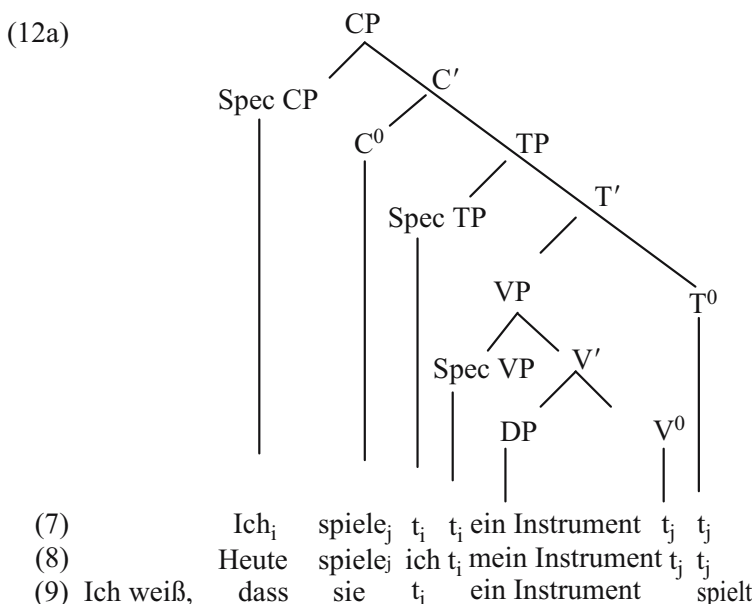
For the purposes of the present analysis, it is important to point out that Italian is considered as a *null-subject-language*, whereas German is an *overt subject language*. However, German, being a *topic-drop-language*, allows null-subjects when they are in topic position, that is, in the first position in the main clause. It is not the intention of this work to provide an analysis of null-subjects; for a discussion on the null-subject parameter cf. for example, Rizzi (1982, 1992), Hyams (1986), Valian (1991).

Another difference is given with respect to the role of the CP: In Germanic languages a CP is requested in main declarative sentences. The verb, which is assumed to be base-generated in head-final position within the VP, raises to C^0 , being then in second position, as in (7) and (8). By contrast, in embedded clauses the verb moves to the head of TP, as depicted in (9) (for an analysis of German cf. den Besten 1977, Bayer

1984, Travis 1984). Here, we assume that TP and VP are head-final (Meisel & Müller 1992; for a different proposal cf. Haider 1994, 1997).

In sharp contrast, in Standard Italian the CP is dispensable in main declarative clauses (10),¹ given that the finite verb moves to the head of T (Belletti 1990). A CP only occurs with a subordinate clause (11). The tree in (12a) recaptures these German sentences, the one in (12b) the Italian ones. For ease of exposition, only relevant projections are sketched.

- (7) Ich spiele ein Instrument
I play an instrument
- (8) Heute spiele ich mein Instrument
Today play I my instrument
- (9) Ich weiß, dass sie ein Instrument spielt
I know, that she an instrument plays
- (10) Io suono il sassofono
I play the sax
- (11) Ho saputo che Sara suona il sassofono
I heard that Sara plays the sax



Following a more detailed variant of the *Lexical Hypothesis* (Chomsky 1995), which is supposed to apply to all elements in the lexicon, the *Functional Parametrization Hypothesis* implies that parameters are related to functional categories. It has been posited that languages only differ in how they treat functional categories, whereas lexical categories are equal cross-linguistically, in the sense that their properties are the same in all languages (cf. among others Oulhalla 1993). Hence, it can be argued that word order differences between languages (one of the most lively areas of debate in studies on language theory) are only due to specific differences between the functional elements. Of course, there are also features common to all functional elements: Oulhalla (1993:8) claims that functional categories differ from lexical ones in that they are not able to assign thematic roles, and because they encode grammatical features. Assuming that functional categories carry features for c-selection, viz. information about the argument structure determined by a category (e.g., that the head of AGR c-selects a TP as its complement, whereas T^0 c-selects a complement VP) leads us to the conclusion that functional heads indeed determine the word order of their complements, which they f-select.

Another attempt to explain word order variation is to suppose a universal fixed order. According to the *Universal Base Hypothesis* (Kayne 1994), the base word order universally presupposed is SVO (Subject, Verb, Object). In order to get OV, the object has to move to the specifier of a higher functional category (AgrO or v) to overtly check features. As already mentioned, the subject is assumed to be inside the VP. In order to overtly check case features, the subject moves to the specifier position of T. Also due to feature checking (more specifically, φ -features) V has to raise to T^0 . Consequently, linear order has virtually no significance, whereas structural order (based on feature checking, that is, φ -features, case features, and EPP-features) is what accounts for differences among languages. The claim that there is a fixed universal word order stands in contrast to the assumption of a head-parameter, which assumes that parameters are related to functional categories. As pointed out by Chomsky (2001:7), Kayne's approach requires many options of movement, and needs empirical evidence. Although it lies out of the scope of this book to discuss these contrasting approaches,

it seems that the findings in the empirical part might shed light on the discussion of whether there is a universal base word order (as e.g., VO for verbs and objects or AN for the order of succession between adjectives and nouns), or if parameters of variation are encoded within functional categories.

The selection of a functional category is hence of notable importance for projecting phrase structure. This crucial role even gains if looking at code-switching. In the empirical part of this work, I will claim that code-switching provides evidence for the role of functional categories in building a sentence structure, evidence that is not available in an analysis of monolingual utterances.

But what properties are contained in the lexical items nouns and verbs? It seems that, for example, gender is encoded in each noun, since it is an inherent property of nouns. With respect to verbs, if we assume that a verb is a lexical item which encodes argument structure and assigns thematic roles to arguments, then this only may hold for the stem or for the infinitive verb. As soon as functional elements like agreement or tense are selected, the role of the verb itself should become less important. I believe that it is necessary to point out this contrast, otherwise it would not be clear what motivates verb movement and how features interact in mixed utterances.

3.3 LANGUAGE ACQUISITION

How are children capable of acquiring such a highly complex and rich system so quickly and at such an early age? The stimuli given to them are insufficient in order to be able to explain such a rapid development and assessment of a language. The only possible solution to the acquisition question is to assume that there is an initial cognitive state which is by no means a *tabula rasa*, but rather already a rich system. Language acquisition can be seen as a path from the initial state to a stable state, that is, when an individual person is in possession of a particular grammatical knowledge. Chomsky (1965) proposes taking account of two notions in order to provide a proper analysis of language acquisition: the analysis must be 'descriptively' adequate, which means it has to distinctly describe what the instinctive knowledge of an adult speaker of

a language is; and it must meet the condition of ‘explanatory adequacy’, since it calls for an explanation of how a child is able to acquire this knowledge on the basis of the input s/he gets. Interestingly, as pointed out in Chomsky (2001), the two conditions lead to opposite developments: ‘descriptive adequacy’ asks for more requirements in order to describe every single difference among languages, whereas the main interest of ‘explanatory adequacy’ is to restrict as much as possible the number of requirements needed for language acquisition.

According to the assumption that UG is innate, that it is a rich and complex system of rules, and that there must be an innate instinct to learn (Chomsky 1959), a child disposes of an initial state which changes during exposition and experience to a particular type of language system. This has been referred to as *Language Acquisition Device* (LAD). This device determines the construction of the grammar of the native language. Thus, language acquisition can be considered as: The activation of UG with respect to the specific rules of the particular language a child is exposed to; the acquisition of lexical items which contain complex information; the path from the initial state to the stable state of a particular grammatical system, or language. It has not been possible to give evidence of the existence of such a LAD yet, neither linguistically nor neurologically. Nevertheless, such a tool must be presupposed in order to explain how acquisition can happen so quickly. Assuming that there is an FL and a UG from birth on has as a consequence that there must be a module dedicated to the development of language, too (Chomsky 2001).

In the *Principles and Parameters Theory* (Chomsky 1981), language acquisition is explained by parametric choices: Based on input, a child chooses a certain value for each parameter. Following this theory, Hyams (1986) introduces the idea that the input is organized in strings (triggers) which provide evidence for a specific parameter setting. Along this line, triggers help children to set parameters. However, we still need to shed light on how the child makes this choice, opting for one value and not the other, and how the child can reset a parameter if the wrong choice was made with respect to the particular grammar of the language it is acquiring. Surely, a more detailed analysis of how long UG remains accessible over a person’s lifetime is also required.² Many studies on parameter setting revealed that this phenomenon occurs very early in the

acquisition, at least for some parameters, namely the head-complement (Radford 1997), the verb-raising (cf. Pollock 1989, Poeppel & Wexler 1993, Clahsen, Eisenbeiss & Penke 1996, Wexler 1998), the clitic, and the pro-drop parameters (Hyams 1986, Guasti 1993/94, Rizzi 1993/94). Wexler (1998) put all these phenomena together in what he calls the *Very Early Parameter Setting*.

Agreeing with the idea that language is innate, for a long time researchers assumed language acquisition was instantaneous, ignoring therefore how the acquisitional mechanism in children works, that is, how innate knowledge and input work together (the descriptive adequacy question). In fact, acquisition is the interplay of an innate knowledge of language and input. Given the more recent suggestion that the language-specific features entailed in the items, that is, in functional categories, are responsible for structure building, the important question arises as to what happens in child language before these items emerge. Pointing out that child speech and adult speech have significant differences, several accounts have been put forward in the past 20 years in order to explain this divergence and to account for the development before arriving at the target stage. Hyams' (1986) theory of parameters can provide a direct explanation for certain developmental properties. Along this line, children dispose of functional categories from early on, but since the parameter values seem to have not yet been set in an adult fashion, sentences do not yet conform to adult language. What remains unanswered is what exactly triggers the child to change from an initial, maybe only lexically driven phrase structure, to the adult structure.

In early child grammar there is a stage of language acquisition which is characterized by the occurrence of *variability*. Variability means that several phenomena, which include the use and the emergence of morpho-syntactic elements, seem to be impoverished during early stages in language development. In this sense, early word combinations do not always conform to adult clause structure. One can observe both the occurrence and the lack of, for example, grammatical morphemes as functional categories, inflections or verb forms as modals/copula. Given that this stage of optionality/variability holds until the age of approximately 3 years, it has been suggested that maturation takes place

in child language (Borer & Wexler 1987, Bickerton 1990). Especially the study on the emergence and production of functional categories in child grammar has been used in order to either corroborate or falsify a maturational account.

Radford (1990) claims that early child clauses include the lexical category VP, but lack the inflectional category IP. This hypothesis, called *Small Clause Hypothesis*, assumes that child sentences only consist of the projection of V, hence that early grammar is based on projections made by lexical items. Evidence is drawn from the fact that children do not seem to produce functional categories, although these are supposed to be innate. The explanation proposed is that functional elements are said to emerge later, due to maturation, around the age of 3. The *Maturational Hypothesis* hence claims that functional elements are initially unavailable (e.g., agreement morphology and overt complementizers), and then available, independent of language-specific properties. The ability to project functional categories is said to *mature* with age. Maturation is intended as a biological mechanism which underlies the development of specific features (Rizzi 1993/94).

Following Borer & Wexler (1987), the UG is underspecified in early child speech, which means that some properties or principles are not operative, but mature later in the mind. The consequence of this view for the study of language acquisition is that children are said to build up phrase-structure trees gradually. Accordingly, some kind of *proto-grammar* constrains early children's utterances before universal principles are activated. Early one-word and multi-word utterances are not constrained by syntactic principles. Of course, the question arises as to what then is responsible for constraining early utterances. Moreover, what makes it possible to take the step from this *proto-grammar* into the target-like grammar which conforms to the adult's grammatical system?

The *Structure Building Hypothesis* (Guilfoyle & Noonan 1992), a more elaborated version of the *Small Clause Hypothesis* (Radford 1990) claims that structure emerges with maturation, but that principles are present from the beginning. The syntactic structure in early grammar hence consists of lexical items (e.g., verbs and nouns), the only projection being a VP. Hence, early word combinations are said to be ordered linearly, as proposed in, for example, Bickerton (1990). Some authors

claim that children only dispose of one or some functional projection(s) (cf. e.g., Clahsen 1992). With respect to the CP, there seems to be no evidence that it has been implemented in child speech, at least for German (cf. Meisel & Müller 1992).

In the past years, cross-linguistic studies on early child grammar of languages other than English (on which Radford based his predictions) have not corroborated the *Small Clause Hypothesis* (for an overview, cf. Guasti 2002, Hamann 2002). For example, the analysis of the position of the negation in child language can provide evidence for the early setting of the parameter responsible for word order, verb movement (specifically, if the child is exposed to a V2-language or not). In adult speech, in languages like German or French, the word order V FIN Neg indicates that the finite verb has been raised from V to I, passing the projection NEGP, which is located between IP and VP. If the verb is infinite, it remains within the VP, causing the word order Neg V INF. In child speech, it has been shown that the position of the verb with respect to the negation depends on whether it is a finite or infinite verb, that is, children raise finite verbs to IP, so that they precede the negations, whereas infinite verbs follow NEGP, according to adult grammar (Déprez & Pierce 1993, Poeppel & Wexler 1993). From this one can conclude that the functional category IP is present in child speech.

Another topic of interest in the analysis of child language is the study of optional infinitives. It has been noted that in some languages (e.g., German) children go through a stage during which they use infinitive verbs in the same way as main verbs. This use coexists with the target-like use of infinitives as in adult grammar. Wexler (1994) suggests that optional infinitives in early child language can be explained by the fact that children have not acquired the syntax of tense. Rizzi (1992) claims that children at this age (roughly speaking, between two and three) also omit other functional elements, as for example, prepositions, determiners. Guasti (1993/94) proposes that the use of infinitives vs. finite verbs is not random in early child speech. She claims that in Italian, children clearly distinguish between finite and infinitive verbs. In fact, she provides evidence that Italian children master the agreement system very early (cf. also Hyams 1986). Pizzuto & Caselli (1992)

state that Italian children use inflection for person in a correct way in 90% of the obligatory contexts. From this Guasti concludes that the functional category IP is present in early child grammar, at least in Italian.

In contrast to the viewpoint that functional categories are absent in child speech, other works assume that some or all functional categories are present very early in child speech, so that children are able to construct adult trees (Hyams 1986, Weissenborn 1990, Déprez & Pierce 1993, Poeppel & Wexler 1993, Guasti 1993/94, Wexler 1994). The *Strong Continuity Hypothesis* assumes that early child grammar differs only minimally from adult's grammar, and that some functional categories, at least an IP, are present from the onset. The absence of certain functional elements in production is attributed to the lack of knowledge of other features related to them. Hence, functional categories are there, although initially covertly. However, the *Strong Continuity Hypothesis* can neither account for development in child language nor for the existence of a stage of optionality/variability. A weaker account hence proposes that, since children project structure based on the lexical properties of the items they acquire, as long as the functional elements have not been acquired, and hence are not stored in the lexicon, no functional projection is possible (Clahsen 1992, Clahsen, Eisenbeiss & Penke 1996). Following the *Weak Continuity Hypothesis*, the acquisition of phrase structure is related to the interaction between language input and UG. Hence, the emergence of functional categories depends on language-specific features, for example, on their presence in language input, hence on lexical learning. This structure-building approach culminates in what Powers (1999) calls the *No Functional Projection Hypothesis*. The prediction is that, as soon as functional elements become visible, no absence of functional phrase structure should be presupposed. This is in contrast to the *Strong Continuity Hypothesis*, which claims the projections are there, but that the functional elements are absent. This latter assumption seems infelicitous insofar as it does not explain why projections rather than items should arise. Moreover, the question arises as to how the structure without the elements should be visible. By contrast, assuming that the acquisition of the functional items leads to the projection of functional phrases is in accordance with

minimalist assumptions, which claim that lexical items are responsible for building sentence structure.

Research on bilingual language acquisition always points out that bilingual children should develop their languages in the same way as monolinguals do. Along this line, what we have discussed so far should be applicable to bilingual children, too, in the sense that the same developmental stages and the same target-deviant utterances are found in data from children acquiring two languages. Interestingly, in a very recent study, Gawlitzek-Maiwald & Tracy (2005) propose to consider that monolingual children might behave like bilinguals, in that they also build up more than one grammar in the early stage of language acquisition. These grammatical subsystems coexist for a certain period and thus this *multi-grammar approach* might explain some puzzling data in child language, such as the existence of variability as discussed above in, for example, optional infinitives. The authors suggest that ‘evidence from bilinguals help us clarify what structural and functional detail ALL [caps by the authors, KFC] children are capable of attending to and what children’s grammars are like, in principle’ (2005:295). This approach sounds very interesting and promising for future research on language acquisition, in that it might dissolve the distinction between monolingual and bilingual language acquisition studies.

3.4 CONCLUSIONS

This chapter discussed the theoretical background of the present work. The *MP* offers a model of what the mind might look like. The idea is that there are operations which work in conjunction with the C_{HL} . This is how sentences are derived. The *FL* model is a good starting point for an analysis of how language works in the brain. However, we must admit that we do not yet have evidence that this model is the correct representation of the mind’s architecture. Nevertheless, presupposing that it could look this way simplifies the endeavor of dealing with a system which is completely abstract.

The presentation of specific notions of the grammatical model used includes some relevant differences in the two languages studied, which are Italian and German. I have especially concentrated on functional

elements, since they play a crucial role in setting parameters, in the analysis of child grammar and in the analysis of code-switching pursued in the present work. The *Functional Parametrization Hypothesis* assumes that parameters of variation are associated with functional categories. More precisely, those features which are encoded in functional elements are responsible both for projecting phrase structure and for movement requirements in order to check features. This sheds light on how word order differences are determined.

With respect to language acquisition, different proposals have been presented which try to account for child speech, in particular for what is present in the earliest stages of language development. The discussion on early child grammar is still open.

The present work follows the *Weak Continuity Hypothesis*, that is, the assumption that as long as the functional items have not been acquired (and are therefore not in the lexicon), no functional projection is possible. This approach offers the closest explanation of what the data show in chapter 6.

NOTES

1. Rizzi (1997) proposes splitting the CP; for the vulnerability of CP, cf. Platzack (2001).
2. For a discussion on access to UG cf. for example, Schwartz & Sprouse (1996).

CODE-SWITCHING

The phenomenon of code-switching, the main issue of the present work, is the focus of this chapter. In reviewing the literature of the last 4 decades, several aspects of this speech style are presented. As a matter of fact, it is well-known that bilinguals mix their two languages, but it is not always regarded as a grammatical way of speaking. Often people rather consider it as an inability to separate the two languages when speaking. Additionally, even researchers did not abandon the idea that code-switching is non-systematic for a long time.

The most common definitions and the differences between code-switching and other language-specific phenomena are introduced here. Furthermore, a review of different aspects of code-switching, including socio-linguistics, pragmatics and grammar, is given. The main interest lies in the study of grammatical aspects of code-switching.

Most of the proposed constraints have been widely debated in the last 25 years, ending up in ruling out almost all proposals. It is nonetheless important to introduce them, since they are crucial for the discussion of the empirical data, and also because they show how code-switching can be analyzed from a grammatical perspective.

A further proposal from Muysken (2000) tries to account for code-switching in terms of type-specific constraints. Along this line, Muysken argues that there is psycho-linguistic and socio-linguistic evidence in favor of the existence of three processes for analyzing language mixing according to for example, the fact that the language are typologically similar or to whether one studies individual bilingualism or bilingual communities.

A new approach on the issue of code-switching is then introduced. MacSwan (1999, 2000) proposes to consider code-switching

as the result of mixing two lexicons in the derivation. The minimalist assumption that all variation is to be found in the lexicon is therefore of outstanding importance for this theoretical statement. In contrast to earlier accounts of grammatical aspects of code-switching, MacSwan's proposal gets rid of superfluous restrictions *invented* especially for this speech style, thereby creating a *third grammar*, a grammar intrinsic to CS. A crucial insight is that there are no language-external constraints on CS. However, he claims that a specific type of mix cannot occur, because the two lexicons cannot interact at a certain level.

Section 4.6 develops the idea of applying MacSwan's model of the architecture of the bilingual mind also to bilingual children who code-switch.

4.1 DEFINITIONS

According to Milroy & Muysken (1995:7), 'perhaps the central issue in bilingualism research is code-switching'. As a matter of fact, in studies on bilingual speech, there is much evidence that bilinguals tend to mix their languages during conversation, often within single utterances (cf. among others Poplack 1980). Unfortunately, such mixing has often been misinterpreted as evidence that bilinguals lack competence in speaking one or both languages. The earliest studies concluded that non-systematic mixing was an indicator of language confusion (e.g., Labov 1971). Additionally, code-switching in a bilingual community with a minority language has been widely stigmatized.

Studying language mixing can enlighten research on bilingualism, in that it can provide evidence of how two languages interact in a bilingual individual. One perspective for analyzing code-switching comes from the socio-linguistic and pragmatic view. Along this line, CS may vary depending on the linguistic context and the speaker's social environment. From the pragmatic viewpoint, code-switching is regarded as a discourse strategy and a speech style (Blom & Gumperz 1972, Gumperz 1976, Grosjean 1982).

A descriptive definition found in socio-linguistics dubs code-switching as 'the juxtaposition within the same speech exchange of passages of speech belonging to two different grammatical systems

or subsystems' (Gumperz 1982:59). This general assertion does not say anything about frequency in which these *passages of speech* occur within a speech exchange. It also does not mention when and where code-switching occurs, for example, at which specific points within an utterance or a discourse. Further, it does not specify whether the two grammatical systems are respected or not.

Grosjean, who has a psycho-linguistic approach to language mixing, considers CS as a complete shift from one language to the other, either for a word, a phrase or a whole sentence (1998:137). During a discourse with another bilingual individual, at a given point a bilingual person has to make a decision, which is mostly unconscious, about which language to use, and to what extent. Along this line, Grosjean argues that the level of activation of the two languages will differ in accordance with the interlocutor (1998, 2001). If a bilingual is speaking to another bilingual, both languages will be activated. By contrast, if a bilingual is in a monolingual context, the state of activation of the two languages will differ. A language is said to never be fully deactivated in a bilingual. Basically, the *language mode* proposed by Grosjean is intended as a continuum on which the bilingual moves. Language mixing is said to occur when the bilingual is in a bilingual situation, hence when interacting with other bilinguals. In this situation, both languages will be fully activated and will therefore lead to language mixing, for example, code-switching, or borrowing.

Neat as it appears, the language mode meets with some criticism. The main remark to make is that, in order to check which position to take on the continuum, a person has to know the language knowledge of the other speaker. In this sense, a bilingual mode will be difficult to establish in spontaneous data collection with strangers. In fact, it seems that bilinguals tend to mix more in a familiar situation, for example, with close friends. Grosjean cites studies by Poplack (1981) and Treffers-Daller (1997), who report this observation. A further problem which arises is how to account for the specific position on the continuum at a given time. In other words, how long is a bilingual in a mode, being it the monolingual or the bilingual one? And how will the change of mode come to the fore? These questions are very important with respect to the study of language mixing. By definition, if the bilingual is in the bilingual mode, code-switching is a logical outcome during a conversation, whereas in the monolingual

mode only one language will be used. The analysis of code-switching therefore crucially differs depending on the language mode established between two speakers. In a monolingual situation, language mixing will be seen as target-deviant. But in a bilingual situation, CS will be perfectly acceptable. Being aware of this, Grosjean (1998:138) points out that 'to have any chance of identifying interferences correctly one needs to be sure that the data collected come from a truly monolingual mode'.

A different perspective is reflected by a grammatical viewpoint: It claims that the rules of both languages must be respected when mixing. Linguistic constraints are thus needed in order to control code-switching. According to Milroy & Muysken (1995), there is a third set of constraints involved in code-switching, namely, those belonging to biological features, which control that innate elements of linguistic competence interact in mixing. A common definition within this field refers to code-switching as 'the alternative use by bilinguals of two or more languages in the same conversation' (Milroy & Muysken 1995:7). This definition by no means restricts the phenomenon of code-switching, and is therefore just a descriptive statement. Sankoff & Poplack (1981) argue that in mixing one has to take into account the structural integrity of the languages, introducing the idea that the grammatical aspects of the individual languages play a crucial role.

DiSciullo, Muysken & Singh (1986) state that language mixing is a form of linguistic behavior, which consists of producing utterances with elements belonging to the lexicons of different languages. They introduce the term *code-mixing*, which is commonly used to define a lack at the level of pragmatics and grammar in child speech due to the not yet developed pragmatic and grammatical competence (cf. Meisel 1994, Köppe & Meisel 1995). However, they do not adhere to this definition, but instead consider *code-mixing* a more appropriate term than *code-switching*, because the latter has often been used in socio-linguistic contexts. In fact, Muysken later explains that code-mixing refers 'to all cases where lexical items and grammatical features from two languages appear in one sentence' (Muysken 2000:1), whereas 'the more commonly used term code-switching will be reserved for the rapid succession of several languages in a single speech event' (ibid.). Furthermore, in his typology for language mixing (cf. section 4.3.5), Muysken

claims that 'switching is only an appropriate term for the alternation type of mixing' (2000:4).

A definition that deals with mixing from an insertional point of view has been proposed by Myers-Scotton, who adopts the idea of a ML: 'Code-switching is the selection by bilinguals or multilinguals of forms from an embedded language (or languages) in utterances of a matrix language during the same conversation' (Myers-Scotton 1993:4). In this case, the two languages are not treated equally by the speakers. At least, they are considered unequally by the researchers who study language mixing.

Explaining the term code-switching by pointing out the competence of the speaker in both pragmatic and grammatical aspects of the languages involved, Meisel (1994:415) states that:

'Code-switching is the ability to select the language according to the interlocutor, the situational context, the topic of conversation, and so forth, and to change languages within an interactional sequence in accordance with sociolinguistic rules and without violating specific grammatical constraints'.

Along this line, CS requires ability on the bilingual's part, and hence is a positive statement about this speech style and the speaker's competence in it. Furthermore, this definition supposes that code-switching is constrained by grammatical rules.

Let us turn to some terminology that is used when discussing about this speech style. Code-switching is said to occur during a conversation, from sentence to sentence, or within a sentence. The latter is called *intra-sentential* code-switching, the former *inter-sentential*. In adults, mixing is supposed to be a conscious action that happens only when the addressee is also bilingual, or at least capable of understanding the two languages. Look at the constructed conversation between two Italian/English bilinguals A and B as in (13) as a case of inter-sentential code-switching, while (14) is an example of an intra-sentential switch (between German and English). The term *tag-switching* refers to a mix involving an utterance and an interjection (or tag). Some examples of tags are the German *weisst du* (*you know*), or the Italian *capisci* (*do you understand*), as in examples (15) and (16) below. *Lexical borrowing* is a word or short

expression that has been phonologically adapted into the base language (Muysken 1995), as in (17) below. However, distinguishing borrowing from code-switching is a difficult enterprise, as reported in many studies (cf. Romaine 1995). In fact, some authors claim that borrowing involves only a certain type of words, namely, those with a specific cultural meaning or prestige. Also, borrowing could be due to semantic reasons, such as when the equivalent word does not reflect exactly the same meaning. Researchers agree that on the fact that borrowing cannot only be reduced to filling lexical gaps (cf. Gumperz 1976, Romaine 1995).

Loan words are elements which are spontaneously taken from one language and can be established or not (*nonce loans*). An example of an established loan is given in (18), *reality show* being an English term which is widespread in Italy, and is used for comparing an unreal situation like a TV reality show. In the discussion about borrowed and loan words, it is not clear whether the word must be morpho-phonologically integrated in the language it is switched into, which in fact could be a criterion for differentiating borrowing from switching (Pfaff 1979, Grosjean 1982, Myers-Scotton 1993, MacSwan 1999). In CS, one would expect the word not to be phonologically integrated, but pronounced as in the target language.

- (13) A: Do you know Pavarotti's newest song?
 B: Yes, I know it. È una bellissima canzone
It is a beautiful song
 A: Anche a me piace
Also to me like (I) it
- (14) I love that Kleid
I love that dress
- (15) Oggi Sara era al nuovo negozio, weisst du?
Today Sara was at the new shop, you know?
- (16) I was happy about that, capisci?
I was happy about that, do you understand?
- (17) Quella situazione era too much per me
That situation was too much for me
- (18) Ma cos'è questo, un reality show?
What is this, a reality show?

An important point is whether there is a base language in a bilingual discourse. Those who favor this analysis propose different ways of defining it: Some say the base language is the language where the verb comes from, others propose to count morphemes, so that the base language is the one which provides most morphemes in an utterance (Myers-Scotton 1993). From a psycho-linguistic point of view, the base language could be defined as the more activated one (Grosjean 2001).

In sum, code-switching needs to be accounted for in both socio-linguistics and pragmatics as well as in a theoretical linguistic model. The present study only focusses on grammatical aspects of CS.

4.2 BRIEF OVERVIEW OF SOCIO-LINGUISTIC ISSUES CONCERNING CODE-SWITCHING

The earliest pioneering studies on code-switching were done by Gumperz, who claims that language mixing should not be seen as a deficit, and hence should no longer be stigmatized (Gumperz 1976, 1982). In his study in 1976, Gumperz distinguishes between the *situational code-switching*, which concerns the situation the speakers are exposed to, and *metaphorical code-switching*, which implicates language choice in order to attain special communicative effects.¹ Focussing on discourse and function, as well as on speakers and settings, Gumperz sheds light on the importance of analyzing factors such as *language choice*, and why language is alternated within a discourse. His analyses of conversational code-switching show that the strategies of the speakers as well as the topic of discourse (and hence several symbols and social cues) are essential to any successful explanation of mixing. Analyzing spontaneous data, Gumperz (1982) claims that each individual can choose a speech style according to a *discourse strategy*. Further he categorizes conversational code-switching into six main functions, for example, *quotation*, *interjection*, *message qualification*.

Auer (1995) also proposes different factors to account for code-switching, for example, *reported speech*, *reiterations*, *topic shift*, *language play*, *topicalization*. Along these lines, at least socio-pragmatic

motivations which lead to code-switching can be successfully described. Discourse-related and discourse-oriented strategies, in particular in bilinguals who live in a bilingual community, are said to usually depend on individual life stories rather than on factors like competence. Hence, directionality becomes less important in these contexts. The main function of code-switching here is to create *contrast* (Giacalone Ramat 1995). Code-switching between similar languages, for example, standard variety and dialects (cf. e.g., Clyne 1967, Giacalone Ramat 1995), is supposed to be different and is thus labeled for example, *code shifting*.

Michael Clyne studied immigrant communities, especially Germans and Dutchs, in Australia (e.g., Clyne 1967). He considers mixing as something relatively unconstrained, and concentrates mostly on the socio-linguistic aspects of this speech style. Clyne claims that no external grammatical constraints should rule this speech style, but that language-specific constraints have to be respected (Clyne 1987). Along these lines, the two grammars involved must be stable. Some shortcomings in how Clyne analyzes mixed utterances in a grammatical way probably derive from the fact that he is dealing with a language-pair (German/Dutch) which is similar with respect to both phonetical lexical items and clause structure. Clyne assumes that code-switching is triggered as soon as a word is uttered which is similar in both languages (e.g., *hier/here, here*, in German/Dutch). Of course, this assumption is by no means universal, since there is a huge amount of language-pairs studied with respect to mixing which do not have similar forms.

In sum, socio-linguistic aspects of code-switching try to account for different reasons for using this speech style, and also for factors like *language choice* and *language proficiency*. According to Muysken (2000; cf. also section 4.3.5), the type of code-switching also depends on the linguistic environment. Along this line, different ways of mixing the two languages should be found in bilinguals with dissimilar socio-linguistic backgrounds. In this account, it is crucial to analyze whether bilingualism is historically rooted in a community, or whether the two languages involved are similar (e.g., when analyzing language mixing between standard and dialect). Finally, the type of language mixing is also said to depend on the speaker's proficiency.

4.3 GRAMMATICAL ISSUES CONCERNING CODE-SWITCHING

After having been mostly analyzed according to socio-linguistic norms, since the 1960s a huge interest in the grammaticality of mixed utterances has developed. Several studies on adult code-switching in the last three decades have shown that this linguistic behavior is indeed constrained by grammatical principles, and is not just the random mixing of two languages (cf. among others Timm 1975, Poplack 1980, DiSciullo, Muysken & Singh 1986, Belazi, Rubin & Toribio 1994). It has been shown that code-switching occurs at specific points (boundaries) in the sentence, and it has been predicted that it is disallowed at other points, with an intense focus on syntactic constraints. Nevertheless, there has not always been general agreement about whether bilinguals code-switch at random.

In some studies in the 1970s it has been argued that there is no evidence for syntactic restrictions in code-switching. Labov (1971) defines code-switching as 'the irregular mixture of two distinct systems' (from MacSwan 1999:40), whereas Lance (1975) argues that 'there are perhaps no syntactic restrictions on where the switching can occur' (from DiSciullo, Muysken & Singh 1986:2). In contrast, later studies on the mixture of two languages have at least one shared assumption, namely, that there are syntactic restrictions in this specific speech style. Besides agreeing on this presupposition, the second important goal is to find an adequate description which can characterize these restrictions. An adequate description also needs to satisfy general principles and to be applicable cross-linguistically. In addition to this, general principles make independent and objective evidence possible, which is not driven by the switches themselves, and hence is not redundant.

Most of the restrictions proposed in the 1970s addressed mixing by analyzing a specific grammatical structure. Several constraints emerged, each one only considering the grammaticality of mixing at a specific point in the sentence (cf. e.g., the *Coordinating Conjunction Constraint* in Gumperz 1976; the *Specifier Constraint* in Timm 1975; the *Adjective Order Constraint*, the *Clitic Constraint* and the *Inflectional Constraint* in Pfaff 1979). This way of formulating constraints is not tenable, since

it creates too many restrictions that do not satisfy the important goal mentioned above: They are in no way general enough and they cannot be applied cross-linguistically.

In the following, the main constraints which have been raised up in order to regulate code-switching from a grammatical point of view are chronologically presented. All of these proposals assume that there must be specific rules which predict where switches may occur within a sentence and where they must be disallowed. Note that most studies have different methodologies: Some use grammatical judgements (acceptability tests), others analyze recorded speech, and others work with a mixture of both. Applying acceptability tests often leads to inventing switches which might never occur in spontaneous data. Furthermore, asking speakers to judge whether a sentence is well-formed or not is not very reliable, since speakers may have different opinions about what is acceptable and grammatical. The result may be that some switching points are controversial. In fact, most of the proposed constraints are both accepted and rejected in the code-switching literature and make both correct and wrong prediction with respect to spontaneous code-switching data.

4.3.1 *Linear order in CS*

The first constraints, which in contrast to earlier ones seem on the one hand to have a more general and cross-linguistic status, and on the other hand to account for a specific grammatical area, have been formulated by Poplack (1980, 1981) and Sankoff & Poplack (1981) who looked at Spanish/English mixed utterances of Puerto-Rican speakers in New York. Poplack is the main proponent of the importance of linear order in mixing of two languages. She claims that mixing mostly occurs when there is an equivalent order of the constituents in both languages. Poplack (1980:586) accounts for this by formulating the following restriction, the Equivalence Constraint (EC):

- (a) The Equivalence Constraint
Code-switches will tend to occur at points in discourse where juxtaposition of L1 and L2 elements does not violate a syntactic rule of either language, that is, at points around which the surface structure of the two languages map onto each other.

The EC predicts switches only if word order of the two languages converges. The structure of the two languages involved must be equivalent, and the switching point must be possible in both grammars, otherwise no switching is allowed. Consider the following two examples from Gringas 1974 (cited in Poplack 1980:586):

- (19) *El man que came ayer wants John comprar a car nuevo
The man who came yesterday wants John to buy a car new
- (20) Tell Larry que se calle la boca
Tell Larry that himself to shut his mouth

Both examples are constructed, and Poplack raises the question of whether invented code-switches should be considered for analyzing mixes at all (1980:587). Nevertheless, she claims that the EC predicts that switches like these should not occur. Example (19) violates the EC in that it applies an English infinitive complementizer rule to the verb complement, which is not possible in Spanish. Additionally, there is a mix between the noun and the adjective, although the adjective position is different in the two languages: English attributive adjectives are always pre-nominal, Spanish ones can either precede or follow the noun. Example (20) has been accepted by almost all speakers.

The EC seems to be vulnerable: On the one hand it predicts switches only between languages which are typologically very similar, that is, languages with the same surface structure; On the other hand it foresees switches at points where they never occur, since it permits mixes at any point where a constituent in the two languages ends (for this theoretical remark cf. Meisel 1994). A further problem of the EC is that it is not formulated in terms of structural or hierarchical relations between the elements, but only according to linear sequences.

Poplack (1980:586) proposes an additional restriction, the *Free Morpheme Constraint* (FMC), which disallows switches that involve bound morphemes:

- (b) Free Morpheme Constraint
 Codes may be switched after any constituent in discourse provided that constituent is not a bound morpheme.

The FMC predicts that no word-internal switches are allowed. Hence, the following example from Poplack (1980:586) is considered as ill-formed:

- (21) *Juan está eatiendo
 John is eating

Several studies have not corroborated these two constraints (e.g., Myers-Scotton 1993, Jake, Myers-Scotton & Gross 2002, Chan 2003). Chapter 7 will show that these constraints are basically correct, however, there also counter-examples. Empirical evidence drawn from spontaneous data will provide evidence for this.

4.3.2 *Government in CS*

Another important contribution in the field of explaining and restricting code-switching behavior is the *Government Constraint* (GC), formulated by DiSciullo, Muysken & Singh (1986). This constraint predicts no occurrence of switches whenever government holds. In contrast to the EC, the GC aims at constraining mixing structurally rather than linearly: No mixing can occur between two elements that have a lexical dependency.

Looking at mixed Italian/French utterances collected in Montreal, the authors claim that many more mixes should be allowed than in the Hindi/English examples they provide, because Italian and French are similar with respect to word order, whereas Hindi and English are not. DiSciullo et al. (1986) argue that code-mixing is constrained by the government relation that exists between the constituents within an utterance. Their idea is grounded in *X-bar Theory*. There the relation between the head and its complement points out the aspect of dependency: The head projects its features within the phrase, and therefore has a direct impact on its immediate complements. Based on the traditional notion of government (Chomsky 1981:164), DiSciullo, Muysken & Singh (1986:6) formulate their restriction as follows:

- (c) Government Constraint
 X governs Y if the first node dominating X also dominates Y, where X is a major category N, V, A, P and no maximal boundary intervenes between X and Y.

This constraint predicts that switches between a verb and an object, between a preposition and the Determiner Phrase (DP), and between a verb and its clausal complement are ill-formed. Here are some examples from the Italian/French data discussed in their study (1986:13–14):

- (22) E l'altro dice come s'appelle
And the other one says how is (he) called
- (23) Dice quando paye, **all right!**²
Says (he) when pays (he), all right!
- (24) Io posso fare i cheques
I can make the cheques

The utterances (22) and (23) are considered grammatical, since it is claimed that the complementizer can be of a different language than the embedded sentence, but that it has to be in the same language as the governing verb. Example (24) could pose a problem: either we take the traditional view that the noun is the head of the phrase, or we have to say that the determiner in these kinds of switches should not be Italian, but French, as in *les cheques*. Consequently, this sentence is said to be ill-formed, because the GC disallows switches between the head and its complement.

Introducing the *Language Index Carrier*, DiSciullo, Muysken & Singh (1986:4) further predict that 'the highest (non-lexical) node in a tree determines its language index'. More specifically, the authors try to account for examples which do not fit in the GC, like (24). In fact, assuming that the article *i* determines the language of the whole phrase, the switch becomes grammatical, since the verb is Italian, and its complement is an Italian NP (although the noun is French). In later works, Muysken (1995, 2000) suggests a more restricted definition of government, so that it accounts only for lexical but not for functional heads. However, Muysken (2000) himself admits that the *Government Constraint* is still inadequately formulated, since there are too many counter-examples.

4.3.3 Functional Heads and CS

In the same vein as the *Government Constraint*, the constraint formulated by Belazi, Rubin & Toribio (1994) involves the notion of government

and structural dependency: it predicts that a switch is not supposed to occur between a functional head and its complement. Consider the following definition of the *Functional Head Constraint* (FHC) put forward by Belazi, Rubin & Toribio (1994:228):

- (d) Functional Head Constraint
 The language feature of the complement f-selected by a functional head, like all other relevant features, must match the corresponding feature of that functional head.

The authors propose an additional feature, a *language feature*, that stops the switch if it is ungrammatical, for example, if the functional head and its complement are not of the same language. This is illustrated by the following Spanish/English examples (Belazi, Rubin & Toribio 1994:224):³

- (25) The professor said *que el estudiante había recibido una A*
 (26) *El profesor dijo* that the student had received an A
 (27) *The professor said that *el estudiante había recibido una A*
 (28) **El profesor dijo que* the student had received an A
 The professor said that the student had received an A

Examples (27) and (28) are considered to be ungrammatical, because the language of the complementizer is not the language of the complement clause. This is in sharp contrast to what the GC predicts, namely, that the complementizer can be from a different language than that of the embedded clause, but that it must be from the same language as the governing verb. The FHC explicitly rules out these kinds of switches. Furthermore, it predicts that no mixing between determiners and nouns will occur, since the determiner, being the head of the DP, must be in the same language as its complement, the noun. Since nouns switched into the other language can be found in almost all data on code-switching (see (24)), the FHC seems to make wrong predictions.

Recently, Toribio (2001) again argued in favor of the *Functional Head Constraint*, reaffirming that ‘a functional head and its complement must be drawn from the same sub-class of items in the lexicon, precluding switching between functional elements (e.g., MOD/AUX, NEG, and COMP) and their f-selected complements’ (203). Toribio discusses what

she calls *apparent* counter-evidence to this constraint, which has been put forward by other authors (cf. among others MacSwan 1999). In her opinion, most of the criticism against the FHC is based on methodological differences between studies on code-switching. Specifically, she criticizes interviews and naturalistic data collecting, considering the former method as unreliable and the latter as not indicative and restrictive enough, and claims that grammaticality judgements should rigorously be added to spontaneous data. However, judgements themselves call for careful treatment, too, since they are affected by subjective opinions, behavior and performance. Toribio herself uses created examples in order to underpin the ungrammaticality of certain kind of mixes, and to argue in favor of the validity of the FHC. For her analysis, Toribio makes acceptability tests among speakers, who have previously been classified with respect to proficiency (for a critique on proficiency scales cf. Grosjean 2001). Furthermore, rejecting criticism of the linguistic theory underlying the FHC (MacSwan 1999), Toribio adds that, despite the fact that the FHC was elaborated before the minimalist account came up, it is nevertheless in line with current minimalist research, in that it requires ‘that a functional head share the language index of the projection with which it merges’ (Toribio 2001:215).

What is difficult to accept in this explanation is that, although Toribio uses Minimalism to sustain this constraint, she does not account for the lack of any motivation to *reject* these kinds of mixes, which the FHC predicts to be ungrammatical, given the strong lexical approach underlying Minimalism. Recalling the last quote, I would like to point out that it basically makes a correct prediction: A functional element should share the same language of the projection. The striking point here is that the functional head itself merges the projection, so that it will necessarily be of the same language. Hence, the ungrammaticality of a switch between the functional head and its complement cannot hold anymore (cf. chapter 7).

4.3.4 *Matrix Language and CS*

Another way to account for code-switching has been postulated by Myers-Scotton and colleagues (e.g., in Myers-Scotton 1993, Myers-Scotton & Jake 2001, Jake, Myers-Scotton, & Gross 2002). The Matrix

Language Frame (MLF) Model is an attempt at an abstract grammatical frame that contributes the morpho-syntactic structure for an utterance. An important restriction is the *Universal Structure Principle* (Jake, Myers-Scotton & Gross 2002:72), which claims that there is a hierarchy in the two languages. The authors argue that in any mixed utterance it is possible to distinguish between a ML, and an Embedded Language (EL), and outline a 'basic asymmetry between the two languages participating in CS' (Jake, Myers-Scotton & Gross 2002:69). The ML hence builds a frame in which elements from the EL are switched into, ending up with a mixed utterance.

The most important question is how to define the ML: It is supposed to provide *system morphemes* (the *System Morpheme Principle*) to an utterance (system morphemes are said to be similar to functional elements, Jake, Myers-Scotton & Gross 2002:72). The order of ML morphemes is more important than when the morphemes are coming from the EL (the *Morpheme Order Principle*). Myers-Scotton (1993) proposed to define the ML by frequency: The criterion is to count the number of morphemes within a discourse. What becomes immediately clear is that this criterion is difficult to apply for a single utterance within a whole discourse between bilinguals (for further critical remarks on the definition of the ML, cf. e.g., Muysken 2000, MacSwan 2004, 2005a,b).

The authors developed the MLF model during the last years, for example, the idea of counting morphemes has been recently rejected. In order to make the prediction safer, a more specific definition of the ML has been introduced: The 'Matrix Language does not change within a single bilingual CP' (Jake, Myers-Scotton, & Gross, 2002:73), but it 'may change within successive CPs' (ibid.). The claim seems to be that one language, the ML, provides all functional categories in an utterance; it is said so with respect to the determiner in mixed DPs.

It is not clear how the definition of a ML can make predictions about the head of a phrasal structure: If the ML changes (proved by the frequency-based method?) from utterance to utterance, this generalization predicts that all functional categories will come from the most used language in the sentence, which sounds quite logical. If, on the contrary, the language of the functional heads is used to define the ML, then why do we need a ML at all? This ends up in a circular argument.

Another problem which goes hand in hand with the discussion about the ML underlying language mixing, is the definition of system morphemes. Muysken (2000) raises the question of whether functional categories and their similarities (or dissimilarities) among languages play a role in mixing at all. Finally, how valid is a model which changes constantly and which becomes more and more difficult to understand from a theoretical viewpoint and hard to apply from an empirical viewpoint? Besides the fact that the restrictions proposed within the MLF do not explain all instances of CS in the spontaneous data reported in the literature, they also essentially contribute to the enlargement of a third grammar, a specific grammar for code-switching. Jake, Myers-Scotton & Gross (2005:271) recently stated again that '(...) different, modified, or additional rules, principles, or other constructs beyond what accounts for monolingual data are, indeed, necessary to account for bilingual data'. This result is undesirable and in opposition to any principle of simplicity and economy, which is the main goal of current approaches to language theory.

4.3.5 *Three processes in the study of CS*

Muysken (2000) distinguishes three different processes in the study of code-switching. As he claims, these processes correspond to other models already found in the code-switching literature (cf. Figure 1.3 in 2000:34). They also reflect specific types of code-mixing. Muysken argues that type-specific constraints are more fruitful than general constraints which may not hold.

The three processes are *insertion*, *alternation*, and *congruent lexicalization*. *Insertion* is given when elements from one language are mixed (inserted) into another language. This notion implies the existence of a matrix structure (similar to the ML in Myers-Scotton 1993), which provides the *base* language the element will be switched into. An example for insertion is given in (29), involving English and Italian. Following Muysken's account, inserting an element comes close to *lexical borrowing*, but whereas borrowing only covers the insertion of lexical items, insertion can imply larger structures, such as whole phrases. *Alternation* means code-switching under equivalence and involves an analysis of the structural compatibility of two languages, in the sense of equivalence

between them at a given switching point (cf. Poplack 1980). This is the only case that Muysken would regard as code-switching, since only here languages are truly alternated. In these mixes, elements from a language are not just inserted into another (base) language, but involve both grammar and lexicon, ending up in a 'true switch from one language to the other' (2000:5). Example (30) is a case of alternation. *Congruent Lexicalization* is the type of mixing which calls for socio-linguistic constraints. It involves material from different lexicons in a grammatical structure which is said to be shared (2000:3). Consequently, it should be found in the study of either typologically similar languages, or in language mixing within a dialect and a standard variety (cf. Clyne 1967). Consider example (31), involving two languages, English and German, which are basically similar with respect to grammatical structures.

- (29) I go to the movie with my fratello
I go to the movie with my brother
- (30) She went to quel ristorante all'angolo
She went to that restaurant at the corner
- (31) Her Grandma is a typical Familiemensch
Her Grandma is a typical family person

Muysken claims that there is both psycho-linguistic and socio-linguistic evidence in favor of his tripartition of mixing. Speech production, for example, predicts that insertion needs less activation from a language than alternation, which requires a similar degree of activation in both languages. In this sense, the activation process requires more bilingual proficiency than the insertion process (2000:8).

From a socio-linguistic point of view, alternation should therefore be found in 'stable bilingual communities with a tradition of language separation' (ibid.), whereas insertion would be more frequent where there is an asymmetry between the speaker's proficiency in the two languages. Congruent lexicalization is said to be found among bilinguals with related languages as dialect/standard or post-creole.

A distinction should indeed be made between code-switching that is analyzed with data from typologically similar languages, or from two very different (in terms of structural differences) languages. But this distinction should be made on the basis of methodology. Independently

of what kind of language-pair is involved, a universal theory of code-switching should meet the condition of being explanatory for any type of language-pairs.

4.4 SUMMARY

In the study of code-switching, a considerable number of restrictions have been proposed in order to account for the grammaticality of mixing two languages in a discourse, and, more specifically, within a sentence. Although the constraints proposed in the literature differ and sometimes even make contradictory predictions, the basic idea is that code-switching should be restricted and regulated by grammatical rules. As summarized in Muysken (2000:27), the restrictions can be encapsulated in a few categories which code-switching has to be compatible with at the level of sentence structure: the role of word order, the role of categorial equivalence, the role of a switched element and its position with respect to the clause, and the role of function words, for example, which words are easier to switch.

All constraints are only applicable to a certain extent: either they depend on a specific language-pair or they are sensitive to a specific grammatical domain. In general, they only work within a particular theory of grammar. Methodological issues are an additional problem, since the manner of testing has a significant impact on the analysis. Consider for example the distinction between code-switching and borrowing: some cases may not be violations of constraints at all, or even be counted as instances of switches, but are seen instead as simple borrowings.

Another influential issue is the analysis of the *users* of CS, hence their degree of proficiency, the extent of domain use, the attitude towards the language, the function of language, and so on. These factors are as important as whether bilinguals follow syntactic constraints. For these reasons, it is important to compare relatively similar individuals, and to use the same language-pair. The need for spontaneous data from longitudinal studies is evident, since bilinguals change their attitudes with time. Also, the percentage of usage of the two languages never is constant during a life-span. Acceptability judgements and invented utterances

can surely not be sufficient methods in order to check grammaticality in bilingual language mixing. With a longitudinal study of spontaneous data one can guarantee that fruitful data and developmental stages will show up in a more clear way.

Although it is desirable to formulate universal principles and rules which constrain the phenomenon of code-switching, one has to be careful not to become far too descriptive and too restrictive. Putting together the results of this research field at this point, and recognizing that a lot of work is still in progress, I call attention to the fact that several constraints which have been formulated observing a specific language pair and proposing a specific grammatical analysis have been rejected by other studies which worked with different language-pairs and claimed different syntactic restrictions were more relevant.

The whole discussion on restricting CS syntactically only formulates rules of a *third grammar*, a grammar of code-switching, which should not be the aim in code-switching research. This *third grammar* has to take grammatical rules into account with respect to the two languages analyzed, because it reflects the convergence of these two languages and how they interact, but it still formulates a specific grammar that is not universally applicable. All these restrictions artificially constrain code-switching, which is originally and widely based on pragmatic and not on grammatical rules. The notion of *third grammar* has already been discussed in Woolford (1983), then picked up by Mahootian (1993), and finally developed in detail and definitely discarded in more recent works by MacSwan (e.g., 1999, 2000).⁴

Finally, the research field of code-switching is highly theoretical and descriptive, since most of the studies adopt acceptability tests with constructed examples. On the one hand, a lot of predicted violations are not found in spontaneous bilingual code-switching, but on the other hand, several supposedly ungrammatical code-switches occur in free speech. None of these restrictions really reflect how code-switching occurs in bilingual speech.

Since the data of the present work consist of children's utterances, it is not influenced by as much socio-linguistic rules as adult speech is. I believe that the utterances discussed in chapters 6 and 7 better reflect what bilinguals are able to produce.

4.5 THE ARCHITECTURE OF THE BILINGUAL MIND

Based on Chomsky's (1995) architecture of mind, a model for the bilingual mind has been proposed by MacSwan (1999, 2000). MacSwan argues that in bilinguals **two** separate lexicons, one for each L1, make use of **one** and the same C_{HL} , including its operations (Select, Merge, and Move). Agreeing that a theory of language should be economical and only require a minimal set of principles (Chomsky 1995), the basic idea is that code-switching should involve as few rules as possible, too. Assuming that there is a *third grammar*, made of rules which constrain code-switching, is not desirable, because it is not economical. MacSwan (1999:146) proposes the following research agenda:

- (e) Nothing constrains code switching apart from the requirements of the mixed grammars.

More precisely, (e) states that no specific third grammar should control language mixing, and that in CS everything permitted by the two languages involved will be possible. MacSwan underscores that (e) by no means allows all sort of mixes in code-switching, but that it rather implies that only mixed utterances which meet the conditions given by the two grammars are acceptable. The same mechanisms required in order to assure grammaticality in monolingual sentences will also be needed in mixed utterances.

A problem arises from assuming that both grammars must be respected in code-switching: what to do when the two languages involved ask for different or contrasting requirements (1999:147). MacSwan points out that in the traditional view of GB, CS should not be possible at all, given that parameters are language-specific. Hence, it becomes a difficult venture to explain how two grammars could even interact: 'On this conception of parametric variation, in which the computational system differs between languages, it is very difficult to know how a *conflict in language-specific requirements* should be understood' (ibid.).

How is it feasible, then, to mix in a sentence or in a construction which requires different parameter settings in the two languages involved? In order to explain this, and in fact to even make code-switching possible, MacSwan proposes to assume a minimalist view of the architecture

of mind (Chomsky 1995), and supposes that parametric variation is encoded within the lexicon. Given that bilinguals deal with two languages, one has to consider that two lexicons will interact with one invariant *Computational System*. The lexical items coming from each of the two lexicons carry language-specific features, which will be introduced into the derivation and will be checked there. If the features mismatch, the derivation will crash. Whenever lexical items are drawn from both lexicons, the result will be a mixed utterance, hence code-switching. Within this model, the role of the operation *Select* becomes crucial, because it will be responsible for taking items from *both* lexicons (languages). Hence, one could say that grammatical code-switching is the result of the successful use of *Select*.

MacSwan concludes that, in contrast to the problem embedded in the parametric view of GB, 'in the minimalist program, a *conflict in language-specific requirements* is just a conflict involving lexical features' (1999:148). He further underlines that Minimalism offers a fundamental theoretical base and a tenable explanation. Both were not available in earlier theoretical assumptions that tried to account for CS. Earlier theories failed to provide universal predictions of what is possible when two grammars (languages) are mixed. They ended up either giving wrong predictions of what is disallowed, or establishing new rules, which resulted in a *third grammar* of code-switching, if we consider the constraints discussed in the previous subsections. In sharp contrast, MacSwan claims that no particular mechanism for code-switching is needed, and that adopting the minimalist view, in which 'the lexicon has much richer requirements than in earlier models, requirements rich enough to generate clause structure (..)' (1999:150), is a satisfactory condition for analyzing CS. Additionally, 'language-specific requirements may be concretely related to particular lexical items' (ibid.), so that looking at the switched element helps making predictions about how to analyze the sentence.

The model proposed is illustrated in Figure 4.1 (MacSwan 2000:52).

This model shows how the two languages of bilinguals may be represented in the brain. Recall that we are dealing with simultaneous bilingualism. All components are supposed to be single, as in the monolingual case, except for the lexicon and the phonological component,

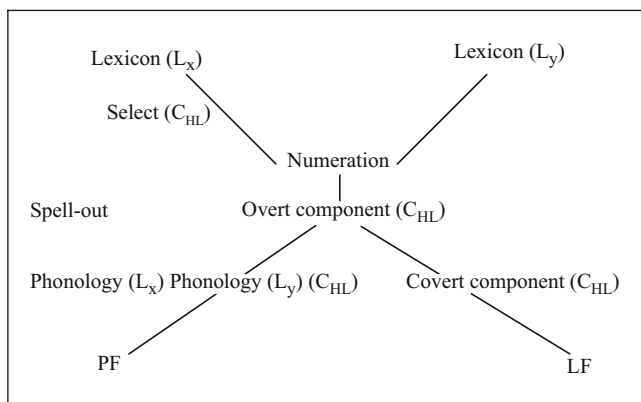


Figure 4.1. The bilingual language faculty

which are supposed to be doubled, one for each language. Consequently, MacSwan (1999:188) proposes the following:

- (f) PF Disjunction Theorem
- (i) the PF component consists of rules/constraints which must be (partially) ordered/ranked with respect to each other, and these orders/rankings vary cross-linguistically
 - (ii) code-switching entails the union of at least two (lexically-encoded) grammars ordering relations are not preserved under union
 - (iii) therefore, code-switching within a PF component is not possible.

From (i) it follows that the union of two PF components is ill-formed, given that cross-linguistical variations of the rankings in conflicting orderings cannot be respected. Point (ii) states that code-switching is nothing but the union of two grammars. The rules of the grammars are encoded in the language-specific lexicons. A crucial outcome of (f) is that switches within and below X^0 are strongly deviant, because the morphological composition of X^0 , a lexical head, occurs within the lexicon. Further, the head X^0 is input to phonology, which, as argued above, does not allow mixes. A switch below X^0 is ruled out because the structure below is dominated by X^0 . Recently, MacSwan (2005c) claims that the PF Disjunction Theorem (PF/DT) could also be placed within the Optimality Theory. In fact, he states that (MacSwan 2005c:74):

‘if we suppose that words (X^0) are inputs to phonology, then it follows that code switching will not be permitted within words in the OT framework either, as there are no intermediate representations and therefore no opportunities to switch phonological systems in the course of a derivation’.

Code-switching should also be dismissed in contexts of head movement, given that head movement generates complex heads, so that mixed-language heads are ruled out. In order to explain existing cases of word-internal mixes, MacSwan argues that if the stem is *phonologically* integrated into the language the inflectional morpheme comes from, then the switch becomes well-formed, as in the following example (2004:300):

- (32) Juan está parqueando su coche
 John is parking his car

In (32), the English stem *park* is said to be borrowed into Spanish. Therefore, the switch is felicitous. This is in contrast to the *Free Morpheme Constraint* (b), discussed in section 4.3.1, which attests this utterance to be ill-formed. In particular, example (32) is in sharp contrast to example (21). MacSwan (2004:300) claims (b) to make correct predictions. The crucial point is whether one analyzes cases like (21) or (32) as code-switches or as borrowings. If we assume the latter, then mixes are well-formed.

This assumption raises some questions. First, why should bilinguals integrate a word into the other language? It seems that this is unreasonable because a bilingual speaker should be able to spell words in accordance with the phonological properties of each of the two languages. Second, neat as it appears, saying that the problematic cases are not mixes but borrowings, as in MacSwan’s view, is not a satisfactory way to account for instances of language mixing which seem to occur in spontaneous speech. I agree with MacSwan that not all kinds of word-internal mixes should be allowed. But I predict word-internal mixes to be acceptable inasmuch the other switches which respect the grammatical rules of the two languages involved.

Further evidence for the validity of the PF/DT is drawn from a discussion on counter-examples to the study of Jake, Myers-Scotton & Gross

(2002), which in return try to disconfirm MacSwan's theorem. As a matter of fact, MacSwan (2005a:12) claims that:

'a counter-example to the PF Disjunction Theorem should exhibit switching of phonological systems below X^0 – that is, either within a lexical item – possibly morphologically complex, formed by rules of affixation internal to the lexicon – or between adjoined syntactic heads'.

Jake et al. (2002) report an instance of a mixed past participle form, namely, *gecured*, where the German past participle prefix *ge-* is added to the past participle *cured* (2002:76). At first sight, this could be considered as a counter-example to the PF/DT. However, as MacSwan (2005a) points out, it is ambiguous whether the example has indeed been uttered. Abstracting away from methodological divergences and from discussing away (existing) examples or not, the main point of controversy between MacSwan (2005a,b) and Jake, Myers-Scotton & Gross (2002, 2005) seems to be grounded on theoretical issues: While the latter develop a complicated model in order to identify a ML in CS and increasingly create additional principles in order to account for this speech style, MacSwan simply recommends that no added rules should be invented (MacSwan 2005b:277):

'A better characterization of my view is that I believe principles of language design urge us to begin with the simplest assumptions, namely, that there is no difference in the way language is represented in the mind/brain of a bilingual and of a monolingual; we should admit additional mechanisms or design assumptions which specifically apply to bilinguals only when compelled to do so by the evidence'.

An additional claim can be predicted by the *PF Disjunction Theorem*, namely, word order in code-switches between languages which have different basic word orders.

Current minimalist assumptions (Chomsky 1995) suggest that head movement has to occur for V^0 to raise to T^0 in order to check φ -features. If features are strong, they have to be checked overtly. In these terms, if the subject moves to [Spec TP] in order to check case features, an SVO word order will result. MacSwan (2004:304) thus concludes that

Table 4.1. Word order and the strength of features

Word order	Lexically encoded parameter values
SVO	V is a weak case assigner, T and C have weak ν -features
SOV	V is a strong case assigner, T and C have weak ν -features
VSO	V is a strong case assigner, T and C have strong ν -features

SVO or VSO word order depends on the strength of case features in T^0 . This is captured in Table 4.1 (taken from MacSwan 1999:228). The discussion as to whether there is an underlying universal word order (Kayne 1994) is unimportant here. What matters is feature strength, which differs among languages.

Given that V^0 has to move to T^0 in order to check features, V^0 and T^0 (and in some cases C) must come from the same language, otherwise the derivation will crash (MacSwan 1999:228). As a matter of fact, complex heads are predicted to be ill-formed by the PF/DT. The underlying idea is that V determines the features, and therefore the language, of the head of T. As a consequence, the language of the verb determines the position of the subject and the object (ibid.). In a nutshell, the verb predicts word order in code-switching.

I claim that, although the *PF Disjunction Theorem* basically makes correct predictions, the assumption that the language of the verb plays a key role in word order in code-switching cannot be fully corroborated (cf. 7.3.3).

MacSwan also provides evidence for the importance of successful feature checking and for the problems which arise with contrasting feature requirements. He discusses switches involving a subject pronoun and a verb in Spanish/Nahuatl (the language-pair studied by MacSwan), which are judged differently: A switch between a third person pronoun and a verb is accepted (34), whereas a switch involving a first or second person pronoun is rejected, as in (33) (MacSwan 1999:157).

- (33) *Yo nikoas tlakemetl
I will buy clothes

- (34) Ella kikoas tlakemetl
She will buy clothes

The asymmetry in acceptability judgements is explained by claiming that the presence of Spanish pronouns can be interpreted as evidence for the head of T to be Spanish, too. Assuming this, a conflict comes up: Nahuatl verbs move covertly,⁵ whereas the Spanish T⁰ needs the verb to overtly raise to T⁰. This leads the derivation to crash because features cannot be successfully checked and deleted. In Nahuatl, the subject agreement morpheme is null for the third person (in contrast to first and second person). In the spirit of Pollock (1994), who presumes that English verbs undergo LF checking when their agreement morpheme has features which require checking but otherwise remains *in situ*, MacSwan argues that when there is no subject agreement morpheme the Nahuatl verb also remains in its base position, because there is no need to check features. Along this line, the utterance in (34) is regarded as well-formed.⁶ Moreover, in order to explain problematic cases in which a derivation might converge although the result is in fact ungrammatical,⁷ MacSwan adopts Schütze's *Accord Maximization Principle* (1997). This principle accounts for the fact that among different derivations, economy principles of minimalism will pick those ones which have a maximal agreement morphology. The derivation with maximal agreement is picked, while the other will be blocked.

In sum, the phenomenon of code-switching 'may be seen as the simple consequence of mixing two lexicons in the course of a derivation' (MacSwan 2000:45). This assumption has enormous consequences for the analysis of code-switching: It predicts that the notion of a *third grammar* or other restrictions are no longer needed. As long as language-specific features are respected in the course of derivation, any case of code-switching should be allowed.

Such a lexicalist approach not only simplifies the analysis of mixed utterances, but also sheds light on several theoretical questions, such as parametrization, and the operation Select. This is otherwise difficult to answer based on monolingual data alone. Additionally, MacSwan's model of the architecture of the bilingual language faculty emphasizes the role of the lexicon, which in my view gets an even more important

role in mixed utterances than it has in the MP in analyzing monolingual sentences.

Two assumptions from Minimalism are of great importance: the idea that nothing constrains code-switching besides the grammars of the languages involved; and the fact that nothing besides the mechanisms assumed to play a role in Minimalism are needed for analyzing code-switching. Specific constraints which guarantee the grammaticality of mixed utterances can therefore be ruled out. This does not mean that code-switching is supposed to be unconstrained. The striking idea in MacSwan's assumptions is that mixed utterances must be analyzed like monolingual ones, and that no other tool is required for this purpose. Hence, the same constraints applied on monolingual utterances can be applied on mixed ones.

4.6 THE FASCINATION OF APPLYING MACSWAN'S MODEL TO BILINGUAL CHILDREN

MacSwan's primary contribution is his proposed model of code-switching, which applies minimalist assumptions. Assuming that in the bilingual language faculty there are two language-specific lexicons, each for one language, is of outstanding importance for the study of the grammaticality of code-switching. In fact, adapting this lexicalist model to the concept of bilingualism and to code-switching means that external control structures can be avoided, since the only constraints requested are those which belong to the languages involved. It therefore follows that a *third grammar* or other restrictions are no longer needed in order to restrict CS. Nevertheless, we must assume that this model works only after both grammatical and pragmatic constraints of the two languages have been acquired. The question arises as to whether the bilingual model can be applied from birth on or not.

If we suppose that child grammar is organized as an adult one, this model can be maintained. However, child utterances in an early stage of language acquisition (both monolingual and bilingual acquisition) are target-deviant with respect to the adult system. Therefore, one could claim that children do not yet have all syntactic principles at their disposal, and that these have to mature during language development.

Nevertheless, following Roeper (1999) and assuming a *Minimal Default Grammar*, one can claim that, child grammar being less constrained, formal features have simply not yet emerged, although they are thought to be there. Here, I assume that in fact child grammar does not lack grammatical features. They are simply not visible since functional items have not yet been acquired (cf. also Clahsen, Eisenbeiss & Penke 1996).

The research area of code-switching is highly theoretical and descriptive, given that most of the studies either invent examples or adopt acceptability tests. A lot of switches which are said to violate grammatical rules are not found in spontaneous bilingual code-switching, while several code-switches that are theoretically predicted to be ungrammatical occur in free speech. Toribio (2001) raises some criticisms on the methodology in studies on the grammaticality of mixed utterances. She considers interviews and self-reports to be insufficiently exhaustive, because they are sensitive to socio-linguistic restrictions. At the same time, she finds it problematic to study code-switching only with data coming from spontaneous speech.

With respect to Toribio's first claim, I point out that CS is in fact a speech style which has a strong communicative and pragmatic function, so that it is used in specific cases during a conversation between bilinguals. Depending on the importance of the status of the two languages, it is mostly the case that one language (the *minority* language) is stigmatized, and consequently that mixing is frowned upon in certain situations (cf. e.g., Gumperz 1982). Therefore, asking for the judgement of the grammaticality of certain switches can induce conservative as well as intimidated speakers to rationally reject several cases, although they are uttered in reality. An additional problem is to assess the bilingual proficiency of speakers (cf. the criticism raised by e.g., Grosjean 2001). The assessment itself meets with criticism, so that the results are already on shaky ground. Furthermore, the difficulty of how to classify the intuition of speakers who give grammaticality judgements has to be confronted. Mahootian & Santorini (1996) argue that only spontaneous speech data are admissible for the study of code-switching, because theoretical explanations should only be based on existent uttered sentences.

As to whether spontaneous data, and moreover child data, can account for such theoretical questions as grammatical constraints in

code-switching, is still a widely discussed topic. I argue that since the data analyzed in this work consist of children's utterances, it is feasible to reject any possible influence of socio-linguistic rules or grammatical judgements, in contrast to adult speech. The utterances discussed in the empirical chapters reflect in a positive way what bilinguals are able to produce. Along these lines, I assume that all instances of code-switching found in the present data are well-formed.⁸ This is in contrast to the idea of ill-formedness which has been put forward by code-switching constraints as the ones discussed above.

Needless to say, I assume that all sentences uttered by the children in this study could have been uttered by adults as well. Toribio's (2001:211) suggestion that code-switching data should be double-checked, is in fact partly followed here. The data discussed in this work come from spontaneous speech which has been underpinned by acceptability judgements. But, it was not the speakers who judged their own utterances, since we are dealing with young children. Grammaticality judgements were given by an adult bilingual person. Nevertheless, it is not the purpose of this work to discuss results of acceptability tests.

NOTES

1. For an introduction on social aspects of language mixing also cf. Ritchie & Bathia (2004).
2. Besides Italian and French, this utterance also contains some English words (*all right*); the informants are living in Canada.
3. Belazi et al. do not clearly explain which examples are constructed and which come from spontaneous speech. It seems that (25) is spontaneous, whereas (26)–(28) are constructed.
4. As a matter of fact, the idea of a *third grammar* is still popular. For example, Auer & Muhamedova recently argue in favor of 'an approach to code-mixing which takes the syntactic structure of the mixed utterance as the starting point' (2005:52) and point out that 'bilingual talk cannot be analysed as a mixture of two monolingual codes' (ibid.).
5. Nahuatl verbs undergo covert movement to T⁰, as English verbs do (Pollock 1994).
6. Some questions remain open with respect to uninterpretable features of the head of T. MacSwan (1999) accounts for these problems by discussing gender features.
7. More specifically, MacSwan discusses Pollock's (1994) examples **He like Mary* and *He likes Mary*, and also accounts for data from his own data collection.
8. The terms well-formed, felicitous, and grammatical are all used in the same way.

DATA

This chapter introduces the data the present study is based on. First of all the research design will be sketched; then, the main claims and the most important topics are formulated. Additionally, the methodology is outlined. The two languages discussed here, Italian and German, and their role in bilingual studies are briefly presented in section 5.2.

Since the purpose of this work is to analyze code-switching in language acquisition, the data are drawn from young bilingual children. The presentation of the five children includes a description of their family background as well as the contact to the two languages they acquire. I also briefly present previous studies concerning the monolingual production of the five children, outlining the most important findings with respect to language dominance and language influence. In fact, the notion of language dominance is a crucial point and cannot be put aside when analyzing language mixing.

In order to show that the children not only produce mixed utterances but that the main speech production during data collection is monolingual, the MLU for each child in the two language context for the relevant period is given.

In section 5.4, the procedure for data collection and the methodology, for example, how the children have been recorded, what language context has been established, and how mixes have been defined and selected, is discussed. This information is necessary for a precise analysis of language choice and language mixing. A clear definition of the *base language* is asserted.

The attitude towards the children's mixing from the interlocutor's viewpoint is examined in section 5.7.

5.1 RESEARCH DESIGN AND MAIN HYPOTHESES

The main topic of this book is the (grammatical) analysis of code-switching. The empirical part of the work is divided into two parts: Chapter 6 concentrates on early mixing in child language, whereas chapter 7 analyzes CS data from approximately age 2;4 on.

Looking at the early stage of language acquisition in this children, early mixing is said to accounted for in terms of *code-switching*, hence of an ability to use the two languages from the beginning. A topic which will not be discussed is that of language development. It is surely correct that child speech in the early stage of language acquisition is different from later stages, but it seems that this is only due to the fact that the lexicon has not fully developed yet. Along this line, the children are supposed to make use of the same grammar as in adult speech. Hence, I will not seek a developmental explanation for code-switching. In other words, I do not assume any relation between language mixing and developmental stages in child language which must be reached or be passed through on the path to the target grammar (in monolingual and code-switched utterances).

The analysis of the present data will corroborate that the amount of mixing in each child is not related to age, hence not to language development, but rather to individual choices, that is, some children do mix to a certain extent while others do not. However, I keep the two-stage distinction, that is, early and later mixing according to age, in order to better compare these data to previous studies.

A code-switch/a mixed utterance is considered to be felicitous if it meets the conditions given by the two grammars involved. In accordance with recent theoretical assumptions, I claim that there is a way to account for the phenomenon of code-switching without formulating specific constraints or generating a so-called *third grammar*. Recall the constraints discussed in the last sections: They demand universal restrictions for language mixing, which all fail, either because there are exceptions to account for or because the restrictions predict mixes at switching points where they never occur. Most of the proposed constraints in current research on CS are only applicable within the theoretical framework they were generated in.

Assuming MacSwan's proposal that 'nothing constrains code switching apart from the requirements of the mixed grammars' (1999:146), it will be shown that this research agenda makes correct predictions with respect to mixed utterances. Analyzing data coming from young bilingual Italian/German children, the strongest position is taken, namely, that all instances of language mixing are grammatical as long as the language-specific requirements of the two languages are respected.

In particular, I predict that functional categories are crucial in the study on language mixing. The hypothesis underlying this prediction is that the language of functional elements is responsible for word order.

In discussing embedded clauses, this claim will be confirmed by analyzing the CP.

Looking at CS between verbs and their complements as well as between modal/auxiliaries and the infinite verb, the data will also corroborate the influence of the functional category T^0 in word order. However, some cases which do not convincingly adhere to this claim will be discussed in more depth.

With respect to switches within the DP domain, a different explanation will be provided: In these cases, it is assumed that the features of the noun and not the ones of the functional head D play a crucial role. These claims are briefly depicted in the following predictions:

- (g) C^0 determines the features of the code-switched complements
- (h) T^0 determines the features of the code-switched complements
- (i) The switched noun determines the gender of the determiner

These predictions are partly in the spirit of Chan (2003), who argues that 'the language of functional categories determines the position of their complements in pure languages and code-switching alike' (117). Analyzing data from language-pairs with contrasting word order for functional heads (e.g., code-switching between a C-initial language like English and a C-final language like Cantonese), Chan states that functional heads always stay in the position required by the language they come from. By contrast, the language of lexical categories (e.g., nouns and verbs) does not always determine the surface position of their complements, because lexical categories are accessed after parameter setting (chapter 3 in Chan 2003). These results differ from Mahootian's (1993) and

Mahootian & Santorini's (1996) standpoint, which states that all heads (functional and lexical) determine the position of their complements.

Chan proposes two possible explanations for how to account for production processes with respect to functional categories. One possibility is to assume that, as it is the case for lexical categories, the parameter is set prior to accessing a functional element.¹ After, for example, a noun has been accessed, a determiner is needed. The bilingual has access to two options, namely the one of language A (e.g., a D-initial language) and the one of language B (e.g., a D-final language). If the parameter is already set and it is the one requiring pre-nominal D (as e.g., the English determiner *the*), it will be impossible for the bilingual speaker to have access to the lexicon of the D-final language. Another possibility is to presume that parameter setting occurs after a functional element is accessed. Along this line, a functional head only retrieves the parameter of its language (e.g., a head-final) and not the one of the other language. This assumption is the one I am in line with. I assume that functional categories project the head-parameter of their own language.

The present data will corroborate the latest assumptions on the architecture of the mind, and moreover, they shed light on some specific notions, which are difficult, if not impossible, to account for with monolingual data.

5.2 LANGUAGES INVOLVED

The two languages analyzed in this book are Italian and German. Both languages have already been studied within the field of BFLA, although to a different extent.

Whereas the development of German as one of the languages to be acquired in BFLA has largely been analyzed in several research projects, for example, in the German/English corpus collected by the *Mannheim*-group (cf. Gawlitzek-Maiwald & Tracy 1996 among many other works), or the German/French data studied in the DUFDE-research group (cf. Köppe 1994 for an overview), not much attention has been paid to the development of Italian in bilingual children. This is by no means logical if one considers two important aspects. First, one of the very first important longitudinal studies on bilingual language

acquisition, Taeschner's 'The sun is feminine' (1983) indeed analyzed German/Italian data. To the best of the author's knowledge, no other longitudinal study concerning this language combination has been conducted and published since then. However, there are a huge number of studies on the monolingual development of Italian, in acquisitional linguistics as well as in the comparative field (cf. among others Pizzuto & Caselli 1992, Caselli, Leonard, Volterra & Campagnoli 1993, Cipriani, Chilosi, Bottari & Pfanner 1993).

Second, it is crucial to make a socio-political remark regarding the language combination Italian/German. As a matter of fact, in northern Italy there is a region, Trentino-Alto Adige, in which these two languages are considered official languages. However, there is no historical development of bilingualism in this region: The territory of Südtirol (Alto Adige) was annexed to Italy and to the Trentino region during fascist rule (1939), so that families were induced to live together and forced to learn the other language as a second language. Even today, more than 60 years later, there is still a lack of a bilingual community. It seems that inhabitants of this region do not grow up acquiring the two languages simultaneously, but rather successively, hence when they are required to do so at school. The idea of studying BFLA in this speech community would clearly be a fruitless endeavor (cf. Nowack 1994, Giacalone Ramat 1995).

In sum, there is not much research on BFLA in Italian and German. Nevertheless, we can rely on studies on other language-pairs involving a Romance and a Germanic language (e.g., Spanish/English, French/German).

5.3 THE CHILDREN

The objects of inquiry of this work are five Italian/German bilingual children. The data have been collected within the project *Bilingualism in early childhood: Comparing Italian/German and French/German*.² The case studies have not been chosen according to any particular criteria. The children were found by chance and integrated into the ongoing work, either by informal revealing or by parents who got in touch with the project after hearing about it, for example, in the newspaper.

For the present investigation, the children have not been selected either. Four are in this study because the data were already available, since they were the first ones who had been recorded and analyzed, the fifth one was chosen among the younger ones because of familiarity reasons (the author was one of the interlocutors).

The children's names are Carlotta, Lukas, Jan, Aurelio, and Marta. The overview is intended to be informal and contains personal rather than linguistic information. Although the topic of the present work is to discuss code-switching from a grammatical point of view, and not from a psycho-linguistic or pragmatic one, it is nevertheless of greatest importance to be aware of the linguistic situation during the recordings, and to bring light to the interaction between the interlocutors and the children. Language use is not studied here, too, but it has a great impact on the analysis of mixed utterances. Regardless of the reasons why, if a child decides not to use one of the two languages s/he is acquiring, this will be related to the amount of mixing, and to the use of the *wrong* language, that is, not the language of the context. Furthermore, the linguistic environment the children grow up in can have an influence on both the acquisition of the two languages and on the amount of language mixing.

Only if the recordings meet specific conditions can it be ensured that psycho-linguistic or pragmatic explanations can be ruled out in the analysis of mixed utterances, so that the analysis can be restricted to grammatical aspects.

5.3.1 *Carlotta*

Carlotta is the first bilingual child who has been studied within our research project. She was born in Hamburg in 1995, has a German father and an Italian mother, and has no siblings. Her parents followed the *one person one language* strategy (Ronjat 1913), that is, each parent spoke his/her native language when addressing the child. Italian is the family language. The German father is fluent in speaking Italian.

Carlotta was recorded very regularly from 1 year and 8 months till the age of 5 years and 7 months, with a total of 70 recordings in each language.

She started to go to German kindergarten at the age of 3. Before that, she was left in the care of several au-pairs (only one was Italian). Furthermore, her German grandparents often looked after her. Both mother and father cared for Carlotta when they were not working. The Italian grandparents also visited several times, so that the Italian language was very present. The family had contacts to other binational families in Hamburg, and to Italian friends who lived in Hamburg. Carlotta often traveled to Italy, either with her parents, or later (from age 5 on) alone, visiting her grandparents.

The interlocutors who did the recordings at Carlotta's just changed once for a period of 6 months. For the rest of the study, the same two interlocutors did the recordings. They often picked Carlotta up from kindergarten, brought her home, and looked after her, the parents being absent. One can state that both interlocutors were very much part of Carlotta's daily life, having been considered from the beginning as Carlotta's friends by the parents (they were dubbed as *le amiche*, the girl-friends).

With respect to the attitude towards bilingualism, Carlotta seems to be very positive-thinking and balanced in the two languages, but to have a slight emotional preference for Italian.

Carlotta is now 11 years old. After a 2-years stay in Italy, she presently lives in a town in southern Germany.

5.3.2 Lukas

Lukas was born in Hamburg in 1996. His father is German, his mother Italian. He has no siblings. The parents follow the *one person one language* strategy. German is the family language, since the father is not very fluent in Italian.

Lukas was filmed very regularly from 1 year and 7 months to the age of 5 years, giving a total of 63 recordings in each language. His Italian interlocutor almost never changed during this time, but he had several German interlocutors.

He started to go to German kindergarten at the age of 3 years. Before, his mother cared for him, since she mostly worked at home. Lukas did not have much contact to other Italians in Hamburg, he also has no Italian grandparents anymore, so that visits to Italy were infrequent. Even when

traveling to Italy with his parents, they all speak German, since it is the family language.

Lukas developed his two languages equally until the age of three and-a-half. Then, he lost interest in speaking Italian. The last months of the study, the Italian interlocutor was changed, sending an Italian exchange student to play with Lukas, in order to improve on his choice to speak Italian.

Lukas is now 10 years old. He still lives in Hamburg, where he visited a bilingual Italian/German class at elementary school.

5.3.3 Jan

Jan was born in Hamburg in 1996. His father is German, his mother Italian. He has two siblings, an older brother and a younger brother, who was born during the data collection period. The parents follow the *one person one language* strategy. Jan's father is not at home very often. Nevertheless, German is the family language. Jan and his brothers were often left in the care of au-pair girls. For a few months they had an Italian au-pair. Jan mostly spoke German at home, either to his older brother, or to the Slavonic au-pair.

Jan was filmed regularly every 3 weeks. He was studied from age 2 until his fifth birthday, giving a total of 44 recordings in each language. The two interlocutors were the same for almost the whole period of the study. He liked to play with them, but he was often disappointed because he had to stop playing with his older brother, who was not allowed to be with him during the recordings.

Jan started to go to German kindergarten at age 4. He traveled a lot with his family, not only to Italy. Sometimes his Italian grandparents came to visit. His German grandparents and other relatives do not live in Hamburg, but in southern Germany.

Jan's language development can generally be considered as slow. When we started the recordings, he was in the one-word stage. Additionally, he had an ear surgery at age 2, because of difficulties in hearing when he was a baby. His German can be said to be more developed during the period studied than his Italian is. In Italian he often has lack of words.

Jan is now 10 years old and goes to a German school in his neighborhood.

5.3.4 *Aurelio*

Aurelio was born in Hamburg in 1997. He has a German father and an Italian mother. He has a brother who is 2 years older. His parents separated before he turned two. Therefore, he grew up with a huge presence of Italian (home language, spoken with his mother and brother), whereas German was spoken to his father, to the German grandparents, and in the kindergarten from age 3 years and 4 months on.

Aurelio had been recorded from age 1 year and 9 months until 4 years, when he moved away from Hamburg, giving a total of 42 recordings in each language. He was recorded regularly besides of long breaks during summertime, because he always spent at least 2 months in Italy every year, visiting his grandparents.

There were several changes of German interlocutors, which was partly due to his hostile and sometimes even rude behavior towards the German speaking person.

Aurelio is now 9 years old. He lives in Italy and goes to an Italian elementary school.

5.3.5 *Marta*

Marta was born in Hamburg in 2000. She has an Italian/German bilingual mother, and a German father. She has a brother who is 16 months older than her. Her parents follow the *one person one language* strategy. The German father is fluent in Italian, therefore the family language was Italian.

Marta was filmed from age 1 year and 6 months until her fifth birthday. For the present study, the data were analyzed until the age of 4.

Marta went to German kindergarten when she was 2 years old. At home, she and her brother were left in the care of au-pairs and babysitters. The caretakers understood and mostly also spoke Italian (one was Albanian, one Brazilian, one Peruvian). Her Italian grandfather visited them every 2 months, so that Italian was very present in her home. She and her brother mostly spoke Italian to each other. The family traveled a lot, mostly to Italy.

Marta is now 6 years old, she moved with her family to southern France and has become trilingual. At present, she goes to a French/German school.

5.3.6 Summary

During the recording period the five children grew up in similar situations. They were all born and lived in Hamburg and went to a German kindergarten. In all cases, the children's mother is the Italian-speaking person. For Lukas and Jan, the home-language is German, while Carlotta's, Aurelio's, and Marta's home-language is Italian. All parents stuck to the *one person one language* strategy, mostly trying to reinforce Italian as the family language. In some cases, the Italian grandparents regularly visited the families.

It seems that for all families it was of great importance that their children were part of a research study on bilingualism: Parents felt more self-confident, and often asked about the linguistic development of their child. In particular, mixing in the children was often a topic of discussion with the interlocutors. As a matter of fact, for parents, mixing is still an indicator of the lack of differentiating the two languages, and is not considered as an ability to use the two languages.

In all cases, having an Italian-speaking person who came to play with their children was seen very positively. Some families strengthened the relationship by asking the interlocutors to baby-sit, or by inviting them to family events. Others outlined the role of the interlocutor by dubbing her *Italian teacher*. Some families are still in touch with their interlocutors.

The later development of the children differs a lot. Two children moved to Italy, Aurelio immersing into *monolingual* Italian life, visiting an Italian school. However, he still comes to Hamburg to visit his German relatives. Carlotta lived in Rome two years long, but she went to a German school there. Now she lives in Germany again, visiting a German school. One could argue that – from all children – she has the most balanced *bilingual* life, since she has lived in both countries. Marta, besides already being a bilingual child, is now exposed to a third language, French, in her daily life. The children who remained in Hamburg show different patterns, too. Whereas Lukas went to a bilingual Italian/German elementary class, Jan just visits German schools.

5.4 METHODOLOGY

This section describes the procedure of data collection and the methodology of the research project *Bilingualism in early childhood: Comparing Italian/German and French/German*.

5.4.1 Recordings

All longitudinal studies have been conducted by videotaping the children following the same criteria. The children have been recorded every fortnight. The interaction lasted 30 minutes (in some cases 45 minutes) in each language. The two interaction partners represent the two languages, in that they were a native speaker of German and a native speaker of Italian. While one plays with the child, the other does the recording, and vice versa. During the interaction in one language, attention has been paid not to involve the other language, that is, the interlocutor behind the camera did not take part in the game situation.

The recordings consisted of free play and interaction, mostly at the children's home. A diary was kept in order to sign events, like illness, journeys, or other important things in the children's life. The children have been recorded very regularly. Since nowadays children do not have any kind of inhibitions towards a videotape, the recordings took place in a very spontaneous atmosphere. The fact that there was always one person behind the camera not taking part does not seem to have affected the children.

5.4.2 Transcriptions

After the recording sessions, the recordings were transcribed, either by the interlocutors themselves, or by other students working in the research project. Fortunately, continuity was observed, so that mostly only one or two students transcribed one language in one child, therefore gathering knowledge about the child and his/her toys.

In the speech part, intonations, hesitations, breaking up of sentences, and interruptions have been carefully encoded. In the interaction part, every movement, noise, toys or whatever the child or the adult was referring to was encoded. Occasionally, one of the parents intervened; this was marked in order to distinguish the speakers.

Table 5.1. The five bilingual children and the period studied

Name	No. of recordings	Age at begin	Age at end
Carlotta	68 in each language	1;10,8	5;7,24
Lukas	52 in each language	1;8,14	4;5,11
Jan	43 in each language	2;1,3	5;0,8
Aurelio	40 in each language	1;10,23	4;0,28
Marta	51 in each language	1;7,10	4;0,10

Each transcript has been checked at least once by a control person. Transcripts as well as checkings have only been made by native speakers. Given that the analysis of code-switching cannot only be made on the basis of single utterances, but always involves a closer look at the interaction between speakers before and after the utterances have been pronounced, one has to predominantly work on the transcripts themselves.

Table 5.1 gives an overview of the data analyzed for the purpose of this study. In the appendix there are detailed lists, containing information about each recording.

5.4.3 *Data analysis*

For the study of language mixing in these children, all mixed utterances have been analyzed. A mixed utterance is an utterance containing elements from both languages, which has been produced in the interaction with the interlocutor who was playing with the child. For example, an utterance containing some Italian words during the German recording, that is, when playing with the monolingual German interlocutor, is considered a mixed utterance. Mixes in utterances towards one of the family members have also been analyzed. However, this happened rarely. In most cases the interlocutors were alone with the children.

Mixes towards the interviewer behind the video camera have not been included, because in these cases it is almost impossible to define the language context. If the child mixed Italian and German when addressing the Italian interlocutor during the German filming, what can be

defined as the base language? Since the main interest of this work is to analyze language mixing in a clear-cut established language context, these cases, which happened at a low rate, have been excluded from the analysis. Monolingual utterances in the inappropriate language, that is, not in the language of the context, were not counted. The focus of this study is on intra-sentential mixes, and not on inter-sentential mixes.

With respect to what was considered as code-switching, in contrast to borrowing, several words which are supposed to be part of the children's daily life context have been dismissed. In other words, expressions which cannot be translated have not been counted (examples (35a), (35f)). Expressions which do not necessarily have to be translated have also not been analyzed (examples (35b)–(35e)). As a matter of fact, as in (35h), names have not been taken into account at all, for example *mamma/mama*, or *papà/papa*, as well as proper names, and names of places (cf. (35g)).

In some cases, a word has been counted as mixed because I assumed the appropriate translation to be known (cf. (36c)). Borrowings have been uttered both in the German and in the Italian recordings. The ones in the Italian context were mostly connected to situations outside the home (e.g., in kindergarten, cf. (35c)), the ones in the German recordings were mostly connected to Italian books.

- | | | |
|-------|---|------------------|
| (35) | Examples NOT counted | |
| (35a) | <u>der sumsemann</u>
<i>the buzzing-man</i>
= fairy tale creature, not existing in Italian | (Ca, 3;6,17, IC) |
| (35b) | <u>brezel</u>
<i>cracknel/brezel</i>
= not existing in Italian | (Ca, 3;6,17, IC) |
| (35c) | della <u>sterngruppe</u>
<i>of the star group</i>
= name of group in kindergarten | (Ca, 4;1,4, IC) |
| (35d) | nein das ist die wiege von der <u>bella addormentata</u>
<i>no this is the cradle of sleeping beauty</i> | (Ca, 4;1,0, GC) |

= fairy tale creature, German *dornröschen*

- (35e) quest'è la cassetta del 'hilfe ich werde ein fisch'
(Au, 4;0,28, IC)

this is the tape of 'help I become a fish'

= name of story on tape

- (35f) quello di, hänschen klein no (Ma, 2;6,10, IC)

that of hänschen klein no

= fairy tale creature, not existing in Italian

- (35g) alla elbe (Ma, 2;11,29, IC)
at the elbe

= river in Hamburg

- (35h) das ist von gesù (Ma, 3;7,27, GC)
this is of jesus

= proper name, German *jesus*

- (36) Examples counted

- (36a) carlotta die marmotte (Ca, 5;2,16, GC)
carlotta the marmot

= Italian book, originally *carlotta la marmotta*

- (36b) ich hab auch grün, und viola (Ca, 5;2,16, GC)
I have also green and lilac

= German lilac is *lila*

- (36c) il osterhase (Ja, 3;10,27, IC)
the easter-hare

= German tradition, Italian translation *coniglietto di pasqua*

- (36d) da war so'n kleiner mososcafo (Ja, 4;2,25, GC)
there was a small boat

= German *motorboot*

- (36e) non c'è milchkaffee (Au, 2;11,8, IC)
there is no milk coffee

= Italian *caffè latte*

- (36f) ma c'è la babyflasche per -per stare male la pancia
(Ma, 3;1,3 IC)

but there is the baby bottle for when being sick the belly

= should be *wärmflasche* (hot-water bottle), Italian *bottiglia dell'acqua calda*

In some few cases, a mix was supported by the interlocutor because she asked for a translation. This was counted as a mixed utterance. In sum, I will discuss all instances of language mixing which occurred in the monolingual context when speaking to the interlocutor.

5.5 OTHER STUDIES

The research project *Bilingualism in early childhood: Comparing Italian/German and French/German* investigated the simultaneous acquisition of two languages in young children. I now briefly refer to the results that particularly concern the children analyzed in this work.

Two main research questions were the focus of the studies, namely, what is language dominance and how can one account for it? Further, do bilingual children show an influence of one language on the other in specific domains? The hypothesis underlying these questions is that language influence is not related to language dominance, but rather to concrete language-specific phenomena regarding the domains under discussion. With respect to the first question, the children have been analyzed according to the criteria advanced by Genesee, Nicoladis & Paradis (1995), and to the following criteria which have been worked out within the research project, namely, MLU (Mean Length of Utterances calculated in words, Brown 1973), UB (Upper Bound, that is the utterance with the highest number of words per recording), absolute number of utterances per recording session (with the same length), development of the lexicons, nouns and verbs in types and tokens (Loconte 2001, Kupisch & Müller 2002, Müller & Kupisch 2003, Kupisch 2006).

In a recent study, Cantone, Kupisch, Müller & Schmitz (2006) study *language distance* in the bilingual children. The authors test (using several quantitative criteria) whether the two languages develop in the same way, whether the languages develop according to a so-called pre-established *norm*, and whether there are different types of bilingual *learners*. The norm has been established summing up values from all children and thus determining an average mean, which is then considered as a *norm* value for comparing each child's development. The results are that Carlotta and Lukas have a balanced language development.

Both deviate from the established norm in both languages and in both directions, that is, they show both slower and faster stages of language development in both languages. Marta's outbalance causes positive values in one language and negative ones in the other language: While her Italian is within the norm or much better than the norm, her German is within the norm or slower. There is no up and down within one language, but between the two languages. Finally, Jan is considered to have an unbalanced language development. His German is within the norm, but his values in Italian extremely deviate from the norm, in that they are much lower (for a discussion of the criteria used and how the values were established, cf. Cantone, Kupisch, Müller & Schmitz 2006). Aurelio has not been analyzed by the authors, however, Kupisch (2006) states that he has a SL, Italian. The study by Cantone et al. (2006) not only critically discusses the notion of language dominance, but also offers a new analysis for determining the distance in development between the languages in bilingual children.

Regarding the question whether the children show signs of cross-linguistic influence, namely, that there is an interdependency in the acquisition of the two languages the children in the sense of Paradis & Genesee (1996), the children show different patterns (Müller, Cantone, Kupisch & Schmitz 2002). The striking result is that cross-linguistic influence does not seem to be the outcome of language dominance. More specifically, children with a balanced language development as well as children with a dominant language show cross-linguistic influence in certain domains.

Studying the acquisition of the pronominal system in Lukas and Carlotta, Schmitz & Müller (2005) find evidence for an asymmetry with respect to subjects and objects. With respect to the realizations and omissions of subjects, the two languages are interesting with respect to the issue of language influence. Recall that Italian is a null-subject-language, whereas German is not. The children Carlotta, Lukas, Jan, and Aurelio all realize more subjects in Italian than Italian monolingual children do, namely, 50% more realized subjects (Schmitz 2004). This is independent of language dominance, given that Carlotta and Lukas have a balanced language development, whereas Jan and Aurelio have respectively German and Italian as dominant languages.

Concerning the object omissions and realizations, Müller & Hulk (2001) have argued in favor of influence in the child Carlotta, for she has a delayed development in her Italian. This may depend on the fact that German is a *Topic-Drop-Language*, which allows object omissions, whereas Italian is not. In the case of Lukas, no influence has been found (Cantone & Schmitz 2001).

Language influence can also be positive, in that it accelerates the acquisition of a specific phenomenon (Paradis & Genesee 1996). In fact, Carlotta takes advantage of the fact that in Italian the position of the finite verb is the same in both main clause and embedded clause. This had an influence on the acquisition of the position of the finite verb in German main clauses (Müller 1998). By contrast, a negative influence (dubbed *transfer*) has been observed in analyzing the position of verbs in Carlotta's embedded clauses in German (Müller 1998).

The acquisition of determiners has been the object of several studies (Kupisch 2000, Müller & Kupisch 2003, Kupisch 2006). Cross-linguistic influence was found in the child Carlotta, but not in Lukas. Along these lines, Kupisch, Müller & Cantone (2002) argue in favor of delay in Carlotta's and Lukas' acquisition of gender, for they showed a higher number of errors in comparison to monolingual children. Monolingual children also pass through a stage in which they exhibit errors in gender marking, but this stage is shorter than in the bilingual children analyzed. Finally, Schmitz (2006) analyzes the acquisition of dative case in German in Carlotta and Lukas. Both children proved to be delayed in comparison to a monolingual German child. Language dominance did not play a role in the analysis.

So far, all studies report that – independently of language dominance and cross-linguistic influence – the five children acquire both language systems and use both languages during the period studied (for the relation between cross-linguistic influence and language mixing cf. Müller & Cantone to appear). This is crucial for the purpose of analyzing code-switching, because we can rule out language imbalance as a reason for mixing. Importantly, mixing has not been taken as a criterion for language dominance because, as the present study aims at showing, mixing is not by implication the outcome of language imbalance (cf. also Cantone 2006).

In order to give an overview of the children's *monolingual* language production during the study, the MLU per recording is given in the following figures (values taken from Cantone, Kupisch, Müller & Schmitz, 2006). The children are put together in one figure per language, because it falls outside the scope of this work to compare the two languages in each child. Figure 5.1 depicts the language production in the Italian recordings, Figure 5.2 the one in the German recordings. For purposes of clearness, only one MLU-values for each child is given per month, although we mostly recorded them twice a month (cf. the appendix for a detailed MLU list).

In Italian, up to age 3;6 the children behave similarly, except for Jan, who has low values throughout. Nevertheless, his speech production is constant. The stage in which Lukas almost refuses to speak Italian is neatly illustrated, as the values between age 3;4 and 4 are lower than the other ones and almost reach the bottom of the figure. From age 3;6 on, Marta and Carlotta have the highest values. In German, Marta's and Aurelio's values are similar and lower throughout the entire investigation period, whereas Carlotta and Lukas have the highest MLU-values. Jan's production ranks between these two groups.

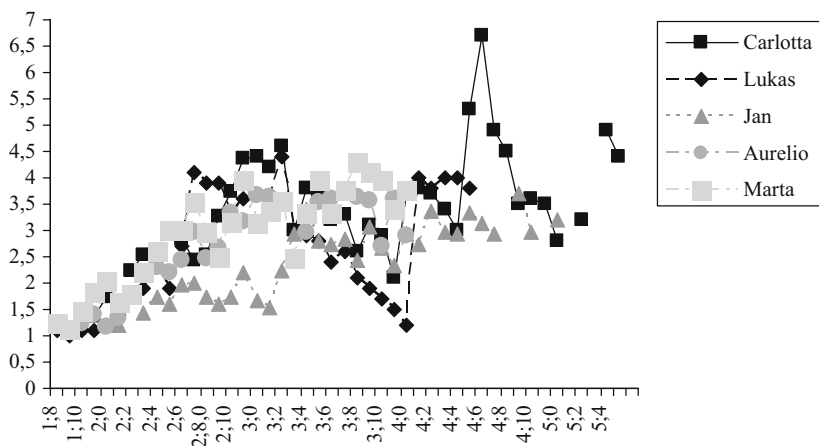


Figure 5.1. Italian MLU

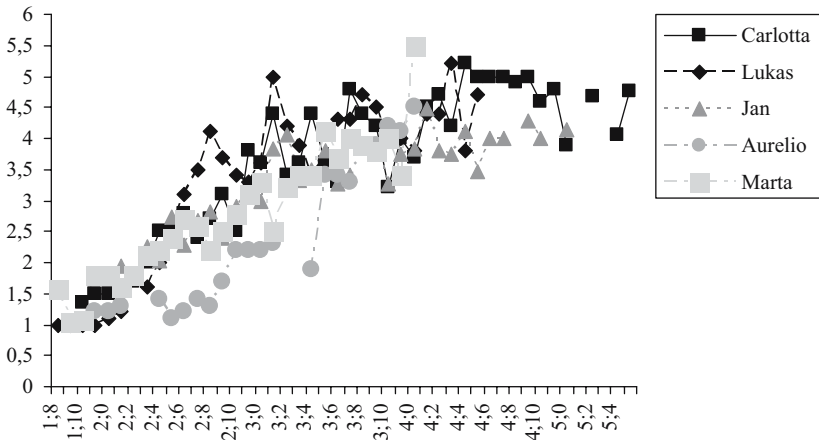


Figure 5.2. German MLU

5.6 BASE LANGUAGE

In the present study, the *base language* is considered to be the language of the context established by each of the interlocutors during the recording situation, according to Grosjean (1998, 2001) and Muysken (1995, 2000). Along these lines, when the German speaker played with the child, the base language was German. By contrast, the base language was considered to be Italian when the Italian speaker was playing with the child. Adopting the *one person one language* strategy, each of the interlocutors speaks only one language with the child during the filmings. Hence, a monolingual mode is strictly maintained during data collection. Nevertheless, two problems arise.

First, the second interlocutor was in the room during the recordings in the other language, because s/he operated the video camera. Therefore, one could argue that this provided a bilingual situation. In fact, sometimes the children talked to the interlocutor behind the camera. In these cases, however, the children always switched the language. The evidence of using the appropriate language towards the person who did not take part in the recordings falls outside the scope of this work. It is however crucial to point out that these exceptional utterances towards

the non-participating interlocutor provide supporting evidence of the children's ability to choose the language with respect to the interlocutor. As a matter of fact, whenever one of the parents came in, the children also switched language. This indicates the children's sensitivity and ability to use the languages in an appropriate way, and it confirms, following Grosjean, that the second language is never totally deactivated. However, the level of activation can be considered to be low, given that the interlocutor behind the video camera is not participating to the interaction.

A second problematic issue is that two of the Italian-speaking interlocutors who did the recordings are bilingual. Since they were living in Hamburg, it was obvious that they understand German. As a strategy, they both neither hid their bilingualism nor feigned to be monolingual. In fact, they had to speak German when interacting with the monolingual German speaker, or with the German parent. But they imposed Italian as the only language of interaction with the child, which was accepted by the children. Therefore, mixing in the Italian context cannot be reduced to the fact that the interlocutors are bilingual.

5.7 REACTIONS TOWARDS MIXING

The recordings have been conducted regularly and respecting certain conditions. Therefore, the children's data are comparable concerning the length of data collection, as well as with respect to the strict adherence to monolingualism in the recordings. However, in order to reject the possibility that the interlocutor stimulated a bilingual situation, in the following the data will be analyzed with respect to Lanza's (1992) continuum of reaction towards mixing. Lanza distinguishes five different types of adult's reactions towards child language mixing. These communicative strategies vary in giving the interaction a more or less bilingual touch. Categorizing the reactions with respect to a monolingual vs. a bilingual attitude, a continuum is established, as is shown in Table 5.2 (taken from Lanza 1992:649).

In the following, the single strategies are presented with examples from the present Italian/German data. The *Minimal Grasp Strategy* implies that the adult reacts as if s/he has not understood what the child

Table 5.2. Adult strategies towards child language mixing

Monolingual context -----			Bilingual context	
Minimal grasp strategy	Expressed guess strategy	Adult repetition	Move on strategy	Code-switching

says, and for example, asks to repeat the utterance. The example in (37) shows that the adult reacts to the child's mixing by stating that she does not understand what the child is saying. As a result, the child utters the item in the appropriate language.

- (37) Ca: (un) staubsauger /
 (a) *vacuum- cleaner*
 Ka: come? /
what ?
 Ca: un'aspirapolvere /
a vacuum- cleaner (Ca, 4;2,11, IC)

The *Expressed Guess Strategy* takes place when the adult asks for a better understanding but at the same time s/he reformulates the thought by shifting into the adequate language. As Köppe (1997) points out, Lanza only considers the *Minimal Grasp* to be a monolingual strategy, whereas she argues that the *Expressed Guess Strategy* already supports that the adult understands and translates the child's utterance, hence that the adult *understands* the other language. I agree with Köppe that this cannot be fully maintained, since the guessing strategy can be linked to the situational context, too, and not strictly to the translation, hence to the fact that the adult somehow accepts and adopts a bilingual conversation (Köppe 1997:119, fn 83). Evidence for this is in fact found in example (38): Initially, the *Minimal Grasp Strategy* is used. But, after the child still sticks with the German word although the adult keeps saying she does not understand, the interlocutor turns to the *Repetition Strategy*, translating the child's mix. One can state that the *Expressed Guess* and the *Adult Repetition Strategy* in Lanza's continuum are very similar, given that they only differ depending on whether the adult states

a lack of understanding by asking *Uhm?*, or by overtly admitting *I don't understand* when reacting to the child's mix. I propose to add translation (even if with a questioning intonation) to the third strategy, calling it now *Repeating and Translating by guessing*. In sum, examples (38) and (39) are both cases of a repetition strategy rather than of the *Expressed Guess Strategy*.

- (38) Lu: adesso ho fatto una kreuz /
now (I) made a cross
 An: che cos'hai fatto?/
what did you do ?
 Lu: kreuz /
cross
 An: non ho capito che cos'è? /
(I) didn't get it what is (it)?
 Lu: kreuz /
cross
 An: la croce /
the cross
 Lu: la croce! /
the cross ! (Lu, 3;4,7, IC)
- (39) Ma: cos- cos- aveva così un kleid / lo sai ?/
so - so - (she) had so a dress / you know
 Ka: aveva ? /
(she) had ?
 Ma: così qualcosa / =points to dress
so something
 Ka: che cos'è quello ?/
what is that ?
 Ma: un kleid / kleid / una gonna /
a dress / dress / a skirt
 Ka: un vestito? / un vestito /
a dress? / a dress
 Ma: così un vestito /
so a dress (Ma, 3;7,12, IC)

The last two strategies, *Move On Strategy* and *Code-switching* can both be considered as bilingual ones: In the former the adult goes on in the interaction without commenting on the child's mixed utterance, as in (40), whereas in the latter the adult himself changes to the other language after the child's shift. In my opinion, another case of moving on can be translating the child's mix, if it is obvious that it was due to a temporary lack of the appropriate item. This is in contrast to the *Repeating and Translating by guessing*, because the adult points out that s/he's helping the child (see 40). In this sense, the conversation can then go on normally, as in (41), or (42). With respect to the *Code-switching Strategy*, it can be safely stated that this strategy never occurred in the present data, at least there is no case in which the adult changes to the other language. On the other hand, as in example (43), there may be cases in which the adult repeated the particular item mixed by the child without translating it. In this particular example, the adult behaved this way because Carlotta addressed the weathervane by saying *windmühle*, which means windmill in German. In fact, there was a picture of a windmill in the game they were playing, so that the adult does not understand what Carlotta is talking of and thus repeats the German item.

- (40) Ma: das sin bambini / =sind
these are children =refers to hänsel & gretel
 Jn: ja weisst w- wie die heissen?/
yes (you) know what are their names? (Ma, 3;1,27, GC)
- (41) Ja: un gespenster /
a ghost
 Ka: un fantasma dici ? /
a ghost you mean ?
 Ja: sí un fantasma /
yes a ghost (Ja, 3;8,5, IC)
- (42) Ma: ein pe[s]e /
a fish
 Jn: ich glaub das ist ein fisch ne /
I think this is a fish, isn't it
 Ma: ein fis[s] /
a fish

- Ma: un pesce / =gives fish to It. interlocutor
a fish (Ma, 2;9,22, GC)
- (43) Ca: con, con la windmühle si fa / = intends weathervane
with, with the windmill one makes (it)
 Ka: dov'è questa windmühle scusa ?/
where is this windmill pardon ?
 Ca: la g- con la girandola viene uno /
with the weathervane one comes (Ca, 4;2,11, IC)

These examples have been chosen because they show both the reaction of the adult and that of the child. Interestingly, what they bring to light is that reactions like these almost only happen during the Italian recordings (examples (40) and (42) being an exception). This is not too surprising if one recalls that the Italian interlocutors under discussion are bilingual. Although this did not have an impact on the rate of mixing, it is obvious that a bilingual's reaction towards mixing is a different one than a monolingual's one. In fact, although widely being in line with Lanza's continuum, I suggest a further strategy at the right end of the continuum. Among bilinguals, there may be an implicit agreement of only using one of the two languages. This situation also seems to occur between the bilingual interlocutors and the children in the present study. Although the Italian-speaking person is bilingual, the children accept the adult's language choice only to speak Italian. The same happened when the German-speaking person seemed to understand Italian in order to strengthen the minority language. Eventually, this agreement works perfectly between the child and the parent who speaks both languages, too.

Hence, it should be allowed to mention the code-switch or to make fun of it without mixing or language shifting being an immediate consequence, as in the following example:

- (44) Ca: avevo fatto - ero nel kino quattro /
had I made- was I in cinema four
 Ka: che vuol dire kino ? /
what does mean kino?
 Ca: (il) cinemaxx / =name of movie center
(the) cinemaxx

Ka: ah, eri nella sala numero quattro! /
ok, were you in auditorium number four!

Ca: sí /

yes

Ka: kino è una parola tedesca, che me la metti di mezzo? /
kino is a german word, why do you put it in between ?

eri nel kino quattro “ero nel kino quattro”/

(you) were in cinema four; (I) was in cinema four

=makes jokes, repeats Ca

Ca: ero nel - ero - ero nel- ero nel kino /

was I in - was I - was I in - was I in cinema

Ka: di nuovo! / “ero nella sala quattro” grazie! /

again! (I) was in auditorium four if you don't mind !

Ca: ero ero nella ero nella sala quattro e il film era numero
 due /

*(I) was (I) was in (I) was in auditorium four and the
 movie was number two*

Ka: ecco toy-stories 2 nella sala 4 al cinemaxx in harburg /

=town name

*here you go toy-stories 2 in auditorium four at the cinemaxx
 in harburg* (Ca, 4;9,1, IC)

In (44), Carlotta uses the word *kino*, which happens to be both cinema and auditorium in German. Therefore, the Italian interlocutor does not understand what she means. As soon as Carlotta points out the name of the movie center, the adult translates the German word *kino* (the Italian equivalent being cinema) into *sala* (auditorium). Then the adult starts a discussion, while joking about why Carlotta used a German word in the Italian context, but Carlotta just repeats the word *kino*, maybe because she was not looking for the translation auditorium, *sala*, but for *cinema* (cinema). Interestingly, when the interlocutor recapitulates all the information the child has given to her she has three non-Italian words in her utterance: *toy-stories*, *cinemaxx*, and *harburg*.

Two further aspects should be considered. First, there may be *covert* mixing in a bilinguals' monolingual conversation. According to Lanza (1992), one might face a bilingual situation without mixing or shifting

into the other language but only by admitting to know the other language when discussing the mixed words. A second important point is that not every mixed word should be analyzed as such but could rather be seen as a *borrowing* or as a *loan-word*. This is what *kino* might be, as much as *toy-stories*, *cinemaxx* and *harburg*. I propose to call this revised strategy *Covert Code-switching*. Table 5.3 gives an overview of the reaction towards the children's mixing in the present data. The label **yes** means that there is evidence that the adult reacted according to the specific strategy, for example, in the Italian context, the adult uses the *Minimal Grasp Strategy* (column 3) towards Carlotta, Jan, and Marta. The label **no** states that no occurrence of a certain strategy has been found in the data, for example, no instances of code-switching have been found in any of the interlocutors (column 7).

Table 5.3 shows that in the Italian recordings there are two different reaction strategies from the adult's point of view. A generalization is possible because the interviewers were the same during the whole data collection time span, except for some substitutions due to vacationing. In Carlotta, Jan, and Marta, the bilingual interlocutor **Ka** uses the *Minimal Grasp* strategy as well as the *Repeating and Translating by guessing* strategy. Further, she applies the *Covert Code-switching*

Table 5.3. Discourse strategies (Lanza 1992) revised and applied to the data

Child	Language	Minimal grasp	Repeating and translating by guessing ³	Move on	Covert code-switching	Code-switching
Carlotta	Italian	Yes	Yes	No	Yes	No
	German	Yes	Yes	No	No	No
Lukas	Italian	No	Yes	Yes	No	No
	German	Yes	No	No	No	No
Jan	Italian	Yes	Yes	No	Yes	No
	German	Yes	Yes	No	No	No
Aurelio	Italian	No	Yes	Yes	No	No
	German	Yes	Yes	Yes	No	No
Marta	Italian	Yes	Yes	No	Yes	No
	German	Yes	Yes	Yes	No	No

strategy, that is, she sometimes discusses with the child the mix she uttered. In Lukas and Aurelio, the bilingual interlocutor **An** behaves differently. She mostly either translates the mix, or she moves on, showing that she understood what the two boys were saying. The *Move On Strategy* was particularly necessary in Lukas recordings, because there was a period during which he mixes in almost every utterance. In order to make the recording possible, **An** had to move on with the interaction. In the German recordings, the picture varies because several interlocutors were involved during the study. The interlocutor **Na** in Carlotta pretended to be monolingual and behaved like that. The interaction between the two interlocutors was in German. Only sometimes did she *guess* what Carlotta had mixed by translating it. In the German context of Lukas, the interlocutors changed several times. They all pretended to be monolingual, the language between both interlocutors being German. No mixing from Lukas has been accepted. The interlocutor in Jan's German recordings was the same as in Carlotta, **Na**, for almost the entire period investigated. Towards the end, **Ta** did the German recordings. She followed the same strategies as **Na**, hence *Minimal Grasp* or *Repeating and Translating by guessing*; the interaction language between the two adults was still German. **Ta** is also Aurelio's German interlocutor after some initial changes. Aurelio almost refuses to speak German to her, so she had to apply nearly all strategies in order to go through with the interaction. The interaction between the two interlocutors took place in German and sometimes in Italian. Given that at Marta's home everyone speaks Italian, the interlocutors **Ka** and **Ta** spoke Italian to each other, **Ta** using the *Minimal Grasp*, the *Repeating and Translating by guessing* and the *Move on Strategy* with Marta. Later, the interlocutor **Jn** applied the same strategies, but **Jn** and **Ka** spoke German to each other, in order to reinforce the language.

In closing, the interlocutors never stimulated a bilingual situation. All adults behaved very consistently with respect to their language choice, following the *one person one language strategy* (Ronjat 1913). However, they used different strategies in reacting to the children's language mixing. Some pretended not to understand what the child had expressed, others helped the child to reformulate the utterance. In some cases, the adult went on with the conversation without reacting, in others the (bilingual) interlocutor talked the mixes over with the child. Whether these

strategies had an impact on the child's language use cannot be answered here. But, at first glance, there seems to be no correlation between strategies and child's mixing.

5.8 CONCLUSIONS

This chapter focussed on the children investigated in the present study. After presenting the research design, a brief introduction to the languages under discussion, Italian and German, was given. Each child and his/her linguistic environment were introduced. This topic is crucial for the purpose of this work, since code-switching can depend on the input and on the specific language context. In addition, language use in the family, and particularly among the interlocutors who were recorded, can have an impact on how the children behaved with respect to language choice and use. Language separation is a topic which cannot be analyzed if it is not guaranteed that data collection procedures gave rise to a monolingual context. I also looked more closely at how the interlocutors reacted whenever the child produced a mixed utterance. Although adult speech has not been quantified, it can be stated that no mixing took place on the interlocutor's side. Several studies which show that the bilingual children acquire both languages and are comparable to monolinguals have also been discussed.

NOTES

1. With the term *parameter setting* Chan refers to the choice between two options which are associated with the two languages under discussion.
2. The research project has been funded by the German Science Foundation (DFG) by a grant given to Natascha Müller from 1999–2005. The project was part of the Collaborative Research Center on Multilingualism (Sonderforschungsbereich Mehrsprachigkeit, SFB 538) in Hamburg, Germany. Data collection and transcription has started long before funding with all German-Italian children, except for Marta. I would like to express my gratitude to the people involved in data collection and to the University of Hamburg for a research grant during the pilot phase of the project. Members of the research team were: Katja Cantone, Tanja Kupisch, Katrin Schmitz; cf. Müller, Cantone, Kupisch & Schmitz (2002), Müller, Kupisch, Schmitz & Cantone (2006). Current address of correspondence: Prof. Dr. Natascha Müller, Bergische Universität Wuppertal, Fachbereich A Geistes- und Kulturwissenschaften Romanistik, Gaußstr. 20, D-42119 Wuppertal, nmuller@uni-wuppertal.de.
3. Former categories were *Expressed Guess* and *Adult Repetition*.

THE ANALYSIS OF EARLY MIXING

This chapter discusses mixing in the early stage of language acquisition in bilingual children. In chapter 7, data from age 2;6 on will be analyzed.

There are several theoretical and empirical implications for why the data have been divided into these two stages. It is a fact that one of the main claims of this work is to argue that code-switching in children should be considered in the same terms as adult language mixing. However, it is clear that in child data one has to face language development, whereas in adult data the language systems have been acquired already. The analysis of mixing in children and adults is thus confronted with different tasks: In child mixing, we deal with a grammar that is not yet conformed to the target (adult) grammar. This can lead to the production of utterances which differ from adult ones, in that they lack elements. These lacks may depend on the fact that grammar has not been instantiated yet, so that elements as for example, functional categories are absent in child speech at this time. But it may also depend on the fact that important items have not been acquired up to now, hence they are not in the lexicon, which consequently means structures will be less filled than in adult speech.

Following a structure-building approach, it is assumed that structure projections are attributable to the properties of lexical items. As the *Weak Continuity Hypothesis* predicts (Clahsen, Eisenbeiss & Penke 1996), as long as functional projections are not acquired and subsequently stored in the lexicon, functional projections are not visible. Hence, the lack of functional elements (e.g., inflections, determiners) in child speech does not follow from the absence of grammar, but rather from the absence of specific items in the lexicon. This is in the spirit of the MP (Chomsky 1995), which supposes that the features stored in lexical items are responsible for projecting structures. I assume that

child utterances reflect the grammatical principles of adult utterances, but, in the spirit of a *Minimal Default Grammar* (Roeper 1999), child grammar is considered to be less constrained. Only what has already emerged through lexical learning can be manifested in the ongoing process of language development. In this sense, whatever has not been acquired by a child, especially functional categories, cannot be visible in an utterance. It is therefore untenable to analyze whether early mixing respects code-switching constraints prior to the acquisition of relevant items. For example, it is unnecessary to check if mixing occurs between a determiner and a noun before determiners have emerged in the child speech.

According to these assumptions, I differentiate between a so-called *early stage* (henceforth also ES), which goes from approximately age 1;7 to 2;4, and a later stage, from age 2;4 to respectively 4;0–5;5, depending on the duration of data collection in each child. In fact, the children differ with respect to the onset of data collection as well as regarding the length of their *early stage*.

I will particularly look at whether the ES contains more mixing than the later stage (as observed in many studies on bilingual children), and whether the mixing differs qualitatively from a later stage. Language mixing in young bilinguals has often been regarded as evidence of either a lack of differentiation of the two lexicons, or a lack of vocabulary, or of syntax. Furthermore, it has often been assumed that language mixing goes hand in hand with language dominance. Assuming the minimalist assumption that all learning is lexical, a detailed analysis of what is in the lexicon and what successively comes in is a promising way to both enlighten grammatical development and explain instances of language mixing. Therefore, the mixed words uttered by the children will be analyzed by especially examining the two lexicons and their development. The results will show that none of the discussed explanations so far can explain child language mixing in the early stage of acquisition.

A recent study, which draws on a minimalist account for the architecture of the bilingual's language faculty (MacSwan 1999, 2000), will then be discussed as a possible explanation for language mixing in young bilingual children. As Cantone & Müller (2005) propose, mixing can be due to difficulties in setting the operation *Select*, which is responsible

for picking items from the lexicons, and consequently for the interaction of the two lexicons.

The term *language mixing* is used when referring to mixed utterances at this early stage of language development. These instances are considered as cases of code-switching. Code-switching not only defines a speech style which visibly follows grammatical constraints, but also one where pragmatic and socio-linguistic constraints are respected (Meisel 1994). I am fully convinced that children do follow all these constraints even in the earliest stage of language acquisition. However, it is not possible to examine grammatical constraints at this point. Notwithstanding, both pragmatic and socio-linguistic constraints can be checked from early on. In fact, there is evidence in the data that the children do choose the language with respect to socio-linguistic and pragmatic aspects in most of the cases. The main focus of the present work, however, is to study the cases in which they do not choose the language in accordance with the context, hence, when they mix words from their two languages.

6.1 QUANTITATIVE ANALYSIS OF THE EARLY STAGE

In this section, a quantitative analysis of the mixes in the five children Carlotta, Lukas, Jan, Aurelio, and Marta will be carried out. In the early period of language acquisition, the children are in the one-word to two-word stage and mostly mix single elements/words. The data have been collected preserving monolingual conditions: Each interlocutor strictly kept to his/her native language, without stimulating mixes or reacting with code-switching to child language mixing. The base language of each recording is considered to be the language of the situation, which has been established by the interlocutor. Whenever words of the non-context language have been uttered, this has been considered as a mix into the context/base language. For example, if an Italian word is uttered in the German recording, it has been counted as a mix.

It has been widely discussed if one-word mixes should be considered as mixed *utterances*. According to Grosjean's concept of a language mode (1998), I assume that the children are in a monolingual mode during the recordings. Consequently, when uttering a single word belonging to the other language, the children are presumed to be in a bilingual

mode. A one-word mix is considered as a mixed utterance, and not as a monolingual one, following Genesee (1989:162) who states that:

‘The definition [for intersentential mixing, KFC] is problematic when discussing childhood bilinguals because it pertains only to two-word and multi-word stages of development, thereby eliminating a consideration of mixing during the one-word stage. For reasons that will become clear later, it is desirable to extend the definition of mixing to include single-word utterances from two languages during the same stretch of conversation between a child and caregiver’.

A one-word utterance is also claimed to be a mix because most utterances lack elements at this stage of acquisition. Therefore, one cannot know from which language the missing elements come. In order to underpin that at this early stage most mixed utterances consist of only one element, which is mixed (examples in (45)), the label *mixed utterances* has been split into two categories: *one-word* and *two-word* mixes. The latter category mostly contains single words combined with a word in the *target* (context) language (examples in (46)). If the child utters a sentence containing, for example, only German words in the Italian context, the utterance was counted as belonging to German, and not as a mix (example 47). The criteria in order to differentiate between one-word mixes and *utterances in the other language* are: The sentence must contain at least three words, or it must contain a verb. These utterances are not important for the present discussion, but will be presented in Figures 6.1–6.5 when discussing the use of the two languages.

- | | | |
|-------|-------------------------------|------------------|
| (45a) | <u>da</u>
<i>there</i> | (Ca, 1;10,8, IC) |
| (45b) | <u>musica</u>
<i>music</i> | (Lu, 1;9,13, GC) |
| (45c) | <u>noch</u>
<i>still</i> | (Ja, 2;1,3, IC) |
| (45d) | <u>hier</u>
<i>here</i> | (Au, 2;0,11, IC) |

- | | | | |
|-------|--|------------------------------|-------------------|
| (45e) | <u>palla</u>
<i>ball</i> | | (Ma, 1;9,12, GC) |
| (46a) | da <u>questo</u>
<i>there this (one)</i> | | (Ca, 1;11,12, GC) |
| (46b) | bullo <u>noch</u>
<i>butter still</i> | =burro | (Lu, 1;11,1, IC) |
| (46c) | poi poi poi <u>teile</u>
<i>then then then pieces</i> | | (Ja, 2;5,26, IC) |
| (46d) | <u>nein</u> , balena
<i>no, whale</i> | | (Au, 2;1,9, IC) |
| (46e) | <u>casa</u> is hier
<i>house is here</i> | =ist | (Ma, 2;0,16, GC) |
| (47) | <u>c'è mamma</u>
<i>there is mum</i> | =Ma heard her mother outside | (Ma, 2;1, GC) |

The criteria used to define the ES in the present work are merely descriptive ones. The quantitative criteria require that the number of mixes during a recording must be at least 10% consistently in several consecutive recordings, in order to respect the observations of earlier studies which all claim that there is a stage of high mixing in bilingual children. Plus, the MLU should not exceed the value two, so that only single words are mixed and not complex utterances. The qualitative criterion requires that the elements mixed must be single words, like nouns, deictic elements, or adverbials. As soon as other elements are mixed, the ES ends.

As reported in most studies on early language mixing, bilingual children are said to pass through a stage in which they mix to a high extent. At a given point, the mixing decreases abruptly. The question arises whether the decrease of mixing is due to internal language factors or if this picture shows up for methodological reasons. In fact, a crucial difference is given if one calculates tokens or types of mixed elements. In the quantitative section, the traditional analysis of most studies will be kept, that is, mixed tokens are counted. However, in the qualitative discussion

of the data I argue that the analysis of tokens artificially creates a stage of high mixing rates. In contrast to this, if the data are reanalyzed on the basis of types mixed, there is no quantitative difference between the percentages of mixing at an early and a later stage. The only difference one can observe, which is considered as a very interesting and promising result, is between the children. That is, counting mixing in types reflects that children have individual paths in acquiring the two languages: Some do mix to a low extent throughout the study, whereas others mix during the whole period of research.

In my opinion, the division of the data into two stages is only justifiable for reasons of language production, in the sense that the children are in the process of acquiring the two languages. Since they have just begun speaking, one cannot compare data from, for example, age 2;1 with data from age 3;6 onwards. This is the reason why both the quantitative and the qualitative criteria are concerned with filtering out a stage which consists of single words, hence with a mean MLU-value below two.

This approach is in contrast to the idea that language mixing ends abruptly for reasons of language development, meaning that children must learn to separate their two languages during speech production or that children mix because of lexical need. As we will see later, the percentage of language mixing can be seen neither as a sufficient nor as a necessary condition for establishing two stages, since some children have the same percentage of language mixing throughout the study.

In the ensuing, Figures 6.1–6.5 illustrate the early stage of language acquisition in the five children. The figures are divided according to the recording situation: one language context is Italian, the other German. Absolute numbers of monolingual and of mixed utterances (y-axis) in each child in each single recording (age is given on the x-axis) are given.

6.1.1 *Carlotta*

Carlotta's ES starts at age 1;10,8 and ends at age 2;2,19 in both languages. Figure 6.1(a),(b) illustrate Carlotta's language production¹.

The criterion of at least 10% mixing can hardly be verified in the Italian context.² In fact, the 10% peak is only reached once, at age 1;11,12. Plus, in the last recording at age 2;2,19, there are 21% of mixes.³ Nevertheless,

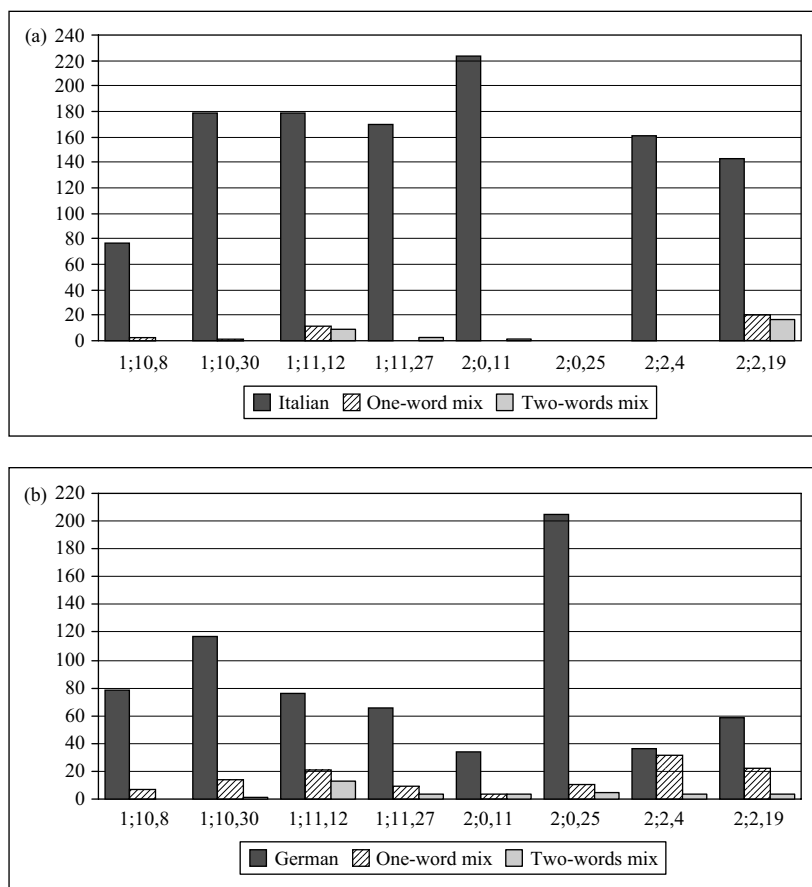


Figure 6.1. (a) Carlotta – Italian context; (b) Carlotta – German context

it is clear that Carlotta mixes German words into the Italian recording. In the Italian context, two-word mixes appear at random, but start to massively occur in the last recording of the ES. In German, 10% and more of mixing has been reached in almost all recordings. One-word and two-word mixes appear regularly. Interestingly, the German interlocutor is monolingual, whereas the Italian one is an Italian/German bilingual. One could have expected Carlotta to mix in the interaction with the

bilingual person rather than with the monolingual German interlocutor. But she seems to accept the language context established, that is, to speak Italian in the Italian recording. With respect to the MLU-criterion, the mean value in this stage is 1,61 in Italian, and 1,55 in German.

6.1.2 *Lukas*

In Italian, Lukas' early stage goes from age 1;8,14⁴ to age 2;1,23. In German, no ES can be identified relating to language mixing. Except

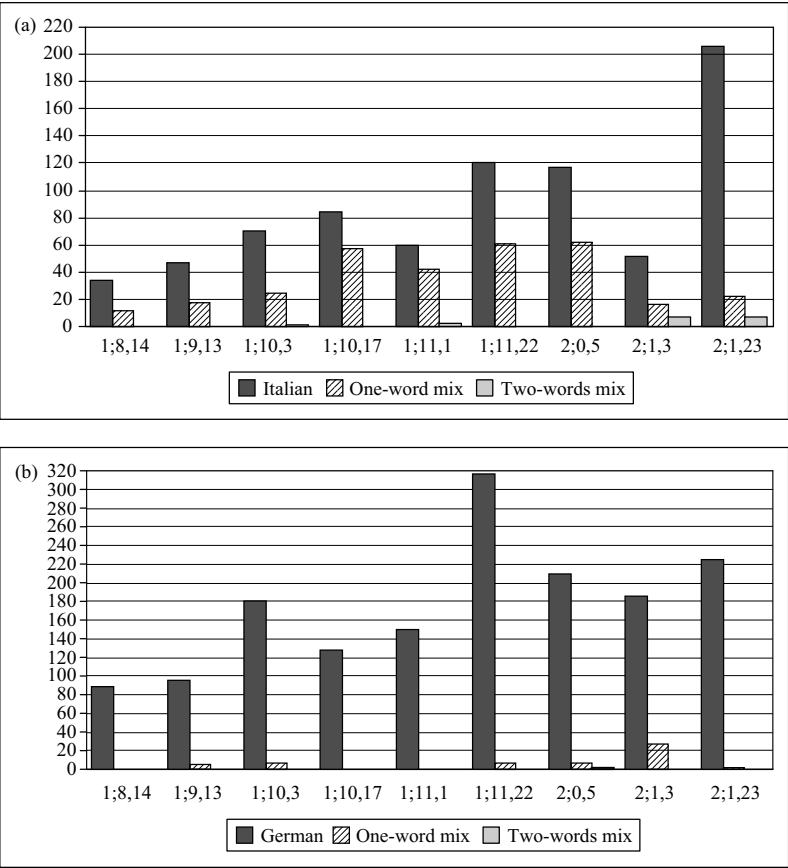


Figure 6.2. (a) Lukas – Italian context; (b) Lukas – German context

for the recording at age 2;1,3, there are very few mixes in German. In the Italian interaction, there is a high percentage of mixing (12–42%, cf. the appendix). Curiously, the Italian interlocutor is bilingual. However, if we recall the mixing in Carlotta's data, it seems that a bilingual interlocutor is not always responsible for the language mixing of the child (Figure 6.1).

In order to show that in German there is no mixing throughout, more recordings were included in Figure 6.2(b). The mean MLU-value show

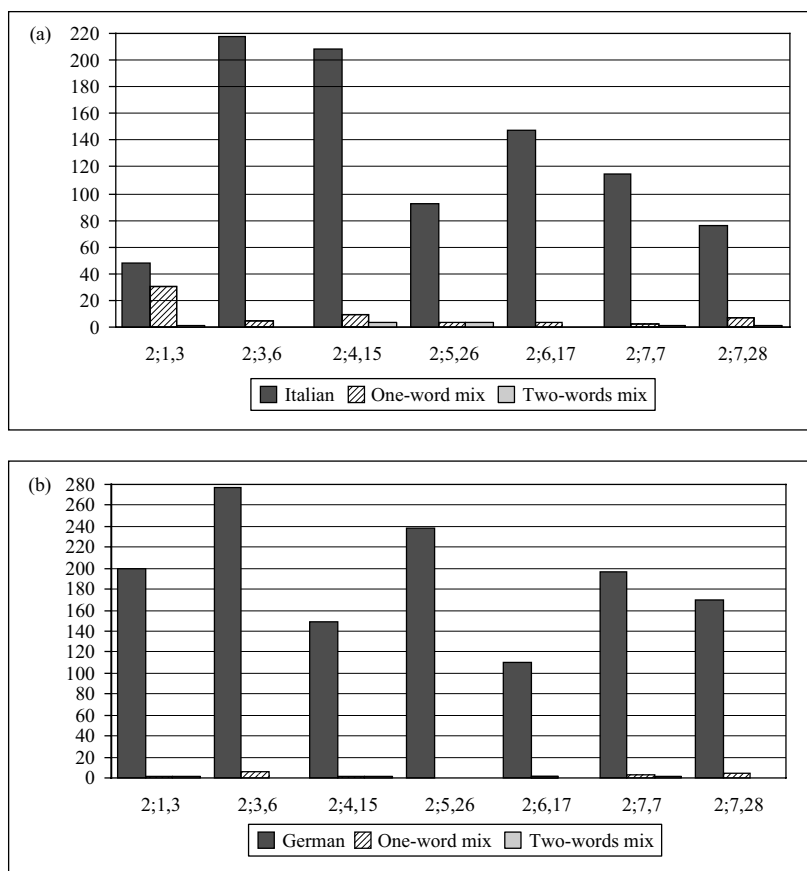


Figure 6.3. (a) Jan – Italian context; (b) Jan – German context

that Lukas fits very well in the MLU-criterion established for the ES in both languages. In Italian, the mean MLU-value is 1,15, in German it is 1,04. Accordingly, very few two-word mixes are found.

6.1.3 Jan

Jan's ES goes from age 2;1,3 to 2;7,28 in the Italian context.⁵ There is no ES in the German recordings, neither with respect to language mixing nor regarding the MLU-value. In Figure 6.3(b), some recordings have been added in order to show that there is no relevant mixing at all. In the Italian recording at age 2;1,3, we find 32% of mixed utterances. Besides, there is no relevant mixing, excepting for the last recording, where the 10% criterion is reached (actually, the percentage is only 9,52%). The problems in establishing an ES in Jan could be due to the fact that data collection started when he was already 2 years old, whereas the other children's ES mostly end at age 2;0–2;2. Hence, we probably missed Jan's early stage of language acquisition. The mean MLU-value is 1,64 in Italian, whereas in German it exceeds the value set in the criterion, the mean being 2,34. Two-word mixes rarely occur in both language contexts.

6.1.4 Aurelio

In Aurelio, the ES goes from age 1;10,23 to age 2;1,23 in both languages, the analysis starting with the 3rd recording. With respect to the Italian data, a new category of mixes had to be established. At first sight, it seems that Aurelio mixes more than the other children, but many mixes can be accounted for by the use of the German *ja/nein* (yes/no) in the Italian context. If these cases are put aside, the percentage of mixing is similar to Lukas in Italian and Carlotta and Marta in German (Figure 6.4).

In German, Aurelio regularly mixes during the ES. Later, he will stop mixing because he addresses the German interlocutor in Italian. Looking at the MLU-values, he has a mean of 1,21 in Italian and of 1,15 in German. Two-word mixes are seldom.

6.1.5 Marta

The analysis of Marta's data starts with the 2nd recording. Mixing in the ES is only visible in German and goes from age 1;7,10 to 2;0,16. In Italian, the data only contain one mix (*ja, yes*) (Figure 6.5).

Looking at the mixing percentages in German, it seems that Marta mixes to a high degree, especially in the first 4 months. But this observation can be amended by studying the absolute number of mixes and of monolingual utterances. In fact, the absolute number of German utterances is very low compared to the other children. This is due to the fact that a lot of utterances are illegible (i.e., lots of words could not be identified) in this early stage, so that only few utterances have been counted

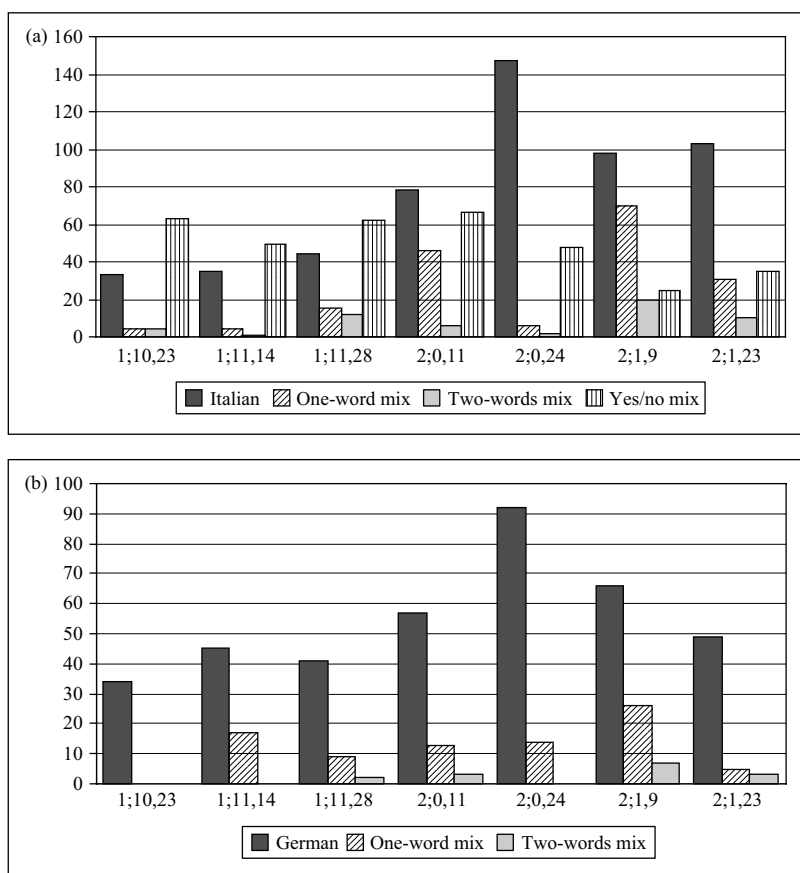


Figure 6.4. (a) Aurelio – Italian context; (b) Aurelio – German context

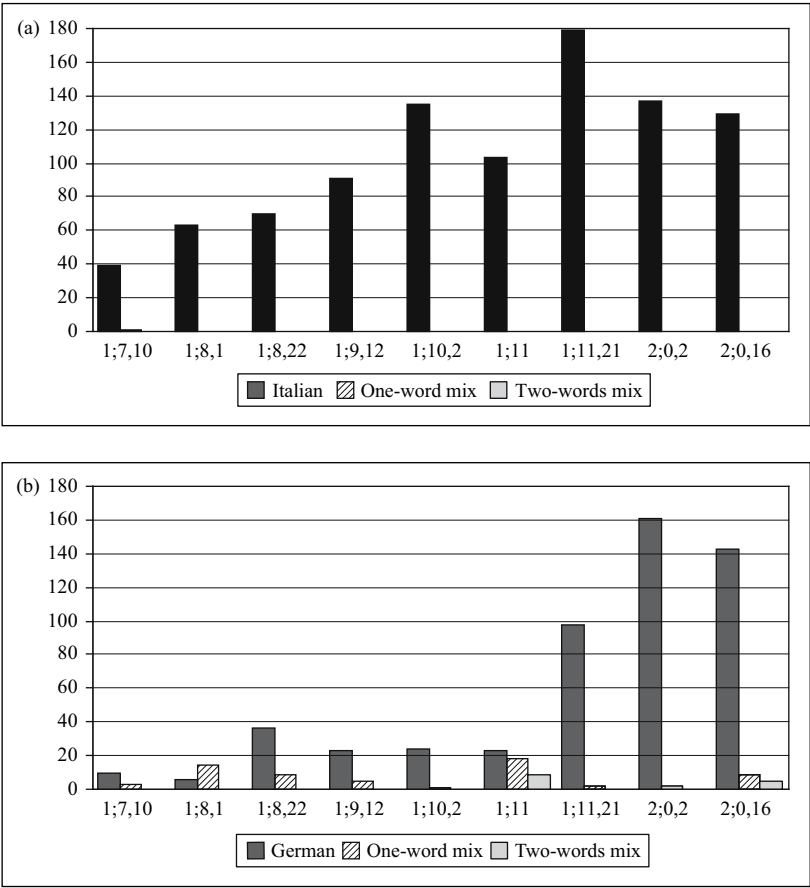


Figure 6.5. (a) Marta – Italian Context; (b) Marta – German context

as German monolingual utterances. The MLU-values have a mean of 1,45 in Italian, and of 1,37 in German.

6.1.6 Summary

With respect to language mixing, the children show different patterns, although the data were collected in the same way. There is a period in which they mix to a certain extent in at least one of the two languages. This phase is between 3 and 7 months long and goes from around age 1;7

to 2;2 (in Jan, until 2;7). Aurelio mixes in both languages, Lukas and Jan in Italian, Carlotta and Marta in German. The amount of mixing varies among the children: Marta (Italian) and Jan (German) have almost no mixing in their data. Lukas (German), Carlotta (Italian), and Jan (Italian) mix to some extent, but within 10%. Finally, Aurelio (German), Marta (German), Carlotta (German), Aurelio (Italian), and Lukas (Italian) mix between 19% and 30%.

With respect to the MLU-criterion, in all children but Jan (German) the mean MLU is below two. The lowest mean MLU-values (between 1.0 and 1.2) are in Lukas (Italian and German) and Aurelio (both languages), followed by Marta (both languages), Carlotta (both languages) and Jan (both languages). The fact that Jan has the highest values is not surprising, given that he is the oldest child. Interestingly, all children but Jan have similar values in both languages in this stage of language acquisition. This could be a hint on language balance.

MLU does not seem to play a crucial role with respect to language mixing. If we suppose a correlation between low MLU-values and the existence of a stage with a high mixing rate (at least 10% constantly), then the opposite is illustrated in Lukas (German): He almost does not mix, but his mean value is the lowest of all children. Therefore, one result is that the MLU does not make any prediction with respect to the existence of a stage of mixing. It has only been used for delimiting an ES of language acquisition. According to the criteria mentioned above, there are only few two-word mixes in this phase. In section 6.2, the type of words mixed will be analyzed in detail. The following Table 6.1 gives an overview of the criteria concerning the ES in the five children studied.

Let us now briefly turn to the notion of language use.

In the Italian context, the children differ a lot with respect to this issue. First of all, Lukas is the only child who speaks German during the Italian recordings. The other children produce either Italian or mixed utterances. Marta never speaks German, and utters only a single mix, which means that she speaks Italian in 99.9% of her utterances. The fact that the Italian interlocutor is an Italian/German bilingual has not affected Marta's language choice, her language use being perfectly target-like in the Italian recordings. Similarly, Carlotta and Jan never use German in the Italian context, but they mix to different degrees. Still,

Table 6.1. Early stage

Child	Age	Length in months, days	Context	Mean % of mixing	Lowest % of mixing	Highest % of mixing	Mean MLU	Lowest MLU	Highest MLU
Carlotta	1;10,8–2;2,19	4,11	Italian	4	0	21	1.61	1.1	2.2
			German	24	7	50	1.55	1.3	1.7
Lukas	1;8,14–2;1,23	5,11	Italian	30	12	42	1.15	1.0	1.4
			German	3	0	12	1.04	1.0	1.2
Jan	2;1,3–2;7,28	6,25	Italian	10	2	40	1.64	1.2	2.0
			German	1	0	2	2.34	1.9	2.7
Aurelio	1;10,23–2;1,23	3	Italian	27	5	48	1.21	1.0	1.4
			German	19	0	33	1.15	1.0	1.3
Marta	1;7,10–2;0,16	5,6	Italian	0.3	0	3	1.45	1.1	1.9
			German	22	1	70	1.37	1.0	1.8

they speak Italian in more than 90% of their utterances. Aurelio clearly does not follow the language context given by the adult: Although he never speaks German, he mixes in more than 50% of the utterances when talking to the Italian interlocutor (including the yes/no mixes). This language use is definitely not in line with the recording situation. Lukas mixes a lot when talking to the Italian interlocutor, too. The intriguing point is that Lukas and Aurelio have the same bilingual interlocutor, An. By contrast, Carlotta, Jan, and Marta had the bilingual Ka as the Italian interlocutor. The question arises as to whether the children's mixing and language use have somehow been influenced by the interlocutor. Since this effect has not been studied yet, we have to leave this question open.

With the German interlocutor, the children generally speak German. Carlotta produces some Italian utterances in the German recordings. Given that she also mixes to a certain extent, her production of German amounts to 75%. It is true that Aurelio also only utters four Italian utterances in the German context, but, including his high percentages of mixing, the amount of his German production is still 80%. Lukas, Jan, and Marta have no Italian utterances in their German data. Their production of German amounts to 85%–100% in the ES.

The absolute number of utterances produced during the ES outlines how language use differs in the children. All children show to speak considerably more in one of the two language contexts: Carlotta, Aurelio, and Marta produce more utterances in Italian, Lukas and Jan speak more in the German context. In Aurelio, the use of the two languages is similar in terms of spoken utterances. However, he behaves differently during the recording: he mixes much more in the Italian context than in the German one. The following Figures 6.6–6.10 illustrate language use in the ES in each child in each language context.

In closing, the data reveal that the children mix to a certain degree in at least one language in this early stage of language acquisition. However, this result will not hold up to a qualitative analysis. The fact that only Aurelio mixes in both languages already raises the question of whether the idea of a general stage of mixing in bilingual children can be sustained.

All five children are capable of addressing the interlocutor in the target language. This is illustrated by the number of utterances in the



Figure 6.6. (a) Carlotta – language use in the Italian context;
(b) Carlotta – language use in the German Context

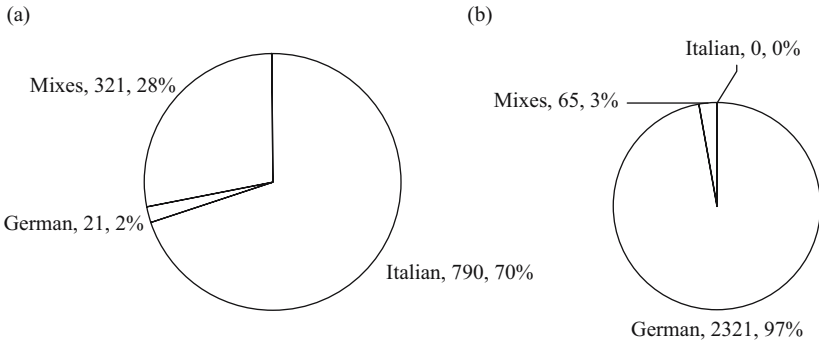


Figure 6.7. (a) Lukas – language use in the Italian context;
(b) Lukas – language use in the German Context

context language. The children hardly speak the *wrong* language, that is, the non-context language. Example (48) illustrates that they follow the language context and that they know which language each interlocutor speaks. As soon as Marta wants to communicate with the Italian interlocutor, who is holding the camera, she changes from German to Italian.

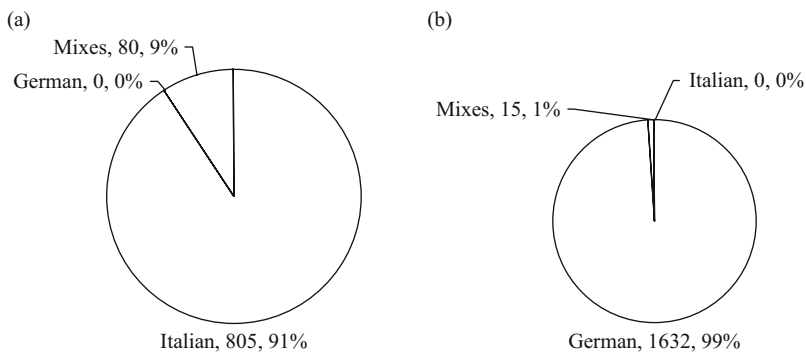


Figure 6.8. (a) Jan – language use in the Italian context; (b) Jan – language use in the German context

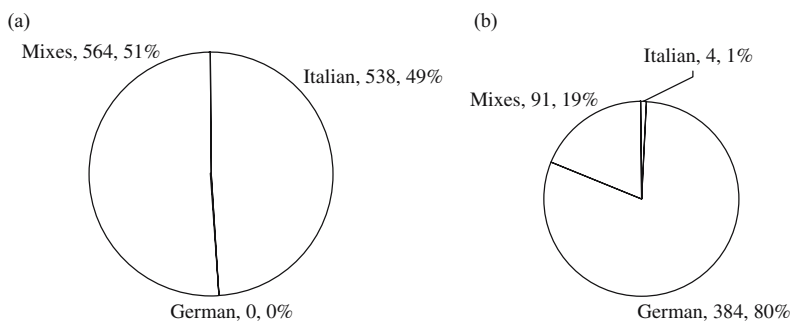


Figure 6.9. (a) Aurelio – language use in the Italian Context;
(b) Aurelio – language use in the German Context

- (48) Kt: oh eine muschl / =Ger. interlocutor
 comments
oh a shellfish
 Ma: mu[s]el/ =imitates
shellfish
 Kt: mh hast du die gefundn am strand ?/
mh have you these found at the beach?
 =Ma takes another
 shellfish from
 board

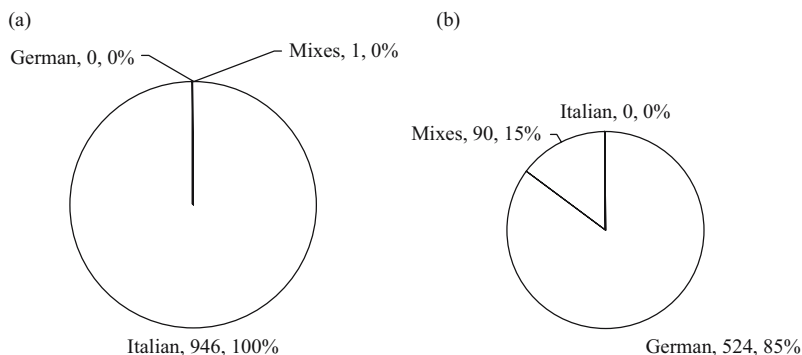


Figure 6.10. (a) Marta – language use in the Italian Context;
(b) Marta – language use in the German Context

die sind ja schön gross deine muscheln /
these are really big your shellfishes

Ma: (hier) eine musel /

=gives both shellfishes
to Kt

(here) a shellfish

Kt: %

=comments

Ma: guarda là /

=goes to Ital.
interlocutor, gives
shellfishes to her

look there

Ka: cosa c'hai qua ? /

=Ital. Interlocutor
comments

what there have (you) here?

(Ma, 1;11,20, GC)

6.2 QUALITATIVE ANALYSIS OF THE EARLY STAGE

The discussion now focuses on what kinds of elements have been mixed in the early stage of language mixing.

In the literature on early mixing, the distinction between different categories of mixed elements has been used in order to discriminate two different qualitative stages of mixing (Köppe & Meisel 1995). In the early stage, it has been stated that a certain class of words is mixed, namely the so-called *function words* (Vihman 1985, Meisel 1994,

Köppe & Meisel 1995, Köppe 1996, 1997, 2003), whereas in a later stage of language mixing all categories can be found among the mixed words. In addition, it has been claimed that the SL will provide the function words in mixed utterances (Vihman 1985), hence, it is assumed that these elements are related to the discussion on language dominance. Recall that several studies state that – in case of an unbalanced development of the two languages – functional categories from the SL accompany lexical elements from the weaker (Petersen 1988, Lanza 1992, 1997, Gawlitzek-Maiwald & Tracy 1996, Bernardini & Schlyter 2004). In Vihman (1985), function words are indeed supposed to be grammatical elements, and this leads one to compare them to functional categories. Meisel (1994, 2001) criticizes Vihman's use of this term.

Although agreeing with Meisel in claiming that this definition is far from being satisfactory, this expression will nonetheless be used here in order to compare the present data to former studies. Abstracting away from the theoretical assumptions underlying this term, it is nevertheless a fact that studies report a high rate of mixing involving this class of words. According to Vihman (1985), function words are for example, *this/that, here, there, yes, no, more*. Studying the elements mixed by the Estonian/English bilingual child Raivo until the age of 2, she claims that 58% belonged to the category function words. Veh (1990) observes that 64% of the mixed words of the German/French bilingual children Ivar and Annika between ages 2;4 and 2;10 are deictic elements and adverbials. Both word classes belong to the category of function words. Meisel (1994) also carefully analyses Annika's and Ivar's mixes, stating that Annika mixes more German words into the French context than vice versa, whereas the contrary holds for Ivar, for he mixes more French elements into German than German into French. Meisel indicates that only a limited set of words is switched, namely, deictic elements, adverbials, particles, etc. These findings are in line with the above-mentioned discussion on function words. Another crucial finding is that these kinds of elements have been mixed in both language contexts, that is, German elements into French and French elements into German.

Studying early mixing in the English/Spanish bilingual child Manuela, Deuchar (1999) proposes that function words might be seen as non-language-specific, which leads to the assumption that the two lexicons

in early language development are not fully differentiated. Additionally, Deuchar claims that function words are used in the *wrong* language context (thus, mixed) more often than content words, that is, nouns (Deuchar 1999:31). A detailed analysis of the translation equivalents to mixed words reveals that, when the equivalent word was available, no noun was mixed into the other language. By contrast, even when knowing the translation equivalent, Manuela mixed function words into the other language context (Köppe 2003). At first sight, these results seem to corroborate the assumption that function words are non-language-specific, but are rather used in both language contexts. Köppe (2003) critically remarks that Deuchar's (1999) statement that function words match the language context less often than other elements is not comparable to the fact that they have been shown to be the most frequently mixed elements in former studies. In fact, Deuchar makes this comparison, but she does not provide evidence for how often the elements (and their translation equivalents) occurred in the data at all. Köppe points out that former studies did not reveal the frequency of use of function words in the two language contexts, but rather the high frequency of these elements within the category of mixed words. In the following presentation, the findings of the present work are divided by language context, starting with the Italian context.

6.2.1 *Mixing into Italian*

The quantitative analysis has shown that the children, despite mostly addressing the interlocutors in the language of the context, do mix to a certain extent in one or both recording contexts. With respect to the Italian recordings, it has been claimed that the criterion for a stage of mixing is visible in Carlotta, Lukas, Jan and Aurelio, but not in Marta. In sharp contrast to the other children, in Marta's data only one mix has been found, namely, the affirmative *ja* (yes) at age 1;7,10. Therefore, in the ensuing discussion Marta's data are put aside. But notice that the mixed element belongs to the class of function words discussed above.

The other children mix to different degrees. Since I believe that the counting of tokens in the analysis of language mixing at this early stage is misleading, in Table 6.2 the number of mixed elements in types are added to the presentation of the mixed elements. For a better comparison of the

Table 6.2. Mixing into Italian

Child	Monolingual utterances	Mixed elements (tokens)	Mixed elements (types)
Carlotta	1.131	65	14
Lukas	790	321	70
Jan	905	80	25
Aurelio	538	564	27

whole language production in the recording of the relevant period, the absolute numbers of monolingual utterances produced in each child are also illustrated.

Comparing the number of types and tokens, it becomes clear that counting the types reveals that the children mix far lesser than expected. These results exclude that there is a constant 10% of mixing as required by the quantitative criterion (cf. the values given in the appendix). Hence, from a qualitative perspective, there is no ES of mixing in the Italian recordings. The only child with a high number of types is Lukas. Let us look at the sort of single elements mixed (in tokens) (Table 6.3).

In Carlotta, the most mixed elements (68%, 46 occurrences) are the deictics *da/hier* (there/here). All other elements are mixed to almost the same extent. Jan has three major categories of mixed elements: nouns (24%), *da/hier* (21%), and *das/dies* (this/that), which occur 16 times, giving a percentage of 18%. The other elements, as in Carlotta, are mixed to almost the same extent. In Aurelio, one category of words, *ja/nein* (yes/no), exceeds all other categories with 449 occurrences (68%). Lukas mixes all kind of categories to different degrees. The mixed elements in the children can generally be captured in 10–12 categories. These categories are consistent with the class of *function words* discussed above.

A further interesting observation can be made by making a type/token analysis within the categories nouns and verbs. Nouns are said to be mixed very easily, in child as well as in adult code-switching (cf. Lindholm & Padilla 1978, Poplack 1980). The children analyzed here differ with respect to mixing nouns. The highest percentage of mixed

Table 6.3. German elements mixed into Italian

Child	German elements mixed into Italian in tokens												
	da hier	das dies	alle	so fertig	auch	noch	und aber	Particles ⁶	numerals	ja nein	P	Adj	N
Carlotta	46	3	1		4			2	2	1		1	5
Lukas	27	11	2	11	1	29	2	30	2	118	2	20	66
Jan	19	16		2	4	3		5	1	7	1	1	21
Aurelio	31	1	7	4			18	6		449		13	35

nouns is in Lukas (36%), followed by Jan (24%), Carlotta (7%), and finally Aurelio, with 5% of mixed nouns.⁷

Looking at the absolute numbers and at the types of words, Carlotta mixes five German nouns into Italian, which are *nase* (nose), *mann* (man), *ei* (egg), and *schleife* (bow). This is an amount of four types, given that the noun *ei* appears twice. Lukas mixes 66 nouns into the Italian recording; the number of types is 33. The mixes include for example, *fuß* (foot), *hand* (hand), *katze* (cat), *butter* (butter), *ball* (ball), *apfel* (apple), *messer* (knife), *sonne* (sun), *blumen* (flowers). Jan mixes 21 German nouns into Italian (14 types), including for example, *maus* (mouse), *decke* (blanket), *bär* (bear), *stuhl* (chair), *wal* (whale). Aurelio mixes 35 nouns into Italian, but the number of types is nine, resulting in the most deviant type/token ratio. Some examples of the nouns Aurelio mixes are *bora* (=bohrer, electric drill), *auia* (=dinosaurier, dinosaur), *bautelle* (=baustelle, building site), *pferd* (horse).

Let us now turn to a type/token analysis of the verbs mixed. Verbs are mixed to a lesser extent in all children. At first sight, Aurelio is an exception, since he mixes 105 German tokens into Italian (16%). However, analyzing the mixes, Aurelio utters 104 times the verb type *guck* (see). Further, there is one single occurrence of the participle *wassen* (=gewaschen, washed), which Aurelio translates in the same utterance, saying *lavato*. Therefore, it can be said that Aurelio only mixes the German verb *guck* into Italian during the ES. This result shows how inappropriate it is to base an analysis only on the number of tokens mixed.

Jan mixes nine verbs into Italian (10%). Here the type/token ratio is almost 1:1 (0,8), given that he utters seven types of verbs, namely, *guck* (see), *aussteigen* (to get off), *malen* (to paint), *runterfallen* (to fall down), *is* (=ist, is), *gegangen* (gone), *wegfressen* (to eat up). In Lukas, the type/token ratio is almost 1:1 (0,75), too. He mixes eight German verbs into the Italian recording (six types), namely, *guck* (see), *hessen* (=essen, to eat), *machen* (to make), *is* (=ist, is), *weint* (cries), *setzen* (to sit). Finally, Carlotta mixes three verbs into Italian (type/token ratio 0,7), which are *fliege(l)* (=fliegt, flies), and two times *is* (=ist, is).

In sum, Carlotta mixes a few types of nouns only once (type/token ratio 4:5 (0,8)). Jan and Lukas recurrently mix a certain number of nouns

(type/token ratio respectively 14:21 (0,7) and 33:66 (0,5)), while Aurelio often uses specific German words in the Italian recording (9:35 (0,25)). Regarding the occurrence of verbs, Carlotta mixes a few German types only once into Italian (type/token ratio 2:3 (0,7)). Jan and Lukas also mix German types only once into Italian (type/token ratio 7:9 (0,8) in Jan, 6:8 (0,75) in Lukas). In Aurelio, the picture looks different: He mixes one type, the German verb *guck*, to a very high extent. With respect to the findings reported in earlier studies, the present data confirm that the children mostly mix elements belonging to the category function words. Following Meisel (1994), I claim that these elements are somehow *easier* to mix because they loosely occur within a sentence.

6.2.2 *Mixing into German*

In section 6.1, it has been argued in favor of an ES of mixing in Carlotta’s, Aurelio’s and Marta’s data. Here, the data of Lukas and Jan will also be analyzed. Both children also mix into German, although to a low extent. Again, the number of mixed elements in types is also included (Table 6.4).

The type-counting reveals that mixing during the ES is very low in these children. The results show that none of the children has three consecutive recordings with more than 10% of mixing anymore (cf. the values given in the appendix). Table 6.5 illustrates the number of occurrences (tokens) of the Italian elements mixed into German in the five children.

The first observation is that in all children the highest absolute numbers (and percentages) occur in the category N. Nouns are mixed

Table 6.4. Mixing into German

Child	Monolingual utterances	Mixed elements (tokens)	Mixed elements (types)
Carlotta	670	171	60
Lukas	2312	65	27
Jan	1632	15	8
Aurelio	384	91	31
Marta	524	90	26

Table 6.5. Italian elements mixed into German

Child	Italian elements mixed into German in tokens												
	lì là	questo	così	dentro	tutti	determiners	numerals	others ⁸	sí	P	Adi	N	V
	qui qua	quello							no				
Carlotta	13	15	1	8		16	2	1	19	4	22	62	8
Lukas						4	7				10	43	1
Jan							1		4		1	7	2
Aurelio	9	5			2			1	7		10	51	6
Marta	34	3					3	1	1		3	40	5

to a higher extent than verbs. Additionally, in Italian the category *determiners* had to be established, since Carlotta and Lukas tend to mix full Italian DPs into German. By contrast, no German determiner has been mixed into Italian.⁹ Different from the analysis on German elements, here deictic elements are not mixed by all children. Carlotta is the only child who mixes all kind of categories to different degrees. In contrast to her mixing into Italian, here the most mixed elements are nouns (36%) followed by adjectives (13%). Most occurrences are color adjectives, like *giallo* (yellow), *rosso* (red), *azzurri* (light-blues). In the German recordings in Aurelio, mixing Italian *yes/no* occurs to a very low extent compared to the amount of German *yes/no* mixes in the Italian context. In sum, the mixed elements in the five children in the German context can be generally captured in 5–12 categories.

A type/token analysis of the nouns provides evidence for the fact that certain Italian nouns are mixed more than once into German. Recall that, besides Aurelio, in the Italian recordings type/token ratio values ranged between 0,5–0,8. By contrast, in the German recordings the values range between 0,3–0,6, the highest value being in Jan, who mixes to a low extent anyway. Carlotta mixes 62 Italian nouns into German, for example, *laballa* (=farfalla, butterfly), *luna* (moon), *gelati* (ice-creams), *tappeto* (carpet). The number of types is 34, resulting in a type/token ratio of 34:62 (0,55). Aurelio mixes 51 nouns into the German context, for example, *pacca* (=barca, boat), *letto* (bed), *pada* (=spada, sword), *cavallo* (horse). Interestingly, the noun *horse* is mixed into both language contexts, that is, the German noun into Italian and the Italian into German. Given that Aurelio utters 15 different types, the type/token ratio is 15:51 (0,3). Marta mixes 40 Italian nouns into German, for example, *pente* (=serpente, snake), *bibli* (=libri, books), *gatto* (cat), *gigle* (=tigre, tiger). Marta has 16 types of nouns, which results in a type/token ratio of 16:40 (0,4). Jan mixes only seven Italian nouns in the German recordings. Since the types are four, the type/token ratio is high (4:7 (0,6)). The types are: *pall* (=palla, ball)¹⁰, *elefante* (elephant), *avallo* (=cavallo, horse), and *amello* (=cammello, camel). Lukas mixes 43 nouns into German, for example, *musica* (music), *sedia* (chair), *luce* (light), *soldi* (money). The number of types is 23, giving a type/token ratio of 23:43 (0,53).

With respect to the verbs mixed, the type/token analysis looks similar in both languages. In the Italian recordings, values ranged between 0,7–0,8 (excluding Aurelio), in the German recordings the values are 0,5 (in Jan, who only utters 1 type 2 times)–0,7. Carlotta mixes 8 verbs into German. The types are *è* (is), *cade* (falls), *vedi* (see), *sta* (stays), *guarda* (look). Therefore, the type/token ratio is 5:8 (0,62). Aurelio mixes 6 Italian verbs into German, which are *butta* (throw), *è* (is), *chudo* (=chiudo, close), *porta* (bring). The calculated type/token ratio is hence 4:6 (0,7). Marta mixes five verbs into the German recording, namely, *fa* (makes), *è* (is), and *piange* (cries). Jan only mixes the verb *aiuta* (helps) into German. since it occurs two times, the type/token ratio is 1:2 (0,5). Finally, Lukas mixes 1 Italian verb into the German context, namely, *ape* (=apre, opens). The ratio is therefore 1:1 (1).

In sum, the class of words dubbed *function words* is mixed to a lesser extent into German. This occurs in all children, independently of language dominance. An explanation could be that in German there are much more particles in child speech (due to the existence of *particle verbs*) than in Italian. That is in German, for example the verb *machen* (to do) appears with for example the particles *weg-*, *runter*, *rein-*, *ab-*, *auf-*, *machen*, whereas in Italian a child has to learn different items in order to express these activities, namely, *levare*, *mettere sotto*, *infilare*, *togliere*, *aprire* (to take away, to put under, to put into, to loosen, to open). Deictic elements are also mixed more into Italian than into German. This could be due to the fact that Italian is the minority language, given that German is the language of the country the children live. A more detailed analysis of the recordings, including gestures, is needed in order to give a more safe explanation to this observation.

Verbs are mixed to a low extent in both languages. Looking at the types of verbs, one finds similar verbs in the children, so that the mixing can be reduced to the 12 verbs *aiuta*, *ape* (=apre), *butta*, *cade*, *chudo* (=chiudo), *è*, *fa*, *guarda*, *piange*, *porta*, *sta*, *vedi*. Hence, a type/token ratio for the occurrences in all children is 12:22 (0,54). With respect to German verbs mixed into Italian, one finds the verbs *aussteigen*, *fliege(l)* (=fliegt), *gegangen*, *guck*, *hessen*, *is* (=ist), *machen*, *malen*, *runterfallen*, *setzen*, *wassen* (=gewaschen), *wegfressen*, *weint*. These 13 verbs occur in 125 cases, giving a ratio of 13:125 (0,10). If 103

instances of *guck* in Aurelio are excluded, the ratio is 13:22 (0,59), which is nearly the same as for the Italian verbs in the German context.

Nouns are mixed very often in both language contexts and in all children. These findings are in line with other studies which also report a high percentage of noun mixings (cf. among others Meisel 1994, Köppe 1997). Nouns are also stated to be mixed very often in adult mixing (Poplack 1980).

6.2.3 *Equivalents to mixed elements*

So far, it has been shown that the children investigated here mix to a certain extent during the ES. The data corroborate previous findings in early language mixing, namely, that a specific type of elements, the function words, is mixed to a high percentage. The data also indicate that nouns, verbs, adjectives and a few prepositions are mixed by the children. I argue that the mixing occurs independently of language dominance.

At this stage, Aurelio's Italian and Jan's German are regarded as dominant (Cantone, Kupisch, Müller & Schmitz 2006, Kupisch 2006). Nevertheless, Aurelio mixes in both language contexts to a high extent, whereas Jan's mixing fulfills the prediction that he mixes more in the Italian context than in the German one. If language dominance was the correct explanation, one should expect unidirectionality of mixing (Petersen 1988, Lanza 1992, 1997, Schlyter 1993) for all children, which is not corroborated here. This is not to say that dominance can never account for instances of language mixing. I think that directionality in mixing could be explained by dominance, but that dominance does not imply that mixing must be unidirectional. Comparing Aurelio and Marta (both being dominant in Italian, Cantone, Kupisch, Müller & Schmitz 2006, Kupisch 2006), two contrasting pictures arise: Marta has indeed no mixing in her Italian context, whereas Aurelio mixes to a high extent in the Italian recording. One should expect Marta to have a high percentage of mixes in German, her weaker language. But this is not the case. She mixes as much as Aurelio, and slightly more than Lukas, whose language development is considered balanced at this stage. Along these lines, language dominance cannot give a convincing explanation for the mixes in the children.

No evidence could be provided that words belong to certain domains (e.g., language-specific books or games), since the children sometimes mix nouns in both directions. For example, the noun *horse* is mixed into German and into Italian by Aurelio. Moreover, little evidence can be drawn from the fact that German is the language of the children's environment. In fact, the nouns mixed into the Italian context do not represent items which exclusively belong to domains which are attributable to a specific language context, as for example, *whale*, *electric drill*, *man*, *bow*. More precisely, given that most of the children do not go to kindergarten yet, but rather stay at home with their Italian-speaking mothers, one should in fact not expect everyday words to be in German. The Italian words mixed into German do not represent a specific domain either. For example, one finds *butterfly*, *music*, *light*, *snake*, *tiger*.

After rejecting *language dominance* as an explanation for the mixes in the data studied, I will now be concerned with finding a different convincing explanation for why these particular elements which we discussed in the previous subsection have been mixed.

Another explanation for language mixing could be *lexical need* (Deuchar & Quay 2000). Pursuing this matter, one examines if equivalents to the words that have been mixed were available in the other language. The hypothesis is that the absence of the equivalent word accounts for the fact that the child had to mix for reasons of *lexical need*.

Table 6.6 depicts the equivalents of mixed words found in the data. The words mixed are given in types (column 3). Column 4 shows the number of the equivalents which were mixed but verifiably in the other language simultaneously. Column 5 illustrates whether the equivalent words in the other language have already been acquired. The higher the percentages in these two columns the more the hypothesis must be rejected that lexical gaps are the reason for mixing. Column 6 depicts the equivalent words that were acquired later. This column is the one which provides evidence for the *lexical need hypothesis*. Finally, column 7 could also support the claim that no equivalents are there. I would like to outline that it could also be that the words are in the lexicons, but have not been uttered by the children during the recordings. Regrettably, data collection was not exhaustive, thus it remains unanswered if the equivalents not found are absent or just unspoken. Obviously, one cannot provide evidence that

Table 6.6. Equivalents of the words mixed – Time of acquisition/appearance

Child	Language context	Words mixed	Equivalents acquired at same time	Equivalents acquired earlier	Equivalents acquired later	No equivalents found
Carlotta	Italian	14	5 (36%)	6 (43%)	1 (7%)	2 (14%)
	German	60	9 (15%)	11 (18%)	9 (15%)	31 (52%)
Lukas	Italian	70	9 (13%)	9 (13%)	12 (18%)	39 (56%)
	German	27	2 (7%)	7 (26%)	1 (4%)	17 (63%)
Jan	Italian	25	4 (16%)	5 (20%)	8 (32%)	8 (32%)
	German	8	2 (20%)	3 (38%)	1 (12%)	2 (20%)
Aurelio	Italian	27	5 (18%)	10 (37%)	3 (11%)	9 (34%)
	German	31	0 (0%)	6 (19%)	4 (13%)	21 (68%)
Marta	Italian	1	0 (0%)	0 (0%)	1 (100%)	0 (0%)
	German	26	2 (8%)	4 (16%)	10 (38%)	10 (38%)

the time of appearance is the time of acquisition, since the data were only collected every fortnight. However, in order to answer the question whether items were mixed for reasons of *lexical need*, it is assumed that words which have not appeared have not been acquired yet.

Looking at column 6, which illustrates the number of equivalents acquired/appeared later than the word mixed, the only mix in Marta's Italian context is due to the fact that the Italian equivalent has been acquired later. Recall that the element mixed was the affirmative *ja*. It seems untenable that Marta did not know the Italian equivalent *sì*. The reason why she mixes that element thus remains unexplained.

The highest percentage in summing column 4 and 5 is in Carlotta's Italian context: 79% of the German words she mixed into Italian already have an Italian equivalent or the equivalent was expressed at the same time as the mix. One can safely say that these mixes cannot be due to *lexical need*. At the same time, Carlotta's data are the best documented, since only 14% of the equivalents to the mixes (2 types) could not be found in the corpus during the ES. Consequently, I claim that only one mix, namely, the adverbial *auch* (also, too), uttered at age 1;11,12, could be explained by *lexical need*, since the Italian equivalent *anche* appeared only at age 2;2,19 in Carlotta's Italian corpus.

In Jan's German context, 58% of the equivalents to the words mixed were already acquired or uttered at the same time. No evidence can be provided for the existence of two equivalent items in the corpus. Finally, one word, *pall* (=palla, ball), uttered at age 2;1,3, was acquired later in German (age 2;4,15). Lukas also has only one clear case in which *lexical need* explains his mixing: The absence of the equivalent to the Italian noun *fetta* (=forchetta, fork), which has been mixed into German at age 1;10,3. The German equivalent appears in the following recording, at age 2;0,5.

Regrettably, the number of equivalents not found in the corpus of all five children is quite high, especially in Aurelio's data in both languages (respectively 68% of equivalents not found in the Italian data and 34% of Italian equivalents to the German words he mixes into Italian), and in Lukas' data in both languages (56% of Italian equivalents to German words he mixes into Italian have not been found, and 63% of German equivalents to Italian words he mixes into German have not been found).

In sum, given that a lot of equivalents were not found in the corpus, there is no convincing evidence of when the words have been acquired in the children. The claim that mixing is due to *lexical need* cannot be dismissed. Notwithstanding, the data indicate that a percentage of words mixed (ranging between 19% and 79%¹¹) have already been uttered in the target language. There is no clear and satisfactory explanation for why the children mix in these cases, instead of uttering a word they have already uttered before or in the same recording. By way of conclusion, then, I claim that *lexical need* cannot provide the sole and ultimate explanation for the mixed elements. This is in line with other studies, who also report that several of the mixed elements were available in both languages (Vihman 1985, Meisel 1994, Köppe 2003, Cantone & Müller 2005). In order to provide more evidence in favor of the fact that lacks in the lexicons cannot explain all kinds of mixes, in the following section I will shed light on the two *monolingual* lexicons of the five children.

6.3 TRANSLATION EQUIVALENTS AND THE TWO MONOLINGUAL LEXICONS

I convey the view that in analyzing language mixing it is important to account for the *monolingual* development of bilingual children. For

example, the analysis of translation equivalents can shed light on this topic. Translation equivalents are those pair of words which can be found in both monolingual lexicons (Clark 1987), for example, the item *Apfel* in the German lexicon, and the equivalent *mela* in the Italian lexicon, meaning *apple*. In contrast to Deuchar & Quay (1998, 2000), here it is claimed that already one pair of equivalents confirms the existence of two different language systems in the bilingual children, hence of two discrete lexicons. The number of equivalent pairs available in each child may depend on an individual strategy. Furthermore, it is argued that the following analysis of what is stored in the two lexicons of the bilingual children also makes predictions about language preference, hence which language is the stronger in the sense of lexically being more developed.¹²

The ensuing Table 6.7 depicts the existence of translation equivalents and the lexicon sizes in both languages during the early stage in the

Table 6.7. Translation equivalents¹³

Child	Age	Language context	Words in monolingual lexicon	No. of equivalents	% of equivalents
Carlotta	1;10,8–2;2,19	Italian	147	23	16
		German	78	23	29
Lukas	1;8,14–2;1,23	Italian	129	46	36
		German	165	46	28
Jan	2;1,3–2;7,28	Italian	187	83	44
		German	237	83	35
Aurelio	1;10,23–2;1,23	Italian	89	20	22
		German	51	20	39
Marta	1;7,10–2;0,16	Italian	110	20	18
		German	32	20	62
Lisa	until 1;11	Italian	39	3	18
		German	25	3	12
Giulia	until 1;6,5	Italian	38	7	18
		German	35	7	20
Manuela	until 1;5,13	Spanish	22	9	41
		English	25	9	36

five children who have been investigated. Data from the two children analyzed in Volterra & Taeschner (1978, cf. also Taeschner 1983) and from the child Manuela from the studies conducted by Deuchar & Quay (1998, 2000; cf. also Quay 1995) are also included.

Let us first look at the absolute number of translation equivalents. Jan is the child with the most words found in both languages, namely 83 pairs of equivalents. Jan's two lexicons are the biggest, with respectively 237 words in German and 187 in Italian. This may depend on his age, since the period studied extends until age 2;7,28. Lukas is the second on the rank of translation equivalents found. There are 46 words found to be doubled, hence 46 in each of the two lexicons. Carlotta, Aurelio, and Marta have a similar number of translation equivalents, namely, around 20 words. The three children from the other studies have clearly fewer translation equivalents, that is, below 10 words. This may be due to data collection procedures, or to age. Unfortunately, my data and the data from Taeschner (1983) and Quay (1995) involve different time spans, since data collection started later in the children investigated here. However, here a longer period was analyzed. This could have had an impact on the total number of translation equivalents. One can hypothesize that the older a child is, the bigger his/her lexicon is, the more translation words should be found.¹⁴ The importance of translation equivalents decreases with age, in the sense that the earlier one has evidence for them in the data, the clearer language differentiation can be stated.

In a working paper, I compared three of the children (Carlotta, Lukas, and Jan) with the children from the other studies, but only using data until 2 years (Cantone 2002). The data confirm the existence of equivalents from the first recording analyzed. Despite the number of translation equivalents, which was lower, the tendency shown by the percentages was the same. That means, the difference between the two languages in each child was comparable to the one stated here, for example, Carlotta already had a lower percentage of translation equivalents in Italian at around age 2, whereas Lukas and Jan both had a higher percentage of translation equivalents in the Italian lexicon. In the following, some examples of translation equivalents in the five children are given.

(49a)	Carlotta:	dapud =kaputt	-	rotto	<i>broken</i>
		mund	-	bucca =bocca	<i>mouth</i>
		rot	-	rosso	<i>red</i>
(49b)	Lukas:	hand	-	mano	<i>hand</i>
		löbe =löwe	-	leone	<i>lion</i>
		saft	-	socco =succo	<i>juice</i>
(49c)	Jan:	ja	-	sì	<i>yes</i>
		hier	-	qui	<i>here</i>
		auch	-	anche	<i>also</i>
(49d)	Aurelio:	wasser	-	acqua	<i>water</i>
		kekse	-	biscotti	<i>cookies</i>
		nei =nein	-	no	<i>no</i>
(49e)	Marta:	ball	-	palla	<i>ball</i>
		bär	-	orsetto	<i>bear</i>
		sase =katze	-	gatto	<i>cat</i>

As becomes evident, the equivalent words found belong to all kind of categories, for example, nouns (*mouth, juice, ball*), and adjectives (*broken, red*). Almost all children had the equivalents for *yes* and *no*, for deictic elements like *here, there, this*, and for elements like *more, also*.

Let us turn to the percentages of translation equivalents. Given that the number of translation equivalents must be the same in both languages, but that dividing it by a higher base (the number of words contained in the lexicon), a smaller percentage will result, I claim that the percentage of translation equivalents gives evidence for the development (in terms of lexical items acquired) of the two lexicons at this stage. Furthermore, the difference between lexicon size and translation equivalents will bring to light different types of bilingual learners, that is, bilingual children use different strategies in order to develop their two languages. Some children may concentrate more on the development of one language, rather than the other. This has an impact on the quantity of words contained in each lexicon. Whether this is a consequence of language preference or of language dominance cannot be fully answered here. It seems plausible, however, that this is indeed evidence for language preference. Some children seem to build up their lexicons with different words, so that only a low number of translation equivalents show up, simply because it

is not the child's strategy to have doublets yet. This is only a hypothesis, which cannot be confirmed, since the data do not (and cannot) provide information about how the children build their lexicons. The unequal development of the lexicons can only be interpreted by assuming that the child concentrated more on one language.

In the three children from the other studies, the percentage of translation equivalents differs only minimally (cf. the last column in Table 6.7). In Manuela, there is a 5% difference between her Spanish and her English,¹⁵ in Lisa and Giulia respectively 4% and 2% in their Italian and German. In the children analyzed here, the picture looks different: The percentage of translation equivalents between the two languages differ between 7% and 44%. Jan and Lukas have a bigger lexicon in German, and therefore a higher percentage of translation equivalents in Italian. Given that the two lexicons do not considerably differ at this period, the percentages also differ minimally (7% and 8%). In Carlotta and Aurelio, the Italian lexicon is much bigger (almost 100%) than the German one. The percentage of translation equivalents is different between the two languages, too. In Carlotta, it amounts to 13%, in Aurelio 17%. Marta is the child with the most eye-catching difference: Her Italian lexicon is more than three times bigger than her German one in this stage of language acquisition. This results in 62% of translation equivalents in her German lexicon. That means, out of 32 words, 20 are available in both German and Italian. The percentage of translation equivalents depends directly on the base number of words contained in the lexicons, hence they depend on lexicon size. However, as mentioned above, the percentage also has to do with a learning strategy. Eventually, for reasons of economy, a child does not want to acquire a word in both languages at the same time. S/he can just concentrate on acquiring different words. Looking at the absolute number, this is what Carlotta, Aurelio, and Marta seem to do. Only around 20 words are available in both languages. Interestingly, all three can be considered to have Italian as a preferred language, which at this point is also the SL. It seems that they have different domains in which they speak the two languages. With respect to Lukas and Jan, they both have German as a preferred language, which also becomes visible in the size of the German lexicon. Nevertheless, the two languages are not as different with respect to the

percentage of the translation equivalents (which, recall, are the highest ones). It is worth noting that in the homes of Lukas and Jan German is the family language, whereas in the other three children Italian is more present at home. This brings to light that both the amount of *language input* and the language spoken in the close environment (the environment's *preferred language*) seem to have an impact on the children's language development.

Now, we should have a look at the two lexicons in each child. In order to make it more clear how the two languages are related to each other, the absolute number of words in each lexicon are put together in one figure per child. The percentages show the relation between Italian and German in each child. Of course, the claim is not that the words are stored in **one** lexicon. The figures are meant to depict a hypothetical spot in the brain, shared by the two *discrete* lexicons. The words contained in each lexicon are just summed in order to emphasize the relation between the sizes of the two lexicons (figure 6.11).

The figures 6.11(a)–(e) clearly depict different types of strategies: In three children, the difference between the two lexicons amounts to more than 60% vs. 40% or less. Interestingly, these are the children whose Italian lexicon is bigger than the German one, namely Carlotta, Aurelio, and Marta. They are also similar with respect to the amount of translation equivalents, being the children who have the lowest absolute number of equivalent words in the two lexicons. In sharp contrast, Lukas' and Jan's two lexicons have a similar amount of words, resulting in similar percentages (56% in German and 44% in Italian). It is important to point out that this holds only for the early stage of language acquisition. Later, Lukas will refuse to speak Italian, and his German will become stronger. Similarly, Jan's German predominates in later stages.

Deuchar & Quay (2000) studied the lexical development in the child Manuela, calling her lexicon a *bilingual lexicon* and matching both English and Spanish words in it, so that no language-specific difference between the percentages of translation equivalents becomes visible. If we put together all words in one hypothetical *bilingual lexicon*, and consequently double the number of equivalents (being them *pairs*), surprisingly, now all children discussed in Table 6.7, except for Lisa and Raivo, have similar percentages of translation equivalents, ranking

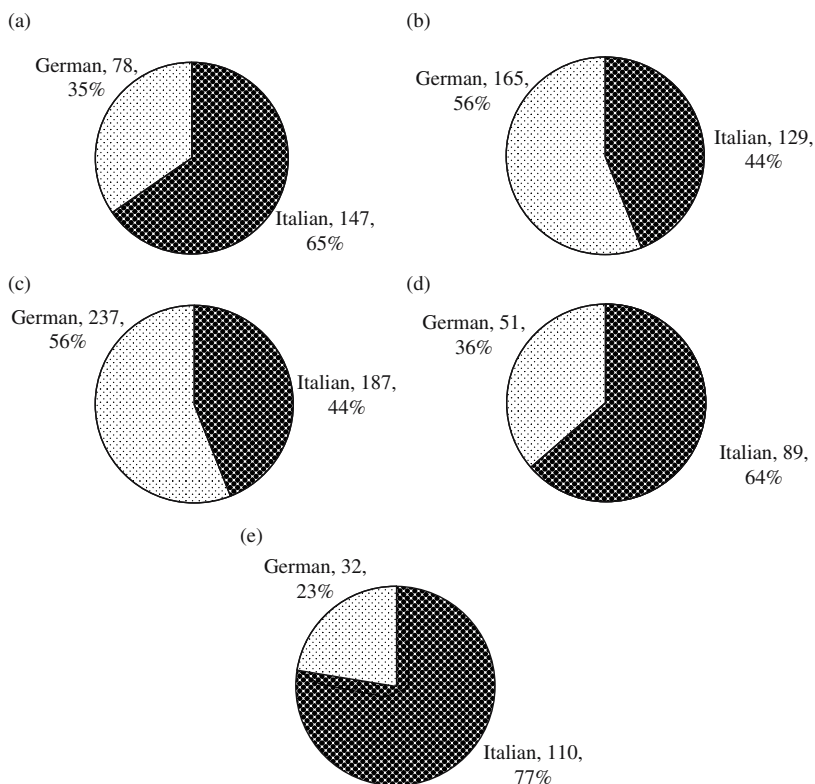


Figure 6.11. (a) Carlotta's *two lexicons*; (b) Lukas' *two lexicons*; (c): Jan's *two lexicons*; (d) Aurelio's *two lexicons* (e) Marta's *two lexicons*

between 19% and 39%. Put differently, if one ignores the discussion about one vs. two lexicons in bilingual children, but only concentrates on the acquisition of lexical competence, the result is that, independently of age and lexicon size, at least a quarter of the words in bilingual children are available in both languages. This is summed up in Table 6.8.

Before concluding this section, I would like to make some remarks with respect to data collection. It is of crucial importance to follow strict rules in collection procedures, otherwise the results may be affected by external factors. In particular, in studying language acquisition in bilinguals, one has to guarantee separated language contexts in order to

Table 6.8. Equivalents in the so-called *bilingual lexicon*¹⁶

Child	Age	Number of words in so-called bilingual lexicon	Number of equivalents	% of equivalents
Carlotta	1;10,8-2;2,19	225	46	20
Lukas	1;8,14-2;1,23	294	92	31
Jan	2;1,3-2;7,28	424	166	39
Aurelio	1;10,23-2;1,23	140	40	28
Marta	1;7,10-2;0,16	142	40	28
Lisa	until 1;11	64	6	9
Giulia	until 1;6,5	73	14	19
Manuela	until 1;5,13	47	18	38
Raivo	1;1-1;10	113	?	59
Ivar	until 1;8,8	83	?	25

clearly define the base language (Grosjean 1998, 2001). The present data were collected following several criteria concerning the base language. In fact, the language of the context can easily be determined, and consequently, language mixing can be precisely detected. With respect to the analysis of translation equivalents, two claims should be made: Firstly, since both language contexts were mostly filmed in the same room, and one after another, the same toys were used in the recordings. Hence, it was easy to find equivalents even in the same recording number. Secondly, I do not adhere with De Houwer (1990) and Deuchar & Quay (2000) and their strict selection methods regarding what to consider as an equivalent. Both studies consider a word to be an equivalent only if it is clearly used referring to the same object. I do not think this to be a necessary condition. Consider for example the noun *juice* in Lukas: It is argued that *socco* (=succo) and *saft* are translation equivalents, although they could have referred to different glasses or types of juice. The present data do not corroborate Taeschner's (1983) idea that objects may have different words according to the owner. There is evidence that the children refer to objects with respect to the language context which has been established by the interlocutor, although at a later point. See the following discourse.

- (50) Na: wie heißt es auf italienisch carlotta?/ =refers to pancake
how is it called in italian carlotta?
 Ca: pane bianco/
white bread
 (...)

 Na: wie heißt es denn auf deutsch ? /
how is it then called in german?
 Ca: waffel/
pancake (Ca, 2;9,25, GC)

In sum, translation equivalents are found in all children, although to a different degree. The percentage of equivalent words depends on the size of the monolingual lexicons, that is, the smaller the lexicon the higher the percentage of translation equivalents. According to Clark's *Principle of Contrast* (1987), it is stated that the existence of translation equivalents is evidence in favor of language differentiation from the beginning of language acquisition.

6.4 IS MIXING DUE TO AN UNEQUAL GRAMMATICAL DEVELOPMENT?

Several studies on bilingual children with an unequal development of the two languages have reported that structures from the more developed language are used/transferred into the less developed language, that is, the weaker one.

The *Bilingual Bootstrapping* (Gawlitzeck-Maiwald & Tracy 1996) and the *Ivy Hypothesis* (Bernardini & Schlyter 2004) both claim that bilingual children take advantage of the *faster* language. This occurs either when in one language a specific structure is acquired earlier than in the other one, in that this language might have a *booster function* with respect to the acquisition of the same structure in the other language. Or it occurs when a language is stronger than the other one, and thus develops faster. In both cases, mixed utterances will provide evidence for the fact that children fill the gaps in one language by using the structure they have already acquired in the other language (Gawlitzeck-Maiwald & Tracy 1996). The utterances in (1)–(3) in chapter 2 have shown that the

English/German bilingual girl Hannah takes advantage of already having acquired the IP in German, whereas in English she only has a bare VP. According to Gawlitzek-Maiwald & Tracy, she mixes an English IP into a German utterance. The authors claim that these sort of mixes only occur during the phase in which a specific structure has already been acquired in one language but not in the other. In the data analyzed by Bernardini & Schlyter (2004), the structure is always more developed in Swedish than in French (cf. chapter 2, examples (4)–(6)). Hence, when there is a DP, the determiner comes from the faster language, Swedish, whereas the noun comes from French. When the DP has been acquired in French, the IP is already there in Swedish. In the same vein, when the CP becomes available in the SL, it is mixed into the other language, which can only project an IP.

In contrast to the mixes discussed so far, which only concerned aspects of the lexicons, these types of mixes strongly involve the grammar of the two languages. The prediction made by these studies is that these mixes only occur if one structure is acquired earlier/faster in one language than in the other. The reason why is not so important for the present work, since neither the unequal development in the two languages of bilinguals, nor the acquisition of specific structures in the two languages (e.g., if the IP is acquired earlier in Italian compared to German) are studied here. By contrast, the present study aims at explaining why language mixing occurs at all. Nevertheless, in order to test if the children investigated here show instances of *booster* or *ivy effects*, one first has to account for the acquisition/appearance of the functional projections DP, IP and CP in the two languages of the children.

Cantone & Kupisch (2003) analyzed all instances of D and I in the children Carlotta, Lukas, Jan, Aurelio and Marta (for the acquisition of the DP, cf. Kupisch 2006). The criterion in order to consider the use of determiners as productive is the use of three different nouns with at least two different determiners. The productivity of the IP was determined according to the use of three different verb types with at least two different finite endings. Table 6.9 reports the emergence of DP and IP in Italian and German.¹⁷

As depicted in the last two columns, in some children there is a considerable time span (called *Critical period*) between the emergences

Table 6.9. Emergence of DP and IP

Child	Emergence of				Critical period	
	DP-Ital	DP-Ger	IP-Ital	IP-Ger	DP	IP
Carlotta	2;2	2;3	2;0	2;1	1 month	1 month
Lukas	2;0	2;4	2;1	2;2	4 months	1 month
Jan	2;3	2;1	2;3	2;1	2 months	2 months
Aurelio	2;1	2;8	2;2	2;7	7 months	5 months
Marta	1;10	2;0	1;11	2;4	2 months	5 months

of the functional projections DP/IP in the two languages. In the spirit of Gawlitzek-Maiwald & Tracy (1996), this is exactly the period in which the mixes mentioned above should occur.

With respect to the question of language imbalance, recall that at this stage Carlotta is considered to have a slight preference for Italian, Lukas is regarded as having a balanced language development, whereas Jan, Aurelio, and Marta are considered to have a SL: Jan's is German, Aurelio's and Marta's is Italian. Along these lines, Carlotta could mix the Italian DP into German between age 2;2 and 2;3, and the Italian IP between 2;0 and 2;1. As a matter of fact, this is an extremely short period for verifying if mixes of this type occur. This also holds for the emergence of the IP in Lukas. In the other cases, the critical period between the emergences of functional projections lasts between 2 and 7 months. In particular, the two children with Italian as the SL have a considerable gap between the emergence of IP in the two languages (5 months). Additionally, Aurelio's Italian DP emerges 7 months before the German.

Let us turn to the analysis of the mixed utterances in the relevant critical period. Since in some children not all functional projections in the two languages emerge during the ES, later mixes are also included. It has been checked whether mixes of the type presented above occurred during the period before the DP and the IP have been acquired in both languages.

The result is that no instances of language mixing involving functional categories which have not been acquired in the other language and no

cases of booster effects have been found in the present data. In the ensuing, some examples illustrate some mixes in this early stage of language mixing.

- (51) carlotta hat nicht gelati carlotta
carlotta has not ice-creams carlotta (Ca, 1;11,27, GC)
- (52) è ei quello
is egg that (one) (Ca, 2;0,11, IC)
- (53) un schiff
a boat (Lu, 2,1,23, IC)
- (54) guck, pada = spada
look sword (Au, 2;1,9, IC)
- (55) chudo chuda bagger =chiudo, guck mal
close (I) look here dredge (Au, 2;1,23, GC)
- (56) mh, il fernsehn
mh, the television (Ja, 2;4,15, IC)

As already discussed, the children mostly mix single elements during the ES, for example function words, nouns, and some verbs. For example, Carlotta mixes single nouns in both languages, as in (51) and (52). In both cases, no determiner accompanies the noun, so that no evidence can be drawn for mixing between the functional category and the noun. Additionally, the data do not provide an example of an Italian IP accompanied by a German DP. As Table 6.9 illustrates, there is a 4 month gap between the emergence of DP in Italian and German in Lukas. Hence, in this critical period one could expect mixes involving an Italian determiner and a German noun, as in fact occurs in example (53). There are five more cases of mixing between D and noun. However, I do not think that this provides convincing evidence for one of the above-mentioned strategies. As a matter of fact, these mixes all occur in the Italian context. It seems obvious to interpret these cases as mixing a German noun into Italian rather than using an Italian functional category because the German one has not emerged yet. Hence, these examples are not convincing, since the utterances occur in the Italian recordings. Only if one found mixes of this type in the German context, would they be regarded

as cases of taking the construction of the more developed language into the less developed one. But no cases like these occur during the German recordings.

In Aurelio, there is a 7 month gap between the emergence of the Italian and the German DP. Interestingly, no instances of language mixing between an Italian D and a German noun in the German recordings have been found during this period. Again, in the Italian recording we find such an instance of mixing between an Italian determiner and a German noun, namely, *un lofel* (= *löffel*, a spoon), at age 2;7,30. Again, this provides no evidence for one of the above-mentioned strategies.

With respect to the IP, there are several mixes involving the German *guck* (see) in the Italian recordings in Aurelio, as exemplified in (54). One case in which an Italian verb is mixed into German (example (55)) occurs. This is in accordance with the fact that the Italian IP already emerges at 2;2 in Aurelio, whereas the German IP only emerges 5 months later. Neat as it appears, this single example does not provide convincing evidence in favor of using an Italian structure in German. In fact, looking at Aurelio's age when he utters this sentence, this is before the German IP emerges, but it is also before the Italian IP is shown to be used productively. Finally, (56) states that Jan mixes a German noun into Italian. Given that this sentence is uttered after both the Italian and the German DP has emerged, hence after the critical period, it supports neither the *Bilingual Bootstrapping* nor the *Ivy Hypothesis*.

There is a further outcome of the analysis of possible grammatical mixings in the five children. Meisel (1994) and Köppe & Meisel (1995) point out that there is both a quantitative and a qualitative change in mixing as soon as the onset of syntax can be detected, that is, at approximately age 2;0 (cf. also Veh 1990). The authors' assumption is based on the fact that grammar develops in children. In the early stage of language mixing, a proto-grammar without functional categories is supposed to constrain child speech. Subsequently, early mixing will also be unconstrained, at least syntactically. The number of mixes is said to decrease as soon as grammar has been instantiated. At the time INFL and other functional projections show up in the child's grammar, mixing will become more adult like, for example, mixes might occur between a verb and its complements.

In some critical remarks in the last chapters, I already pointed out that I do not agree that there is a qualitative change in children's mixing. In the spirit of a *structure-building approach* (cf. Clahsen, Eisenbeiss & Penke 1996), here it is assumed that functional projections emerge as soon as children acquire functional elements. If this is the case, then the lack of functional projections only depends on the fact that the items have not been acquired yet, and not that grammar has to mature. As will be shown in the next chapter, mixing involving functional categories occurs independently whether children have instantiated grammar or not. It rather depends on an individual choice, that is, the children who mixed a lot at the early stage, continue doing so later, too. This point is independent of the theory the analysis is grounded on. It is an objective observation that some children mix within functional projections and others do not. Even after being capable of projecting functional structure, some children still only mix single elements like nouns, adjectives, or some verbs. By contrast, others will mix at any boundary in an utterance.

I would like to outline that the amount of mixing is not correlated to the onset of grammar. In fact, there is no stage of high mixing in all the children studied here except for Lukas. Given that there is no high mixing stage, it cannot explain the onset of grammar. The claim expressed here is that grammatical development occurs without having an impact on both quantitative and qualitative aspects of language mixing.

6.5 AN ALTERNATIVE EXPLANATION: SELECT

Since all the discussed approaches only partly explain language mixing during the early stage of language acquisition, I want to pursue an additional explanation which has recently been proposed. Cantone & Müller (2005) study early mixing in four bilingual children until the age of 2;6.¹⁸ In the spirit of Roeper (1999), the authors posit that a mix like *questa sonne (this sun)* might have the same status as *questa è una sonne (this is a sun)*, despite the fact that the first utterance lacks some elements. Hence, mixed utterances are similar to monolingual utterances

at this stage of early language acquisition, in the sense that they both are constrained by the same syntactic principles. Cantone & Müller claim that the operation *Select* might be vulnerable in child language. Given that *Select* is responsible for picking up words from the lexicon, it plays an important role when it comes to a mixed utterance (MacSwan 1999, 2000).

As a matter of fact, a mixed utterance is the outcome of *Select* picking words from both lexicons, and not only from one (which, by contrast, results in a monolingual utterance). Along this line, *readiness* to speak a language, that is, language *fluency* (measured by the total number of utterances per recording) is said to be related to language mixing. Since readiness to speak has to develop in children, all bilingual children will mix at the beginning, independently of whether there is evidence for a SL or not. As soon as *fluency* is achieved in the respective language, mixing will decrease. In this sense, *Select* must master the interaction with language-external factors, namely, choosing the language in accordance with the context.

In order to provide evidence for this assumption, Cantone & Müller correlate the percentage of mixed utterances in all four children with the total number of utterances for all recordings (in all children) until the age of 3. They predict that a low number of utterances (which hence reflects a low level of readiness) makes mixing more likely to occur (since *Select* has no routine in picking items from the lexicon). In contrast, a high number of utterances (hence, a high level of readiness) will go along with a low number of mixes (because *Select* is practiced to pick items). The result is that mixing clearly decreases the higher the total number of utterances. Moreover, the authors statistically measured the correlation between the two variables *total number of utterances* and *percentage of mixes*, with both negative and significant results (correlation $-0,475$, significant at the 0,01 level).

In sum, the study by Cantone & Müller attempts an explanation of language mixing in young bilinguals which is grounded on performance factors rather than on language-internal ones. This approach seems to be a very promising one since it does not point out deficits in child speech, but gives prominence to the development of the ability to speak.

As pointed out by the authors, further research should investigate more precisely the notion of *fluency*.

6.6 CONCLUSIONS

This chapter analyzed the *early stage* in the Italian/German bilingual children Carlotta, Lukas, Jan, Aurelio, and Marta.

With respect to mixing, the children differ quantitatively. According to descriptive criteria, Carlotta and Aurelio have a stage of mixing in both languages, whereas Lukas and Jan only mix in the Italian and Marta in the German context. Nevertheless, the children are quite capable of addressing the interlocutors in the correct language, that is, the language of the context.

A further analysis reveals that if we account for the mixes in terms of types and not of tokens, an early stage of mixing disappears in all the children but Lukas. Some children do mix to a certain extent, but never more than 10% in the whole period examined. I claim that they will do so throughout the study, that is, that the percentage of mixing will stay constant at a later stage, too, and that is not correlated to an early stage of language acquisition. Hence, an individual analysis is pursued, and the hypothesis that bilingual children do pass through a stage of high mixing rates which decreases abruptly is disconfirmed.

Analyzing the mixes in a qualitative way, the data corroborate earlier findings on early mixing in bilingual children, in that a high percentage of *function words* among the mixed elements have been found. The children mix a restricted class of words, namely, deictic elements, adverbials, particles, numerals, affirmatives/negatives, nouns, adjectives, and verbs. Mixing occurs more into Italian than into German. This is independent of stating a balanced language development or not. A type/token analysis also confirms that only a limited number of items are mixed.

After stating what elements have been mixed, it was tested if equivalents of these words were available. The search for equivalents shows that indeed in several cases no equivalent words were in the corpus. Moreover, several equivalent words to a mixed item were acquired later. These cases provide evidence for a lexical gap and hence for the need to

mix. However, in 19%–78% of the cases equivalent words were available. I therefore argue that *lexical need* can only be the reason for some mixed items.

After looking at equivalents to mixed words, the two *monolingual* lexicons in the five bilingual children have been analyzed. The goal was to show that the children develop two discrete lexicons which might store some translation equivalents. The data confirm the existence of translation equivalents from early on, rejecting the idea of a unitary lexicon. The children differ slightly with respect to the number of translation equivalents. Some seem to concentrate on building two lexicons with different words, others seek for doublets. The data were also compared data with data from other studies. The results show that in all children at least a quarter of the words in the two lexicons are translation equivalents.

Finally, it has been investigated if mixing was related to the development of the two grammars. No evidence corroborates the assumption that the less developed language takes advantage of the more developed one. In addition, no cases in which a structure which has already developed in one language was transferred into the other language have been found. The claim that the decrease of mixing in young children is related to the emergence of functional projections is also not corroborated by the present data.

The last approach discussed relates mixing to readiness to speak a language. Pursuing this line of inquiry, language mixing at this early stage is regarded as the lack of practice of the operation *Select* to pick up items from the correct lexicon according to the language of the context. As soon as the child becomes more fluent in speaking (the assumption is that fluency develops with age), *Select* stops choosing items from the incorrect lexicon, at least at this high percentage of cases. The underlying idea is that mixing is due to language-external, performance factors.

NOTES

1. The first two recordings have been excluded from the analysis because several people were present. There is no Italian recording at age 2;0,25.
2. An overview of the percentages of mixing in each child is given in the appendix.

3. Interestingly, this is the highest percentage of mixing in the whole Italian data of Carlotta.
4. This is the second recording. The first one was excluded because it was a test recording.
5. The analysis starts with the second recording, since the first one was a test.
6. Particles are for example *auf, aus, ab, rein, weg*.
7. Percentages are drawn by summing all mixed elements in the ES.
8. Carlotta says *dove* (where); Aurelio utters *basta* (stop it); Marta uses the pronoun *si* (one).
9. At least, no definite article has been mixed. The few occurrences of indefinite pronouns are categorized as numerals (Müller 1999, Cantone 1999).
10. The word has no ending, making it very similar to the German equivalent *ball*.
11. Again, Marta's data are excluded, because there is only one mixed item during the whole ES.
12. I am aware that one can only discuss the data produced during the recordings. No predictions can be made of what has not been recorded. However, it is not my intention to report each child's cumulative vocabulary. Plus, I am concerned with language production rather than comprehension.
13. Table adapted from Quay (1995:372).
14. In fact, this is what Deuchar & Quay (2000:57, figure 4.1 and table 4.1) state.
15. Interestingly, Manuela's percentage of translation equivalents is similar to the percentages found in the present analysis, for example, in Jan.
16. Results from Deuchar & Quay (2000), Vihman (1985), and Köppe (1997) included.
17. Cf. also Table 1 in Cantone & Müller (2005). The emergence of the CP has not been studied yet.
18. The children are Carlotta, Lukas, Jan and Aurelio.

THE ANALYSIS OF CODE-SWITCHING

This chapter is concerned with the primary contribution of this work, which consists in providing evidence for the grammaticality of code-switched utterances coming from bilingual children. The underlying idea is that as long as language-specific requirements are respected, all kind of mixes will be felicitous.

In chapter 4, several accounts regarding CS constraints have been presented. In contrast to this, MacSwan (1999, 2000, 2004, 2005a,b) proposes that in code-switching no *third* grammar is required. Mixing has to be considered as the interaction of two language-specific lexicons, containing items which carry features. These features have to be respected in the course of the derivation. If this is followed, then all kind of switches are well-formed. If feature checking is not successful, and if the derivation crashes, then the consequence must be the ungrammaticality of the mixed utterance. Only what is allowed in *monolingual* grammar will be allowed in code-switching.

The foregoing chapter was concerned with language mixing in the early stage of language acquisition. The main research agenda for this stage was to find out why the children mixed these elements. A crucial point was that mixing is an individual strategy, which might be connected to either different strategies in acquiring and using the two languages, or to external factors as parental input or exposure to the single languages, but not to the idea that all children pass through a stage of high mixing rates.

The children investigated here are all exposed to both languages during the period studied. The parents claim to follow the *one person one language strategy*. In addition, the filming methods do not change during the data collection period. Along these lines, no apparent external event influences the children, at least with respect to data collection.

Since this study does not provide any psycho-linguistic analysis, the foregoing statements only reflect an impressionistic view of the linguistic situation. It is not the aim here to discuss *why* mixed utterances occurred, but rather to see at which boundary within the sentence they occurred and if they can be considered as felicitous.

The present chapter introduces code-switching in the five children from approximately age 2;6 onwards. The findings will be described, and an analysis which accounts for their grammaticality is provided. Looking at quantitative and qualitative aspects of the data, the following questions regarding quantitative aspects are addressed: To what extent do the children mix in comparison to their monolingual production? Do some children mix more than others? Does mixing depend on the language context?

Furthermore, answers to the following questions concerning qualitative aspects of code-switching are provided: Do the switches reflect the code-switching constraints proposed in the literature? Are language-specific grammatical constraints respected? How can conflicts in different language-specific requirements be overcome (e.g., word order, gender) in mixed utterances?

The data will show that mixes occur at any boundary in an utterance, a result that does not corroborate the existing constraints on code-switching (cf. also Cantone 2005). The analysis of specific aspects of the two grammars involved in the data, namely, German and Italian, confirms that the mixes follow language-specific rules and thus are felicitous, in the spirit of MacSwan's (1999:146) proposal:

- (e) Nothing constrains code switching apart from the requirements of the mixed grammars.

In particular, the influence of functional categories in mixed utterances will be discussed. In a further step, predictions are made about what influence the selection of a functional element has on the mixed utterances. In doing so, mixes involving the CP, the TP and the DP domains are analyzed. Recall the working claims formulated in the research design:

- (g) C^0 determines the features of the code-switched complements
 (h) T^0 determines the features of the code-switched complements
 (i) The switched noun determines the gender of the determiner

I assume that the language of the lexicon the functional element comes from is crucial in order to determine on which language-specific rules the utterance is based (Chan 2003). More precisely, I argue that the language of the highest functional category has a strong impact on the projections below, in that they will be from the same language, at least covertly. Consequently, if the Italian item C^0 is picked by *Select*, it projects an Italian type of CP, and then an Italian type of TP. Along these lines, in T^0 features belonging to the Italian grammar must be successfully checked, independent of T^0 being filled with an Italian or a German item (claim (g)). This claim is fully corroborated by the data involving the CP. The data concerning the TP show that claim (h) cannot be maintained in full. As a matter of fact, the mixed utterances analyzed indicate that what occurs within the VP is independent of the language of T^0 . With respect to the DP (claim (j)), I assume that the language of the lexical head N is crucial, whereas the determiner does not play an important role, at least not in the language-pair studied here.

The notion of a base language in CS has been widely debated in the last years. It is important to determine a base language on which to check if indeed language-specific rules are respected in CS. The question is whether to define base language using psycho-linguistic aspects (e.g., the language of the context), or based on grammatical aspects. With respect to the latter case, several accounts have been put forward, for example, to count the number of specific morphemes, as in the *Matrix Language Model*, or to take the language of the head of each CP as the base language. In the present study, the base language is defined according to psycho-linguistic aspects, namely, it is the language of the interaction. This is easy to determine since data collection procedures occurred by dividing the interaction with the children in two separate parts, one with the Italian interlocutor (Italian context), the other with the German adult (German context). This allows us to differentiate between *intra-sentential* and *inter-sentential* code-switching. The latter, which is not the focus of the present study, is when the child addresses the other interlocutor, that is, the one that is not participating in the recording.

In analyzing the single instances of mixings, it is necessary to state which language is the base language in the specific case. If one wants to claim that code-switching is allowed only when the two grammars of the

languages involved are respected, the most interesting cases for checking this claim are the ones in which the grammars do not overlap but have different rules, for example, word order between adjective and noun in Italian and German. In German, adjectives usually precede the nouns, whereas in Italian they are in a post-nominal position, cf. *das rote Haus* (the red house) vs. *la casa rossa* (the house red). A switch at this boundary could be for example, *das rossa haus*, assuming that the adjective has been switched into a German DP. Such a switch is disallowed by the *Equivalence Constraint* (Poplack 1980). In order to provide evidence that the switch follows grammatical requirements, we have to decide which grammatical constraints have to be followed, namely, the Italian or the German ones.

For this purpose, the role of functional categories will be analyzed, because I claim that they determine the base language for the grammatical analysis in intra-sentential code-switching. In the spirit of the latest minimalist assumptions about the role of the lexicon (Chomsky 1995, 2000, 2001, MacSwan 1999, 2000, 2004), I take the strongest position and claim that all switches in the data are well-formed. Additionally, I call attention to similar switches found in the literature. Independent of previously having been considered grammatical or ungrammatical, several examples will be discussed and submitted to the present analysis.

7.1 QUANTITATIVE ANALYSIS

Some remarks regarding the analysis of the present data should precede the discussion of instances of code-switching in the five children. In order to differentiate between the ES and a later stage, the following criteria have been applied: the mixed item(s) do(es) not appear in a single-word utterance; MLU-values are higher than two, which guarantees at least two-word utterances; the utterances are complex, for example, there is *visible* evidence for DP, TP, CP.

The decision to split the data into two stages is based on the fact that I am seeking for *visible* grammatical structure in order to check the constraints proposed in the literature on code-switching. Since it is beyond the scope of the present study to look into the nature of the development of the two languages, in this later stage one can safely state that

code-switching is not related to developmental factors. In fact, there is evidence that the functional structures have already been instantiated (and productively used in monolingual utterances) before switches occurred in these domains. Intra-sentential mixes as well as any kind of mixing within an utterance (multiple switching included) will be taken into consideration here. With respect to the first criterion, as already pointed out, no one-word utterances consisting of, for example, deictic elements have been counted. In order to make a grammatical analysis of the restrictions, it seems crucial to avoid such utterances which do not seem to be syntactically constrained. However, this does not mean that they are *not* syntactically constrained.

No inter-sentential mixes have been counted in the study, that means, whenever the child spoke either to one of the parents or to the other interlocutor, the utterance was not analyzed. In the spirit of Grosjean (1998, 2001), mixings to the other interlocutor have been dismissed, too, because the child was not in a monolingual mode anymore. Given that the maintenance of a monolingual mode is one of the main criteria in this study, mixes which occurred in opaque language contexts were therefore ruled out. Fortunately, these problematic cases occurred only a few times. Requested mixes and translations were counted but always labeled as such. An overview of the mixes in each child will now be presented.

7.1.1 *Carlotta*

Carlotta has been investigated from age 2;3,2 to 5;7,24, which is the longest data collection in the sample. In the Italian context, she utters 8.903 monolingual and 212 mixed sentences during the period investigated. The total percentage of mixed utterances is 2,5%. Figure 7.1(a) illustrates that, apart from a few recordings, the percentage of mixing is always under 10%.

In German, 12.444 monolingual and 144 mixed utterances are produced, which results in 1,2% of mixes in the whole period studied. During the ES, Carlotta mixes more in the German context than in the Italian. Later, the contrary is the fact. At least, she mixes less in German. This change might be attributable to the fact that her preference for Italian

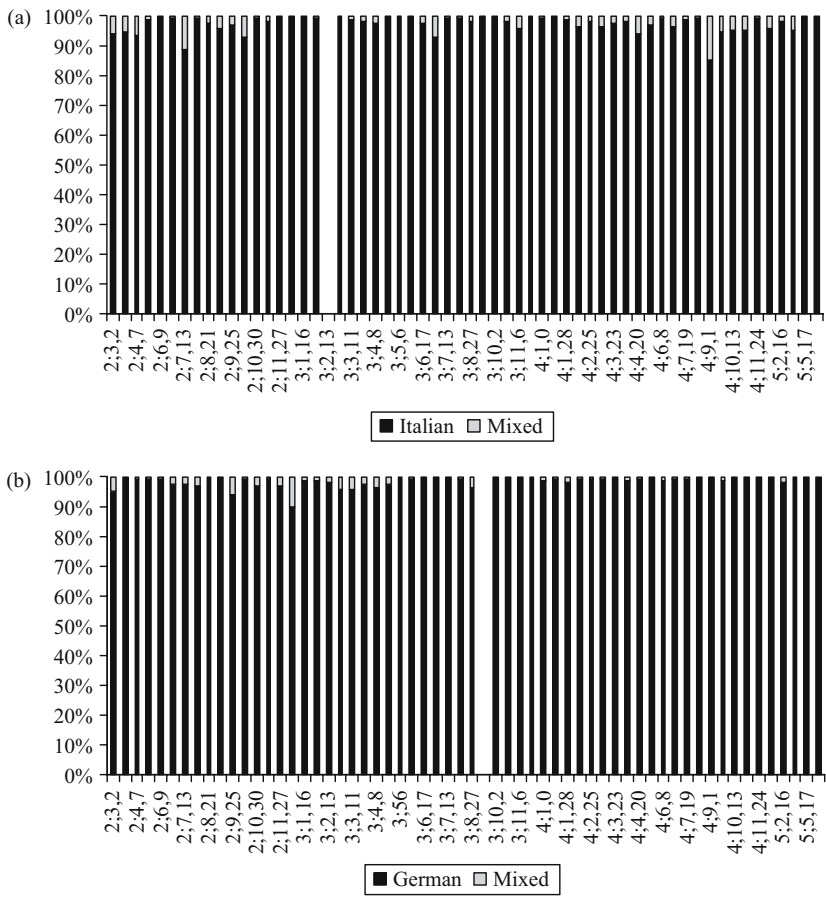


Figure 7.1. (a) Carlotta – Utterances in the Italian context;
(b) Carlotta – Utterances in the German context

ends at around age 3 (Loconte 2001). Going to a German kindergarten also might have reinforced her German.

7.1.2 Lukas

In Lukas, the analysis starts at age 2;3,6 and ends at 4;5,11. There is a period in which he almost refuses to speak Italian (age 3;3,23 to

4;1,20). This leads to a high percentage of mixing, since he mixes when playing with the Italian interlocutor. Lukas utters 5.578 Italian and 714 mixed sentences, which is a percentage of 15%. In the German recordings, there are nearly no mixes. He produces 9.188 monolingual and 103 mixed utterances (1,1%) (Figure 7.2). This is illustrated in Figure 6.7 (a), (b).

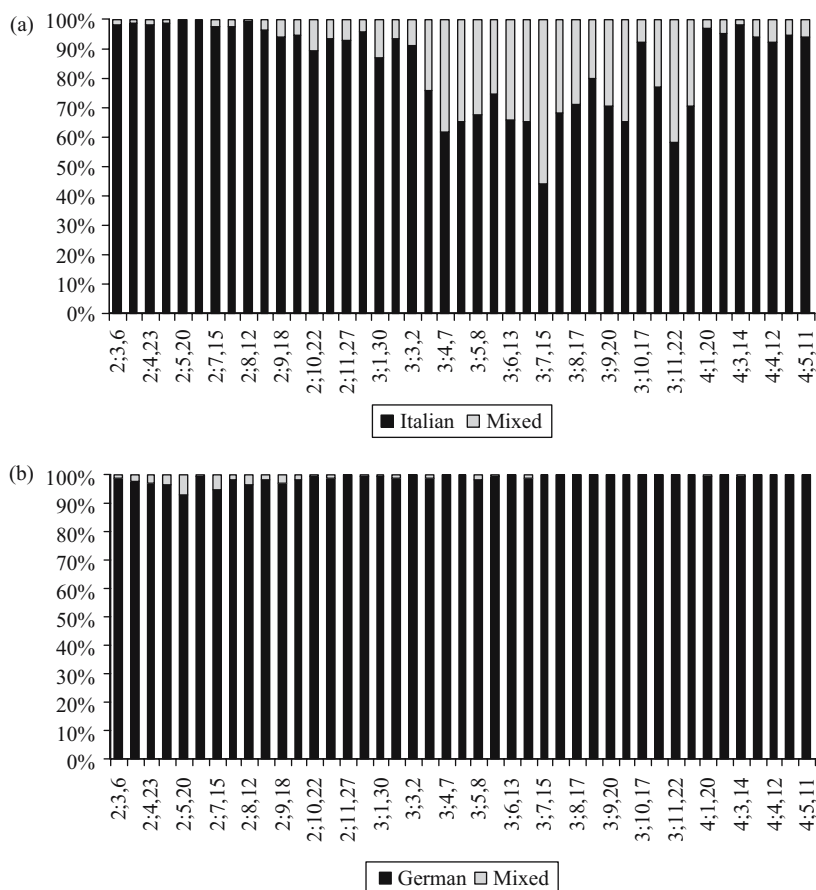


Figure 7.2. (a) Lukas – Utterances in the Italian context;
(b) Lukas – Utterances in the German context

7.1.3 Jan

The investigation of Jan goes from age 2;8,18 to 5;0,8. Similarly to Carlotta, Jan mixes to a low extent in both language contexts (Figure 7.3).

In the Italian context, he produces 5.452 monolingual and 174 mixed utterances, which is a mean of 3,1% of mixings in the whole period studied. In German, he mixes very little, namely in 0,8% of all utterances

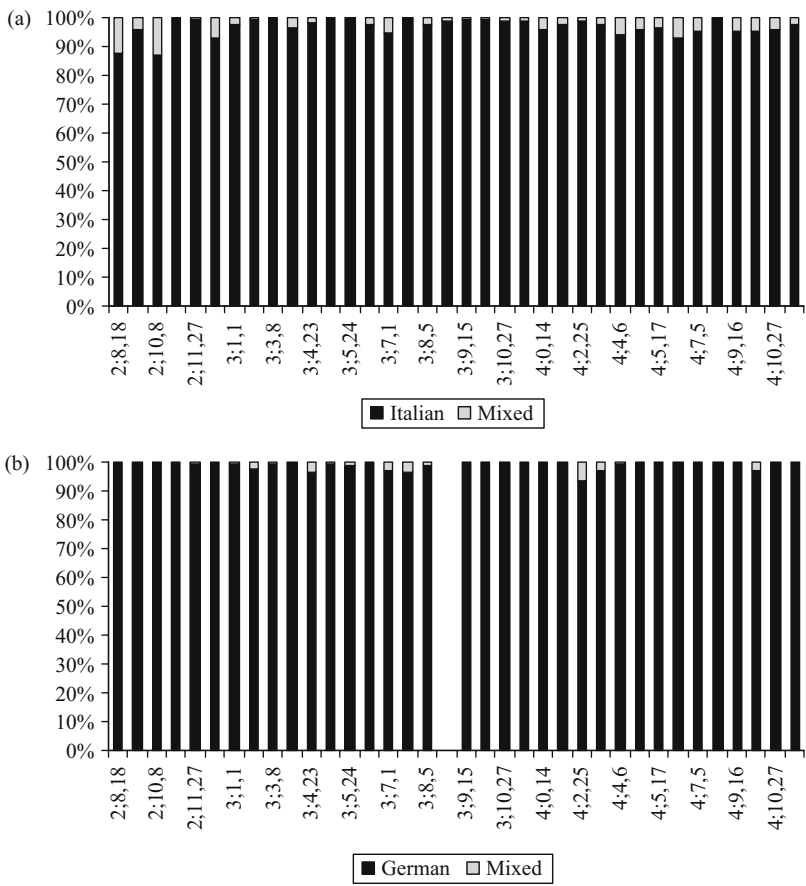


Figure 7.3. (a) Jan – Utterances in the Italian context;
(b) Jan – Utterances in the German context

in this period, the number of monolingual utterances being 7.988 and of mixed utterance 60. Figure 7.3(a),(b) summarize the findings.

7.1.4 Aurelio

The period studied in Aurelio goes from age 2;4,10 to 4;0,28. As reported in the ES, Aurelio still mixes the German elements *ja* and *nein* (yes and

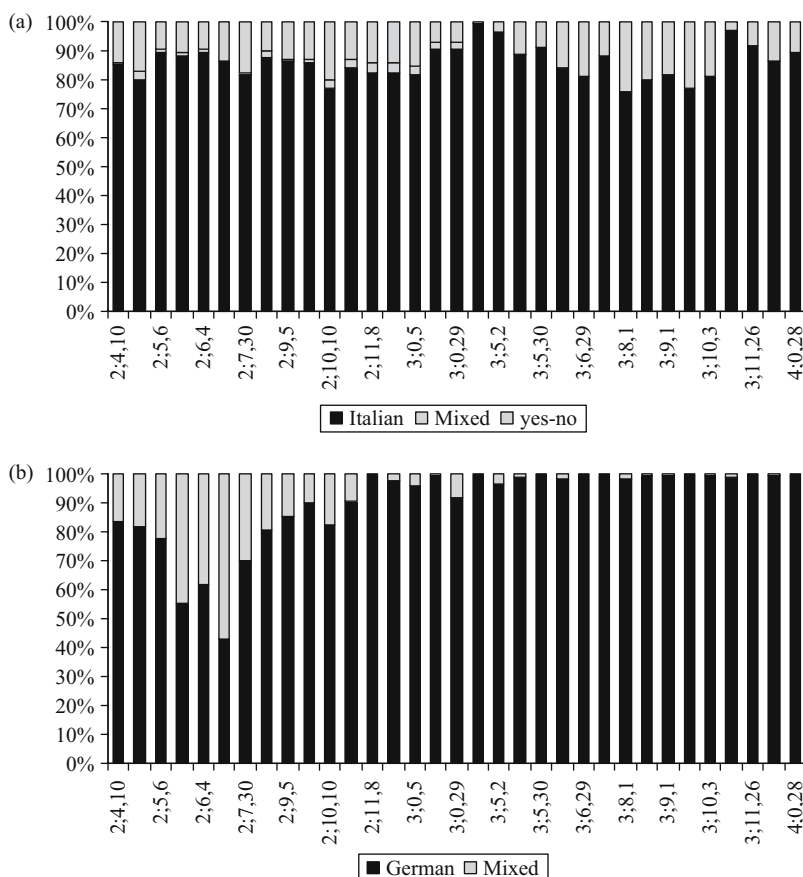


Figure 7.4. (a) Aurelio – Utterances in the Italian context;
(b) Aurelio – Utterances in the German context

no) to a high extent into Italian. They have been counted separately, as depicted in Figure 7.4(a), because we will not analyze them in the qualitative part. Aurelio is the only child who mixes consistently in both languages. In the Italian recordings, 6.472 monolingual and 1.037 mixed (including the *yes/no* mixes) utterances have been produced. This leads to a percentage of 13,9% (32,5% adding the *yes/no* mixes) mixed utterances throughout. In German (Figure 6.9(b)), 4.251 monolingual and 197 mixed sentences have been uttered, the percentage of mixes being 9,8%.

7.1.5 *Marta*

Marta has been investigated from age 2;1 to 4;0,10. In Italian, she produces 6.658 monolingual and 88 mixed utterances, the percentage of mixing being very low, namely 1,3%. Only from age 3;8 on, a percentage of approximately 5% mixes occur in the corpus (Figure 7.5).

In German, Marta produces 6.153 monolingual and 233 mixed utterances. This leads to a percentage of 4%.

7.1.6 *Conclusions*

From Figures 7.1–7.5, I infer that the five children show individual differences with respect to both the amount of mixed utterances (which also differs between the two language contexts) and the elements involved in code-switching. Only Lukas shows the U-shaped development reported in literature. Carlotta and Jan have similar numbers of mixes during the period studied. Marta almost never mixes in Italian. Aurelio never stops mixing in the Italian recordings. No increase or decrease of mixing is visible in his data. After *yes/no* mixes cease, the percentage of mixing remain between 5% and 20% per recording.

In sum, in the Italian context, Aurelio mixes regularly; Lukas has a period in which he mixes at an average of 30%; Carlotta, Jan, and especially Marta mix at a very low rate (1%–3%). In German, Lukas and Jan mix to a very low extent (1%), whereas the others occasionally mix a lot, but not throughout. We can state that all children choose the language according to the context given by the interlocutor.

The number of both monolingual production and mixed utterances do not show any correlation to the issue of language dominance. Carlotta,

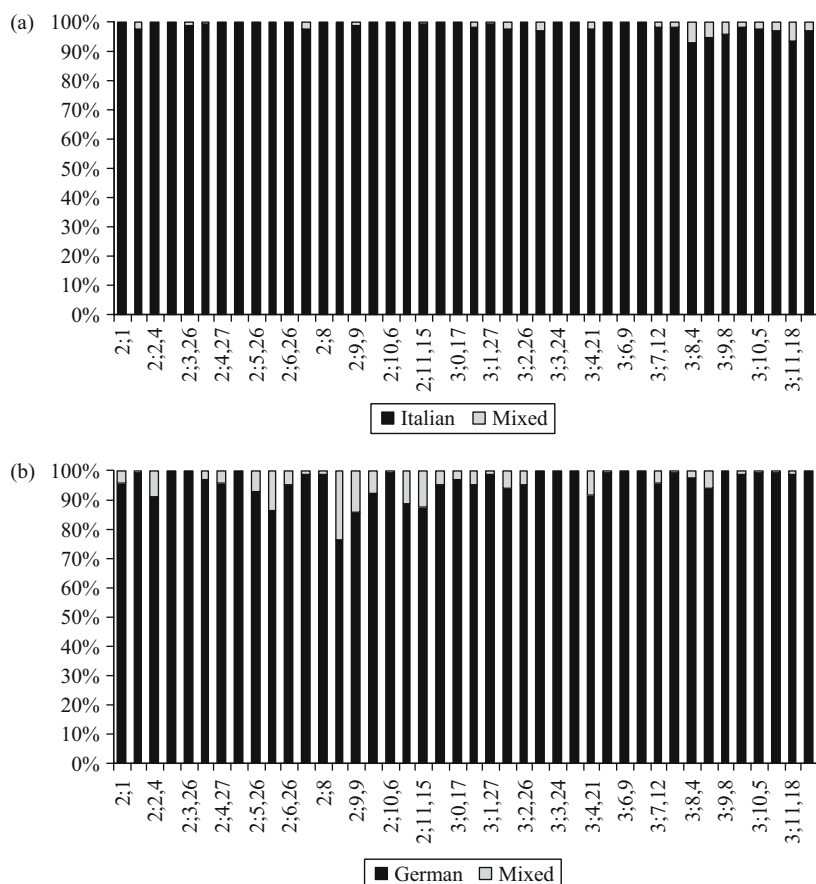


Figure 7.5. (a) Marta – Utterances in the Italian context;
(b) Marta – Mixings in German context

who is said to have a preference for German in this stage of language acquisition, and Jan, whose German is said to be the stronger language, both have a percentage of 1%–3% of mixes in both language contexts. By contrast, Aurelio, who has Italian as the SL, mixes to a high extent in the Italian context. Marta is the only child who fits the argumentation that no mixes occur in the SL, and that words from the SL are mixed

in the language context of the WL. However, it is worth noting that if language dominance indeed has an influence on language mixing, then we should expect the mixing rate to be much higher in Marta's German. As a matter of fact, she only has a rate of 4% for the whole period analyzed. Furthermore, she should mix regularly, which is not the case, since there are recordings with no mixing at all.

I want to outline an important observation. There is no quantitative difference between the ES and this stage. The amount of mixing in each child depends on individual choice. The mixes differ with respect to qualitative aspects, as is shown in the next section. I argue that this qualitative difference is not due to the instantiation of grammar, but rather to the fact that grammar is not visible in the earlier stage. Hence, the argumentation for discussing language mixing by dividing it into two stages is based on a description rather than on a theoretical account.

7.2 QUALITATIVE ANALYSIS

This section discusses the types of code-switching in the five children. The focus is limited on the analysis of the main constraints proposed in the literature.

Proposals on code-switching restrictions have been widely debated in the last 25 years, and most constraints have been ruled out (cf. chapter 4). The main claim of the present work is to argue against the need of such restrictions. No *third grammar* of code-switching is necessary in order to constrain this speech style. This is not to say that in code-switching there is an absence of grammatical rules. Mixing is regulated by grammatical (and socio-linguistic and pragmatic) constraints, but these rules are the same ones that account for the grammaticality of monolingual speech. Only the restrictions required by the two grammars of the two languages involved in code-switching constrain language mixing. Everything is possible as long as language-specific rules are respected. Adopting this approach (cf. MacSwan 1999, 2000), code-switching becomes a fashionable interaction of the two languages of a bilingual, and is not any longer a speech style which is artificially restricted by rules. Most rules have been shown to be either too restrictive, in the sense that counter-evidence provided from other language-pairs gave evidence of

well-formedness of the mixes, or too general, because switches were predicted to occur at boundaries which as a matter of fact have not been confirmed by data collection.

I argue that each mix which respects the grammar of the two languages involved is felicitous. The present data are evidence to the contrary of what most of the constraints on code-switching predict, in the sense that the children mix at boundaries which have been claimed either to be ungrammatical, or not to occur at all.

Table 7.1 (adapted from MacSwan 1999:209) gives an overview of the main constraints proposed so far. The claim that switching between a clitic and a verb, and between a negator and a verb, is not allowed,

Table 7.1. Main findings on CS compared to the present data

Boundaries	Reported in	In disagreement with	Occurrence in the present data		
			Child	Italian	German
Subject (pronoun) +V	Timm (1975), Gumperz (1976)	Poplack (1980)	Carlotta	0	0
			Lukas	18	0
			Jan	1	0
			Aurelio	4	2
V+ object (pronoun)	Timm (1975), Gumperz (1976)	Poplack (1980)	Carlotta	1	1
			Lukas	30	0
			Jan	1	1
			Aurelio	9	0
clitic+V or V+clitic	Timm (1975)	Undisputed	Lukas	10	0
Neg+V	Timm (1975)	Undisputed	Lukas	2	0
			Aurelio	2	0
because +CP	Gumperz (1976)	Poplack (1980)	Carlotta	0	0
			Lukas	4	0
			Aurelio	1	0
that+CP	Belazi et al. (1994)	Bentahila & Davies (1983)	Lukas	6	0
			Jan	0	1
			Aurelio	1	0

(Continued)

Table 7.1. (*Continued*)

Boundaries	Reported in	In disagree- ment with	Occurrence in the present data		
			Child	Italian	German
have+VP	Belazi et al. (1994)	DiSciullo et al. (1986)	Lukas	18	0
			Aurelio	16	0
modal+VP	Belazi et al. (1994)	DiSciullo et al. (1986)	Carlotta	1	1
			Lukas	51	0
			Jan	2	0
			Aurelio	46	0
Aux+V	Timm (1975)	Poplack (1980)	Lukas	18	0
			Aurelio	6	0
Determiner + NP	Belazi et al. (1994)	Bentahila & Davies (1983)	Carlotta	40	40
			Lukas	177	0
			Jan	72	13
			Aurelio	122	17
			Marta	31	86
Adj+N	Belazi et al. (1994)	Poplack (1981)	Carlotta	1	2
			Lukas	10	0
			Jan	3	4
			Aurelio	4	0

is undisputed in the literature on CS. All the other boundaries have been both allowed and rejected by different constraints. In the fourth column, the findings of the present study are reported for each child in each language. This column is divided in two parts according to the language, that is, the left column contains the number of mixing points with respect to a specific boundary in the Italian context (i.e., German words mixed into Italian), whereas the right column gives the number of mixing points in the German context. Each child is mentioned only if s/he mixed in the specific area discussed. The numbers of mixings do not match with those from the former section, because previously we counted mixed utterances, whereas here mixing points are counted. In fact, more than one mixing point can occur within an utterance.

The children investigated here mix at all boundaries which in the literature have been both allowed and rejected. Some boundaries seem to be

less *violated* than others, for example, switching between a complementizer and the CP, or switching between a clitic and a verb. By contrast, mixing between the determiner and the noun occurs to a high extent in all children. Furthermore, the children differ with respect to two qualitative aspects. Firstly, Aurelio mixes in both language contexts, whereas the others predominantly mix in one language context (Carlotta, Lukas and Jan in Italian, Marta in German). Secondly, the mixing itself is different: Carlotta, Marta, and Jan mix almost only single nouns, whereas Lukas and Aurelio mix at all possible switching points within an utterance.

In order to underpin the different domains involved in CS, the number of mixes divided by two main domains, namely, mixes involving a noun, hence mixes between determiners and nouns and between adjectives and nouns, and mixes involving a verb (including mixes between subjects and verbs, verbs and objects, as well as switches between modals and past participles), have been counted. The results are illustrated in Table 7.2.

Table 7.2 confirms that nouns are indeed mixed very often by all children. This is most visible in Carlotta, Jan and Marta in both languages, and in Lukas and Aurelio in the German language context: the percentage of nouns is approximately 90%. Overall, mixes occur more in Italian than in the German context. In the following, examples for code-switching in each boundary reported are presented.

Table 7.2. Mixes divided by domains – tokens¹

Child	Italian context			German context		
	Verb	Noun	Total	Verb	Noun	Total
Carlotta	7	122	129	2	83	85
	5%	95%	100%	2%	98%	100%
Lukas	159	239	398	0	7	7
	40%	60%	100%	0	100%	100%
Jan	14	90	104	4	29	33
	13%	87%	100%	12%	88%	100%
Aurelio	106	190	296	2	32	34
	36%	64%	100%	6%	84%	100%
Marta	0	36	36	7	85	92
	0	100%	100%	8%	92%	100%

7.2.1 CS between a subject/object/clitic or negator and a verb

Switches between a subject and a verb are disallowed in Timm (1975) and Gumperz (1976), but have been reported to occur in the data of Poplack (1980). In the present data, these switches occur in Lukas, Jan, and Aurelio:

- (57) io angel qualcosa (Lu, 3;7,15, IC)
I fish something
- (58) questo löscht (Lu, 3;3,23, IC)
this one extinguishes
- (59) la mosca geht (Lu, 3;8,17, IC)
the fly goes
- (60) va- der der fa barba (Ja, 3;1,1, IC)
goes - this this makes beard
- (61) te gewinnt =tu, gewinnst (Au, 3;8,13, IC)
you win
- (62) tu kämpfen (con me) =kämpfst (Au, 2;10,10, GC)
you fight (with me)

The examples illustrate that mixes between a subject and a verb occur either when the subject is a strong pronoun, or when it is a DP (example (59)). The element mixed into the other language context is either the subject itself (60) or the verb. The latter occurs more often.

Studying data of French/German bilingual children, Meisel (1994:434) also reports cases of code-switching between the verb and clitic pronouns, as in:

- (63) mais mais mais je p- mais papa a dit je peux me setzen
but but but I c- but daddy has said I can me clitic sit
 (Child A, 3;7, 13)
- (64) sonja a- je schenk ça (Child A, 3;2, 24)
sonja has - I give this

In the spirit of DiSciullo, Muysken & Singh (1986), Meisel argues that these mixes are problematic, because a switch between a subject in specifier position and a verb in head position is disallowed by the *Government Constraint*. However, Meisel (1994:437) points out that this judgement is based on the syntactic analysis one uses. In fact, if one assumes that

the subject moves out of VP into another specifier position, the switch would be felicitous.

The next category we look at deals with mixing between a verb and an object. CS occurs at this boundary in all children except for Marta.

- (65) ho fatto zimtsterne (Ca, 4;6,8, IC)
have I made cinnamon-stars (cookies)
- (66) jetzt uva essen (Ca, 2;7,13, GC)
now grapes eat
- (67) io ti dò fünfzig mark (Lu, 2;11,27, IC)
I to you give fifty marks
- (68) mami voglio la überraschung (Lu, 3;5,8, IC)
mummy want I the surprise
- (69) perché hanno fatto un kampf (Jan, 4;4,6, IC)
because have they made a fight
- (70) funziona a musik = la (Au, 2;9,20, IC)
works (it) the music
- (71) mi serve ancoa , die fabe = ancora (Au, 3;7,9, IC)
I need still, the color

The object can be either a noun taken from the other language, as in (65)–(67), or a whole DP, as in example (71). The object can also be a mixed DP, as in (68)–(70). Following Muysken (2000) and Toribio (2001:209), (65)–(67) could be considered as *lexical borrowing* (*insertion* in Muysken's definition), because they are cases of single noun insertions switched into an utterance which is in the base language, in this case, Italian. Insertion, in contrast to alternation, does not require structural compatibility between the two languages under discussion. The examples above could indeed be analyzed as borrowed items.

However, I do not think it is justifiable to generate too many categories in the discussion on language mixing, for this could end in different analyses depending on which theoretical and methodological background the analysis is based on. More specifically, establishing categories which only differ minimally, and hence are difficult to separate, again generates too many restrictions in the analysis of language mixing. I consider the switch of single nouns as an instance of CS. A noun is assumed to

be an instance of *borrowing* only when it is related to semantic reasons (Gumperz 1976, Romaine 1995). Here, semantic and socio-linguistic criteria in order to classify a noun as borrowed are applied. Along these lines, the cases (65)–(67) are not instances of *lexical borrowing* in the present analysis.

Let us now turn to mixes between a verb and an object when the object is a clitic pronoun. It is undisputed that a switch should never occur between a clitic pronoun and a verb (Timm 1975). Nevertheless, Lukas does not corroborate this prediction.

- | | | |
|------|--|------------------|
| (72) | la mamma orsa si <u>dachte</u>
<i>the mother bear herself thought</i> | (Lu, 2;8,26, IC) |
| (73) | tutti si <u>ärgerno</u>
<i>all are themselves angry</i> | (Lu, 3;1,30, IC) |
| (74) | non lo <u>brauchen</u>
<i>not it need</i> | (Lu, 3;1,30, IC) |

In (72) and (73) an Italian reflexive clitic accompanies a German verb. Additionally, in (73), Lukas uses the Italian ending *-o* along with the German verb. The equivalent utterance in Italian would be *tutti si arrabbiano*. In example (74), the direct object *lo* is a clitic. By implication, mixes involving a clitic as a direct object can only occur between a German verb and an Italian object, given that German does not have clitics. In the three examples word order is Italian, namely, the clitic is preverbal. By contrast, if the object is German, it would be postverbal.

Mixing between a clitic and a finite verb is problematic with respect to the *PF Disjunction Theorem* proposed by MacSwan (1999, 2000). Recall the main point in the PF/DT is that mixing below X^0 is not possible. But this is exactly what occurs when an Italian clitic goes with a German finite verb. If we analyze clitics as heads, and assume they combine with the verb and thus create a complex head, then the examples above are cases of mixed complex heads. But mixed complex heads are not allowed in MacSwan's analysis.

The next boundary is also undisputed in the literature on CS, namely, mixing between a negator and a verb. The present data have only four cases of switches at this boundary. They occur in Lukas and Aurelio.

- The fourth example is (74). In these cases, word order is always Italian; only the verb comes from the German lexicon, but behaves like an Italian one. In (76), Aurelio uses the German verb *mitspielen*, which has no Italian equivalent, since it does not mean *to play* (which is *spielen* in German and *giocare* in Italian), but *to play with (someone)*. After the switch, he continues with German. The correct German utterance is *ich spiel nicht mit*. Hence, the negator is in the wrong position. It seems Aurelio just uses the German verb *mitspielen* in an Italian utterance, because the verb is more precise.

A switch between the complementizer C and a complement or a relative clause is also reported to be ungrammatical (Belazi, Rubin & Toribio 1994), because the head of C is supposed to be of the same language as the clause. By contrast, DiSciullo Muysken & Singh's (1986) *Government Constraint* predicts that the C⁰ has to be of the same language as the governing head. The following two examples show a switch between the complementizer and the embedded clause, which is entirely in the other language. It is not possible to corroborate the hypothesis put forward by DiSciullo et al. (1986) because there is no evidence for the language of the main clause, and hence for the language of the governing head. However, consider that the switches occurred in the Italian context.

- (78) perché ihr seid böse (Lu, 3;11,22, IC)
 because you (pl) are bad
 (79) pecché ich war kleiner =perché (Lu, 4;0,5, IC)
 Because I was younger

7.2.3 CS between *to have/to be/modal* and *a verb*

The next domain involves switching between a finite verb, for example, *to have*, *to be*, or a modal, and a past participle or an infinitive. In these cases, the verb and its complement are supposed to remain within the VP, whereas the finite verb moves to TP (IP/AgrP, depending on the syntactic analysis). This is ungrammatical according to the *Functional Head Constraint* proposed by Belazi, Rubin & Toribio (1994). Examples (80) to (82) are instances of mixes between a modal verb, which is always Italian, and an infinitive; in (83) and (84) the auxiliary *to be* is in one case Italian, and the past participle is German, and in the other case it is the opposite, that is, the auxiliary is German, and the past participle is Italian. These two utterances are particularly interesting, insofar as they have the same meaning, and Lukas switches the item *arrived* into the other language.

- (80) le stelle non ponno reden =possono (Lu, 3;1,30, IC)
the stars not can speak
- (81) (...) ti deve drucken questa gonna (..) (Ca, 4;8,11, IC)
you clit must she print this skirt
- (82) qua, può kleben (Ja, 3;11,19, IC)
here, can it stick
- (83) andiamo da- siamo dal fest angekommen (Lu, 3;6,30, IC)
go we of- are we from the party arrived
- (84) weg und dann sind wir arrivati (Lu, 3;7,15, IC)
away and then are we arrived
- (85) noi abbiamo gewonnen (Au, 3;8,13, IC)
we have won

Meisel (1994:435) also reports a few switches of this type, which he classifies as problematic with respect to the violation of code-switching constraints.

- (86) et puis patti a sein arm gebrochen (Child A, 3;7, 13)
and then patti has his arm broken
- (87) il a gewonnen (Child A, 4;3, 24)
he has won

Interestingly, in (86) word order is German with the VP (OV). Example (87) corresponds to Aurelio's utterance reported in (85). Examples (83)–(85) state that whenever a participle is involved, the whole form is switched. No mix like, for example, *gearrivati* occurs in the data.

7.2.4 CS between a determiner/adjective and a noun

The last domain to be discussed is the one concerning nouns. Mixing between a determiner and a noun is supposed to be ungrammatical because it violates the *Functional Head Constraint*, which disallows a switch between a functional head, in this case D^0 , and its complement (Belazi, Rubin & Toribio 1994). By contrast, there are a lot of examples of switches between D and N in the present data (cf. (88)–(90); for the exact number of switches within this domain cf. Tables 7.1 and 7.2).

A switch is likewise not allowed between a noun and an adjective. In fact, a switch of this type violates the *Equivalent Constraint* and the *Adjective Order Constraint*, because the languages studied here differ with respect to the position of the adjective: In Italian, the adjective is mostly post-nominal, whereas in German it is mostly pre-nominal. Nevertheless, the data analyzed show several instances of CS between these two elements (cf. 91–95).

- | | | |
|------|--|-------------------|
| (88) | nein das ist die <u>motore</u>
<i>no this is the motorbike</i> | (Ma, 2;11,29, GC) |
| (89) | adesso è pronto il <u>nachtisch</u>
<i>now is ready the dessert</i> | (Ca, 3;4,22, IC) |
| (90) | perché io ho una <u>überraschung</u> pe Emilio
= per
<i>because I have a surprise for Emilio</i> | (Au, 3;6,14, IC) |
| (91) | la <u>schaufel</u> magica
<i>the shovel magic</i> | (Lu, 3;1,30, IC) |
| (92) | però ho visto un-un grosso <u>nest</u>
<i>but have I saw a- a big nest</i> | (Ja, 4;4,27, IC) |
| (93) | io sono un <u>grüne monstere</u> sono un mosto
= monster/mostro
<i>I am a green monster am a monster</i> | (Au, 3;5,2, IC) |
| (94) | ci mettiamo una cosa <u>schwer</u>
<i>there put (we) a thing heavy</i> | (Au, 4;0,9, IC) |

- (95) das ist ein pannolino klein (Ca, 2;9,25, GC)
 this is a diaper small

Regarding the mixes involving an adjective, there are cases in which the noun is the mixed element, as in (91), (92) and (95). In example (93) both the noun and the adjective have been mixed into Italian. In (94), it is the adjective that has been switched into the other language. If one assumes that the language of the context is relevant for word order with respect to the adjective's position, then (93) and (95) are ill-formed. If however, one claims that the language of the noun is relevant for the adjective's position, then (92) to (95) are well-formed, but (91) is not.²

Before turning to a specific analysis of some switches which at first glance might be regarded as ungrammatical, given that they violate language-specific rules, I want to briefly address the question of word-internal mixes. Current works on code-switching all disallow these kinds of switches. For example, Poplack's (1980) *Free Morpheme Constraint* predicts no switching between bound morphemes. In the same vein, Meisel (1994:423) claims that word-internal rules are the most coherent and should always be followed. The strongest position is taken by MacSwan, (1999, 2000), whose *PF Disjunction Theorem* also predicts no code-switching within a PF component. The underlying idea is that the morphological composition of the lexical head occurs within the lexicon. Consequently, it is impossible that two lexical systems interact at this level.

Notwithstanding these theoretical assumptions, word-internal switches do occur in the spontaneous data analyzed here. There are cases in which a suffix is added to a noun in order to agree with the determiner, as in (96), where the German word *Krone* is changed into *crona*, making it more similar to the Italian equivalent *corona*. There is also a German noun – *Topf* – with the suffix *-ino*, which is an Italian diminutive, as reported in (97). In (98), a suffix is taken away in order to apply phonological rules of the base language: the Italian word *gusto* appears without the suffix to make it sound more German. Note that a compound – *fruitflavor* – has been created using two items from two different languages. Another *created* compound is the one in (99).³ A further phenomenon is visible in (100): The Italian word stems can get a German plural ending *-en*, creating *ice-creams*. In example (101), the Italian past participle *finito* gets a German ending. Marta often tries to *hide* that

an Italian noun in the German context by *cutting* the word. Without ending, the Italian words sound similar to German words, since the latter usually end with a consonant, in sharp contrast to Italian, where words mostly end with a vowel (102).

- (96) quella c'ha una crona (Ca, 4;4,6, IC)
that one has a crown
- (97) e chi ce l'ha questo topfino co- co- colla zuppa? (Ca, 3;7,13, IC)
and who has this pot little with soup
- (98) die habn-die habn-die habn fruchtgust (Ca, 4;3,23,GC)
they have fruitflavor
- (99) himbeerodore (Ca, 4;9,1, IC)
raspberry scent
- (100) gelaten (Au, 3;0,19, IC)
ice-creams
- (101) e poi è finiert (Au, 4;0,28, IC)
and then is (it) finished
- (102) cald Ital. equivalent caldo (Ma, 2;4,27, GC)
hot
 león Ital. equivalent leone (Ma, 2;6,10, GC)
lion
 pappagall Ital. equivalent pappagallo
parrot
 scimm Ital. equivalent scimmia
monkey
 conchil Ital. equivalent conchiglia
shell-fish
 volp Ital. equivalent volpe
fox
 cavall Ital. equivalent cavallo
horse
 farfall Ital. equivalent farfalla
butterfly
 ranocc Ital. equivalent ranocchio (Ma, 2;7,7, GC)
frog

It seems that word-internal switches are relatively productive, at least in some of the children analyzed here. Independent of whether there is evidence of a word from language A with a suffix from language B, or of putting two words together, one coming from language A and one coming from language B, or of adapting a word from language A into language B, in that phonological rules are followed, these cases bring to light that there is interaction of the two lexicons even word-internally.

7.2.5 *Conclusions*

The instances of CS uttered by the children Carlotta, Lukas, Jan, Aurelio, and Marta document that language mixing occurs at all possible boundaries within a sentence. Hence, the corpus does not corroborate the assumption that a certain type of mixes does not occur in bilingual speech.

I claim that the proposed constraints make wrong predictions about what is to be regarded as well-formed in code-switching. In my view, the counter-examples found in the children's speech are instances of correct CS. It is rather the constraints that make wrong predictions. Following minimalist assumptions and the work by MacSwan (1999, 2000), I assume that everything is possible in mixing two languages as long as the grammars of the two lexicons involved are respected. In the cases discussed above, it is posited that language-specific rules have been followed. Therefore, the utterances must be well-formed. Nevertheless, there are instances in which it is not clear why one of the grammars overrules the other. Does it depend on the base language, hence on the situational context? Or is it a phenomenon which is related to grammar? I believe that this phenomenon is indeed related to grammar, more specifically to functional categories.

I take the strongest position and argue that the language of the functional category influences the projections below it, and hence word order in the code-switched utterances. This will be discussed in the next section, where cases of competing language-specific structures are sketched out.

With respect to the fact that child speech is analyzed here, which is in sharp contrast to most of the data used in order to establish CS constraints so far, I state that the present data provide convincing evidence

for questioning most of the constraints proposed in the literature on CS. Regrettably, child data, which is usually spontaneous speech, has so far been taken in order to confirm/disconfirm constraints which are mostly based on acceptability judgements. The two methods should not be compared, and moreover, they do not necessarily have the same outcome. In other words, acceptability judgements may predict the ungrammaticality of CS which never occurs in spontaneous speech, whereas spontaneous speech may produce data which, in a grammaticality test, might be judged as ill-formed.

7.3 UNGRAMMATICALITY OF SOME SWITCHES?

The hypothesis underlying the present analysis is that code-switching is only possible as long as the grammars of the two languages are respected (MacSwan 1999, 2000). The following utterances could thus be considered as ill-formed, because they seem to violate specific grammatical rules. In the discussion of mixes involving a null-subject as well as mixes in embedded clauses, a grammatical analysis of why these utterances can indeed be considered as felicitous instances of code-switching will be proposed. Afterwards, switches involving word order and code-switching involving nouns will be analyzed.

7.3.1 *Licensing null-subjects in German*

The two languages analyzed here differ with respect to the analysis of null-subjects. German, a *Topic-Drop-Language*, allows null-subjects under specific conditions, namely when they are in Topic position, that is, in the first position in matrix clauses, as in *Ø Hab 'sie schon angerufen* ((I) have her already called). Importantly, null-subjects have to be identifiable pragmatically, in the sense that they must previously be introduced into the discourse. By contrast, in Italian, null-subjects are licensed and identified via rich agreement morphology. This occurs in both matrix and subordinate clauses, whereas in German *Topic-Drop* is only possible in matrix clauses. Along these lines, finding code-switchings involving a null-subject which goes along with a German finite verb could be regarded as violating German grammar, since this kind of switch is said

to be ungrammatical (Timm 1975, Gumperz 1976). In the present data, Lukas is the only child who produces this type of mixes. Lukas almost refuses to speak Italian during a certain period. As a consequence, he mixes to a high extent in the Italian context, rather than speaking German to the (bilingual) interlocutor. Hence, all the relevant examples here have been uttered in the Italian context. He is the only child in this study who mixes at almost all possible points where a switch can occur. Therefore, he alone significantly provides these cases of null-subjects with German verbs. Consider the following examples:

- (103) wäscht die hände anche a lui (Lu, 3;4,7, IC)
(he) washes the hands also to him
- (104) schneidet il capelli (Lu, 3;4,7, IC)
(she) cuts the hair
- (105) col lasoio si schneidet (Lu, 3;4,7, IC)
with the razor (he) himself cuts
- (106) adesso si verbrennt (Lu, 3;4,25, IC)
now (he) himself burns
- (107) un pirata pendè una spada e dopo kämpft con un cavaleie
 =cavaliere (Lu, 3;3,23, IC)
a pirate takes a sword and then (he) fights with a knight
- (108) non lo brauchen (Lu, 3;1,30, IC)
not (they) it clit need
- (109) li- lo schießt (Lu, 3;2,19, IC)
him clit shoots (he)
- (110) qua n schießt (Lu, 3;4,25, IC)
here n (he) shoots
- (111) alliva la pulizia m n beschäftigt dal quel drago
 (Lu, 3;3,23, IC)
comes the police m n kept busy by that dragon
- (112) là gehört (Lu, 3;4,25, IC)
there (it) belongs
- (113) là drauf schieben (Lu, 3;8,3, IC)
there on push (it)
- (114) il fuß dranmachen (Lu, 3;7,15, IC)
the foot bring on

- (115) il il banditi einfangen (Lu, 3;8,3, IC)
the bandits catch
- (116) ma ma zuerst una alluna auto dranmachen (Lu, 3;6,13, IC)
but but first a one car bring on

In the examples (103) to (110), word order is Italian, while the finite verb is German. In this sense, one could claim that a German verb (in some cases also another element, for example in (103) the object) has been switched into an Italian context, or utterance, or structure. Still, given that the German verb does not license null-subjects, these mixes are ill-formed at first sight. Recall that German allows subject omissions in *topic* position, so let us consider the context in which these mixes were uttered. In (103) and (104), Lukas is participating in an elicitation task, which consists of pictures showing the daily life of a bear family. The protagonists have been introduced at the beginning of the story, and then appear on every picture. One can assume Lukas has no need to explicitly refer to subjects who have already been introduced, and so he just omits the subjects. Additionally, Lukas mostly points at the pictures, describing what he sees. Finally, in these cases subjects are indeed omitted in first position in the matrix clause, as German allows. In fact, the monolingual equivalent to (103) is *er wäscht auch ihm die Hände* (he washes also to him the hands), and the equivalent to (104) is *sie schneidet die Haare* (she cuts the hair). These observations lead to assuming that these subject omissions are grammatical in accordance with German *Topic-Drop*.

In (105) and (106), Lukas produces the reflexive clitic *si*, and hence indirectly addresses the subject of the sentences, which has already been introduced into the discourse. As a matter of fact, in (105) Lukas is still describing a picture belonging to the bear family story mentioned above. In (107), the subject *un pirata* (a pirate) has been realized (and thus introduced) in the first main clause, but not in the second. German allows some cases of subject omission, however, the monolingual equivalent is *ein Pirat nimmt ein Schwert und kämpft danach mit einem Ritter*, where the subject in the second main clause can be dropped only if it is preceding the verb. In this case, given that *dopo* (after that/then) precedes the verb, the pronominal subject would be following the verb,

as in (..) *und dann kämpft er* (= *der pirat*). Subject omission is not allowed in this position in German.

Examples (108)–(110) also let us presume that the subject has already been introduced in the discussion, (109) and (110) being a testimonial of two knights fighting against each other. Interestingly, the Italian word order (visible on the position of the clitics and of the adverb) suggests that the whole TP is Italian. The utterance in (111) is a tricky one; it is not clear whether its underlying structure is Italian or German. Importantly, *beschäftigt dal quel drago* is a participial phrase, which allows a subject omission. Still, the verb used sounds very awkward in this context. Examples (112)–(116) exhibit German word order. Except for (112), in all the other sentences it is not clear whether the German verb is finite or not. In (112), the element *là* indisputably shows that Lukas is pointing to a specific place where the object belongs. In a specific context this sentence could be considered as having an Italian word order as for example *Ma dov'è la chitarra? Là sta* (But where is the guitar? There (it) is). In the switches (113) to (116), I propose to analyze the verb forms as *infinitives*.⁴ In these cases, a subject omission is usually allowed.

In sum, in most examples it seems clear that the subject is known to both the speaker and the interlocutor, and that it had been introduced in the earlier playing context.

There are three possible explanations that could account for these examples which on the surface do not respect the rules of the German grammar.

A first explanation is to assume that *prima facie* the data support the hypothesis that null-subjects are in fact allowed in German in some contexts, namely, when they are pragmatically identified because they have been introduced into the discourse at an earlier point. A second explanation could be that the items (viz. the verbs) coming from the German lexicon do not carry any features, but that features are added to them later in the course of derivation. Therefore, the German verb can be picked up, and later receive features which are not specific to German but rather universal, in this case, features that allow subject omission.

This proposal is very problematic under the current assumption of Minimalism, which supposes all syntactic variation to be lexically encoded, that is, related to the particular lexical item. By assuming

that the item does not carry the features that belong to it, we would end up rejecting the whole lexicalist approach. Moreover, in Minimalism *movement* is supposed to occur for the purpose of feature checking. Why should the verb move out of the verb phrase in order to check features in the head of TP if it does not carry features? Thus, the idea of *external* features which are added to the lexical item verb which does not carry features seems very untenable.

The third explanation supposes that the verb already carries features when being picked up from the lexicon (according to minimalist assumptions), but that the features in the functional projection will overcome them. The question which comes up is how it is possible that the German verb, which carries features specific to German, can behave like an Italian verb and move to the head of an Italian TP, which in return requires specific *Italian* features to be successfully checked and deleted. As a matter of fact, a German TP is supposed to carry EPP features which lead the subject to move into [Spec TP] in order to check features (Chomsky 1995).

Put differently, what is the motivation for the German verb to move to T^0 in order to check features if T^0 is Italian and does not carry the features the German verb needs in order to move? The prediction should be that feature checking will mismatch and that the derivation will crash. The view of code-switching as the interaction of two (or more) language-specific lexicons would fail under this account, given that the lexicons would be able to store items without their features. Hence, one could hypothesize that all items are stored in one lexicon, and that features are added later to the items. However, this is not a promising explanation, given the serious consequences it would have for the general representation of language in the brain. In fact, the presumption that items do not carry features when coming out of the lexicon minimizes the importance *Minimalism* has given to the lexicon. The question of *where* parametric differences are then encoded would follow, reaffirming previous theoretical accounts, as, for example, *Government and Binding*. The idea that a *third grammar* constrains code-switching should be revised then, since *external* control structures are needed if feature *assignment* occurs outside the two lexicons. But this assumption cannot be corroborated by bilingual data. There is a broad consensus

in the literature that in bilinguals there are two separated lexicons from early on.

I therefore assume the first explanation to be correct, that is, in the above examples the null-subjects are pragmatically identified by the context. Recently, it has been reported that null-subjects in adult German occur to an extent of 5% (Schmitz 2004, Schmitz & Müller 2005). These findings are in line with my interpretation of the data discussed above. Assuming that the null-subjects are pragmatically identified and that they can be omitted, the examples are no longer instances of ill-formed code-switchings anymore. They just reflect a possibility given in German grammar, namely, to omit the subject under certain conditions. Regarding some cases in which the third explanation seems more tenable, a convincing account will be given when discussing the TP.

A last remark addresses the issue of language influence. Is it plausible to think that Lukas treats his German verbs like the Italian ones in monolingual utterances, too? Studying the two languages in Lukas, Schmitz (2004) provides evidence that his subject omissions and realizations in German are comparable to those of monolingual children. In other words, Lukas treats German as an overt subject language. No influence from Italian is visible. By contrast, in Italian there are more subject realizations than in monolingual speech. These results make clear that the examples discussed above cannot be cases of language influence. I claim that these mixed utterances shed light on the fact that the verb carries its language-specific features when it is picked up from the lexicon and introduced into the derivation. Here, the German verb keeps its features, and hence the mixed utterances do not violate any of the two grammars, neither the Italian nor the German one.

7.3.2 *CS involving the CP*

Let us now turn to the discussion of CS in embedded clauses. Both Italian and German project a CP when there is a subordinate clause. In Italian, C⁰ is filled with the complementizer, the subject (if realized) moves to [Spec TP], whereas the verb moves to T⁰ (Belletti 1990). In German, the complementizer is in C⁰ and the subject is in [Spec TP], too. Differently from Italian and from main clauses in German, in embedded clauses the

German verb does not move, but stays in its base position in V^0 , because the head of CP is already occupied by the complementizer (den Besten 1977, Bayer 1984). Look at the following constructed sentences:

- (117) Ich weiss [CP dass [TP sie [VP ein Instrument spielt]]]
I know that she an instrument plays
- (118) Ho saputo [CP che [TP Sara suona [VP il sassofono]]]
I heard that Sara plays the sax

In embedded clauses, the German verb stays in its base position, whereas the Italian one moves to a higher head. The intriguing question is: What happens if a mix occurs between the main clause and the subordinate clause?

Two different constraints have been proposed in order to account for this case. The *Government Constraint* (DiSciullo, Muysken & Singh 1986) predicts that the complementizer can indeed be of a different language than the embedded clause, but that it has to come from the same language as the governing verb. By contrast, Belazi et al.'s *Functional Head Constraint* (1994) predicts that mixed utterances will be ungrammatical if the language of the complementizer is not the language of the complement clause.

In the present data, there are 16 instances of mixing within the CP. Recall that we assume that the CP has already been instantiated in the children presented here.⁵ Lukas produces 11 of these mixes. Three cases are in Aurelio's data and two in Jan's. Carlotta and Marta do not produce such types of CS. In ten cases, the complementizer is in the language of the finite verb of the embedded clause, as in (119) to (125):

- (119) perché sono krank (Lu, 2;10,22, IC)
because (I) am ill
- (120) sí che voiono sägen questo = vogliono (Lu, 3;1,30, IC)
yes that (they) want (to) saw this
- (121) perché vuole schlafen (Lu, 3;3,23, IC)
because (he) wants (to) sleep
- (122) perché, uno ci ha reingeschmeißt (Lu, 3;8,17, IC)
because, one us (clit) has thrown into

- In sum, in these examples the complementizer is always Italian (hence, CP is Italian), the finite verb in the embedded clause is Italian (hence, TP is Italian). It is just the infinite verb (participle or infinitive) which is German and thus switched into an Italian clause. Note that word order is always Italian.⁷ At present, I claim that these utterances are well-formed and grammatical. This is confirmed by both constraints mentioned above. Given that these are embedded clauses, no prediction can be made about the verb in the main clause (since these sentences were uttered in the Italian context, it can be presupposed that the verb is in Italian). Hence, the *Government* and the *Functional Head Constraint* are both respected. Furthermore, the assumption that the only relevant grammatical rules to be followed in mixing are those requested by the two grammars involved, is also respected: these utterances do apply the rules requested by Italian and German grammar.

We now turn to instances of code-switching including a complementizer which is not in the language of the finite verb of the embedded clause:

- (126) perché ihr seid böse (Lu, 3;11,2, IC)
because you are bad
- (127) pecché ich war kleiner =perché (Lu, 4;0,5, IC)
because I was younger
- (128) wir sind aus- perché wir sind aus-aus-aus-
 auf deutsch- auf deutschland (Ja, 3;1,1, GC)
because we are from - in germany
- (129) no voglio che che lu- che che lui lo tragt = trägt
 (Au, 3;9,13, IC)
no (I) want that that he- that that he it carries
- (130) dai che kämpfen (Lu, 3;2,19, IC)
come on that (we) fight
- (131) hai visto che geht leicht (Lu, 3;4,25, IC)
have (you) seen that (it) goes easy
- (132) così che soll sein (Lu, 3;7,15, IC)
so that (it) has (to) be
- (133) guarda che war hier (Lu, 3;10,3, IC)
see that (it) was here
- (134) sì che paßt (Ja, 3;9,15, IC)
yes that (it) fits

These nine utterances have to be analyzed in different ways. In (126)–(128), the complementizer is not in the same language as the whole CP, in the sense that there is no further switch within the CP, the embedded clause being completely filled with German items. The word order could be either German or Italian. Unfortunately, it is not possible to distinguish between the two structures, because in today's German, a tendency of avoiding verb-end with *weil* (because) has become popular. Given that the two sentences were uttered in the Italian context, saying they are grammatical is consistent with the *Government Constraint*, but with respect to the *FHC* they are infelicitous, since the switch occurs between C^0 and its complement.

In spite of this, in the present analysis both code-switches are claimed to be grammatical, since word order as well as other language-specific features (e.g., subject realization in German) are respected.

Example (129), which is Aurelio's only instance of a code-switch between the complementizer and its complement, clearly exhibits how the child hesitates and breaks up the utterance before completing it the first time. The word order might be Italian or German. What can be stated is that the only element mixed is the German verb *tragt* = *trägt* (carries).

The examples (130) to (134) are the most interesting ones, since they present a possible ungrammaticality. In all cases, the complementizer is Italian, the verb in the subordinate clause is German, and, in addition to this, the subject is omitted in all utterances. Subject omissions are always allowed in Italian, but in German they are possible only under specific conditions. Given that in these sentences the subjects are not in topic position, and given that we are dealing with embedded clauses, these subject omissions would be ungrammatical if the sentence was completely German. Hence, despite abstracting away from any former formulated constraint on code-switching (the examples would also be rejected by the FHC, but they are felicitous in the predictions of the GC), these cases are evident counter-examples to my assumption, since they violate the German grammar.

It is unquestionably ungrammatical that a German verb goes along with a subject omission in the illustrated examples. Consequently, the code-switchings in (130) to (134) call the validity of my claim into question, namely that all switches are felicitous. Even in a theory which restricts code-switching less than in aforementioned theories which take recourse to a so-called *third grammar*, it is still possible to find switches which are ungrammatical. By implication, ungrammaticality is the outcome of not following language-specific constraints. As a consequence, not all instances of mixing can be grammatical. Despite accepting that there may be switches which result in ungrammaticality in bilingual speech, I however argue that these examples are well-formed. I thus attempt an explanation in order to account for the grammaticality of subject omissions with German verbs. Recall the claim (h):

- (h) C^0 determines the features of the code-switched complements

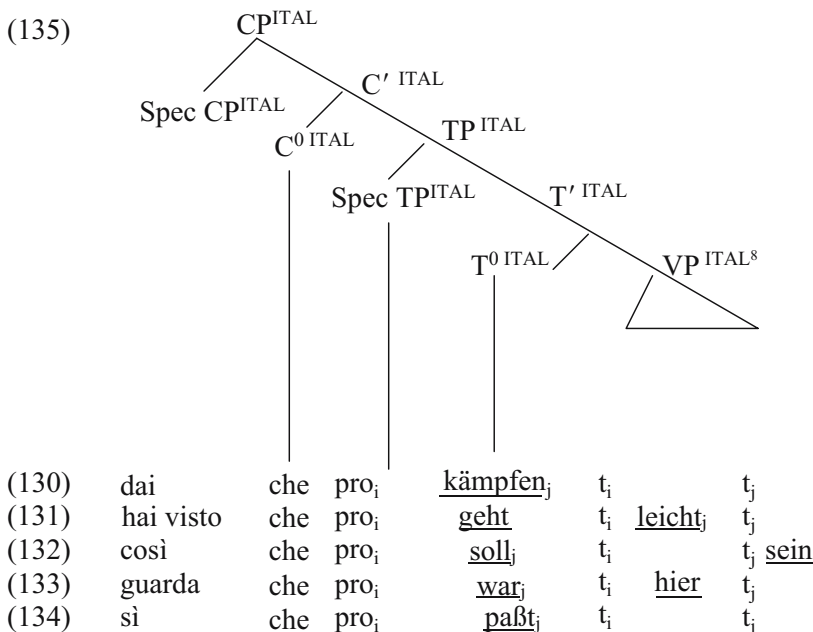
This claim assumes that the functional category C^0 projects the head-parameter of its own language and therefore determines the structure below (Chan 2003). In the examples under discussion, I argue that the Italian C^0 projects an Italian type of CP and then an Italian type of TP. Along these lines, in T^0 features belonging to the Italian grammar must be successfully checked, independent of T^0 being filled with an Italian or a German item.

In confirming the minimalist assumption that all learning is associated with language-specific properties of the lexicon, I claim that a single item and its lexically encoded features (in this case the complementizer) are responsible for triggering and consequently projecting a certain type of phrase structure. Consequently, if an item from the Italian lexicon is picked by *Select*, and if this item is a functional category, it will project an *Italian type* of structure. In the present case, if C^0 , a lexical item from the Italian lexicon, is selected, then it will build an *Italian CP*, and further an *Italian TP*. This does not imply that the whole structure must be filled only with Italian items. As shown in examples (130)–(134), it can also be filled with German items. The crucial insight is that this will not play any role for feature checking, since the relevant features come only from Italian. Consider the following structure, where I label all positions with a language index in order to emphasize that C^0 is responsible for the whole structure. In these utterances, only V^0 comes from the German lexicon.

So far, I have claimed that, the complementizer being an Italian item in the above-mentioned examples, it will project an *Italian type* of CP. What is meant by saying a CP is *Italian*?

Recall that C, T and v are considered to be Core Functional Categories (CFC).⁹ C is either unselected or selected by a substantive category. T is selected by C or v . If it is selected by the former, it has a full complement of φ -features (Chomsky 2000). If an Italian C selects T, it has to be Italian too. Consequently, the position of [Spec TP] reflects the φ -features according to Italian, despite T^0 being a German item.

This assumption is corroborated by the present data in that they show that in [Spec TP], as is allowed in Italian, there is a *pro*, viz. a null-subject. Only if one assumes this position to be *Italian*, hence making it possible to have a *pro* here, do the utterances become grammatical.



The question arises as to how it is possible for the German V to check features with an *Italian* T. This movement, which creates a complex head, is problematic with respect to the *PF Disjunction Theorem*.

This claim is problematic with respect to feature checking, too. How can a German V go along with an Italian TP which lacks EPP features and thus allows a null-subject? It seems as if in this particular case the verb is just German *on the surface*, but in fact behaves like an Italian verb. It is assumed that feature checking will indeed be successful, because – even if limited – there is an option for German verbs to go along with a null-subject. Feature checking will not cause the derivation to crash, because only relevant features will be checked. It is however not my intention to provide a detailed analysis of feature strength in TP at this point. This is indisputably a topic for future research. In order to avoid this explanation for the above-mentioned mixed utterances to becoming too simplistic and circular, more evidence is provided for this strong position.

What conditions have to be met if this analysis is right? If indeed the language of the complementizer is responsible for projecting the whole CP (and the phrases below), one can predict that some type of mixed utterances will be impossible, and hence ungrammatical. This is depicted in Table 7.3, taking two invented utterances in order to illustrate the possible and impossible cases, one Italian, *sai che sa cantare* (do you know that (she) is able (to) sing) and one German, *weiss du dass sie singen kann* (same translation). Unfortunately, in the examples discussed above, we cannot provide evidence as to which influence the language of main clause which precedes the subordinate clause has on the selection of the complementizer. Notice, however, that the language of the complementizer is always the one of the context, at least in the problematic examples. In case the finite verb is Italian, it is not essential that the subject is realized. It is superfluous to look at whether the subject was realized in Italian or German. Only the language of the complementizer and word order are crucial in this analysis. It can also be interesting to look at the language of the finite verb, since in many studies it plays an essential role.¹⁰ Let us look at how the two languages might match up.

If the complementizer is Italian, word order has to be Italian, too, providing evidence for an Italian TP. The language of the finite verb thus becomes nonrelevant, and could be Italian or German (examples no. 1, 2, 5, and 6). It is also unimportant if the subject is realized or not, Italian being a Null-Subject-Language which offers both possibilities. As soon as word order will not reflect the language of the complementizer, the mixes will be target deviant (as in examples no. 3, 4, 7, and 8). Recall that this prediction is the same made by the *Equivalence Constraint*.

Following this, one can assume that linear order seems a strong constraint to be defended. However, the present analysis claims that the linear order that will be relevant in a switched embedded utterance depends on the lexicon the functional element C^0 has been taken from. In this vein, if C^0 is picked up from the German lexicon, and hence is a German complementizer, all sentences will be ruled out if the subject is omitted (no. 9–12 in Table 7.3), despite having a German or Italian word order, or the finite verb being Italian or German. In sharp contrast, if the CP is German and the subjects are realized, what

Table 7.3. Main predictions about possible mixings

No.	Possible mix	C ⁰	Word order	Finite verb	Subject realized	Example
1	Yes	Italian	Italian	Italian	No	sai [CP che [TP sa <u>singen</u>]]
2	Yes	Italian	Italian	German	No	sai [CP che [TP kann <u>singen</u>]]
3	No	Italian	German	Italian	No	sai [CP che [TP <u>singen</u> sa]]
4	No	Italian	German	German	No	sai [CP che [TP <u>singen</u> kann]]
5	Yes	Italian	Italian	Italian	Yes	sai [CP che [TP lei sa <u>singen</u>]]
6	Yes	Italian	Italian	German	Yes	sai [CP che [TP sie kann <u>singen</u>]]
7	No	Italian	German	Italian	Yes	sai [CP che [TP lei <u>singen</u> so]]
8	No	Italian	German	German	Yes	sai [CP che [TP sie <u>singen</u> kann]]
9	No	German	Italian	Italian	No	sai [CP dass [TP sa <u>singen</u>]]
10	No	German	Italian	German	No	sai [CP dass [TP kann <u>singen</u>]]
11	No	German	German	Italian	No	sai [CP dass [TP <u>singen</u> sa]]
12	No	German	German	German	No	sai [CP dass [TP <u>singen</u> kann]]
13	No	German	Italian	Italian	Yes	sai [CP dass [TP lei sa <u>singen</u>]]
14	No	German	Italian	German	Yes	sai [CP dass [TP sie kann <u>singen</u>]]
15	Yes	German	German	Italian	Yes	sai [CP dass [TP lei <u>singen</u> sa]]
16	Yes	German	German	German	Yes	sai [CP dass [TP sie <u>singen</u> kann]]

matters is word order: with an Italian word order the utterance will be ill-formed (no. 13–14), with a German word order it will be grammatical (no. 15–16), independently of the finite verb being German or Italian. In sum, the prediction is that if the complementizer is Italian, the TP will be Italian, too. Also, word order will be Italian. In this case, the subject may be realized or omitted, since both possibilities are admissible. The language of the finite and of the infinite verb is irrelevant. All these kinds of switches will be grammatical. Only when the complementizer is German, and builds up a German structure, and hence a German TP, is the possibility of omitting the subject rejected. Consequently, switches with a German CP and a null-subject are out, regardless of whether the verb is Italian or German.

I take the strongest position and hypothesize that in bilingual speech there are no cases of code-switching between two languages labeled A and B where the complement comes from language A (which is an overt subject language) and in the subordinate clause we find a null-subject, word order being either that of language A or language B (cf. examples no. 9–12 in Table 7.3). This is not necessarily tenable for second language acquisition (L2). It is however not the intention of the present work to make predictions for the interactions of an L1 and an L2 lexicon. The examples provided so far show that this assumption makes correct predictions. In fact, in all cases with an Italian C^0 and a German T^0 , we find a null-subject. I am aware that this evidence is drawn from only five examples. Furthermore, there are no counter-example such as a German C^0 and an Italian T^0 , where the prediction is that the subject will be obligatorily realized.

In order to corroborate the assumption and to make the predictions more reliable, I looked at data from other studies and involving different language-pairs. The data come from adult code-switching. If the predictions are right and can be generalized, then we should find no differences between child and adult code-switching.¹¹ Code-switching always occurs within the CP, that is, between a complement and the complement clause.¹² None of these examples have been analyzed with respect to subject omission in the embedded clause, nor has the role of the complementizer been discussed yet. Recall both the *Government* and the *Functional Head Constraint*: The former allows mixing between

a complementizer and its complement, as long as C^0 is in the language of the matrix clause, given that the verb in the main clause governs the complementizer. In contrast to this, the FHC disallows mixing between the complementizer and the complement clause (cf. the examples in chapter 4). But what is eye-catching in the examples (22)–(23) from DiSciullo et al. is that no subject has been realized in the embedded clause although French is an overt subject language. In fact, one should expect the utterances to be as in the following created sentences, the added subjects being in bold (two further examples from DiSciullo, Muysken & Singh 1986:14 are included):

- (22) E l'altro dice come s'appelle
And the other one says how (he) is called
- (22a) E l'altro dice come **lui/il** s'appelle
And the other one says how he is called
- (23) Dice quando paye, **all right!**
(He) says when (he) pays, all right!
- (23a) Dice quando **lui/il** paye, **all right!**
(He) says when he pays, all right!
- (136) Basta che **questo/ça** marche
(It) is enough that it works
- (137) No, parce que **loro/ils** hanno donné des cours
No, because they have taught courses

As predicted in (g), when the complementizer is Italian (*che*, *come*, *quando*), and is hence selected from the Italian lexicon, it projects an Italian CP, and subsequently an Italian TP, this way allowing a subject omission in [Spec TP]. This occurs although the finite verb in the embedded clause is French, a language that does not allow subject omissions. The utterance in (137), however, poses a problem for the analysis. Since the complementizer *parce que* is French, it should project a French CP and TP, disallowing the [Spec TP] position to be filled with a *pro*. Two different analyses are possible in order to explain this case: Either French allows null-subjects, as argued in for example Roberge (1986), Kaiser & Meisel (1991), and Kaiser (1992), or *parce que* is not in C^0 but in [Spec CP]. In fact, it has been proposed that some complementizers in French move to the specifier position of the CP (cf. Felix 1990; for a more

detailed discussion on this, cf. Müller 1993). However, it is not clear if this holds for *parce que*, too. If it is so, then *parce que* being French does not provide support for the CP to be French, since it is in [Spec CP] and not in C⁰. In this case, it may be that the subject omission is based on the Italian finite verb in T⁰. If we adopt the view that French allows null-subjects, then this code-switch is of course well-formed, because, as is claimed here, if the head of the CP comes from a null-subject language, then the head of the TP will also allow null-subjects. Accordingly, two null-subject languages, Italian and French, interact in these examples.

Turning to the examples in Belazi, Rubin & Toribio (1994) in chapter 4, it is necessary to point out that in this case we are dealing with invented cases of code-switching in order to check grammaticality, and not with spontaneous data. If indeed the sentences have been judged to be ungrammatical, the answer why this should be so is not evident. Note that in the two languages involved (English and Spanish) word order is identical in these sentences, so that no predictions can be made with respect to which language is the underlying one. Furthermore, in all sentences the subject is realized. Regarding prediction (g), a null-subject should be disallowed in (26) and (27), given that the complementizer is English. Presently, I consider all four cases as well-formed instances of code-switching. The same analysis holds for the next examples taken from Toribio (2001:209), who reaffirms the statement of the FHC:

- (25) The professor said *que el estudiante había recibido una A*
- (26) *El profesor dijo* that the student had received an A
- (27) *The professor said that *el estudiante había recibido una A*
- (28) **El profesor dijo que* the student had received an A
The professor said that the student had received an A
- (138) *The professor said that nosotros somos buenos alumnos
- (139) *La profesora dijo que we are good students

Again, these sentences are said to be ungrammatical because a switch between the complement and the embedded clause is disallowed by the FHC. Here, it is claimed that all cases are well formed, given that no language-specific rules of the two languages involved are violated. Since Spanish and English are one of the most analyzed language-pairs, the

next examples, taken from different studies, also come from this language combination. For the purpose of the present analysis, these two languages are very interesting, given that Spanish is a Null-Subject-Language and English is an overt subject language. These languages are thus comparable to the language-pair this work is based on, namely, Italian and German.

- (140) *Tell Larry que se calle la boca
Tell Larry that himself to shut his mouth
 Gringas (1974, cited in Poplack 1980:586)
- (141) I ask him que yo voy a casa
I ask him that I go home (Lindholm & Padilla:1978)
- (142) Se me hace que I have to respect her porque ta ... older
It appears to me that I have to respect her because is
(she)older (Lance 1975:143)
- (143) No creo que son fifty-dollar *suede ones*
I don't think that are (they) fifty-dollar suede ones
 (Poplack 1980:591,598)

The examples (140) and (141) are cases in which the whole embedded clause is from a different language than the main clause. Hence, the switch occurs **before** the complementizer, which would be disallowed in the GC. Concerning my analysis, I can only state that we have both a subject omission (140), and a subject realization (141), as is perfectly well-formed in Spanish. Example (142) is interesting, insofar as there are two embedded clauses. Both are Spanish, since the complementizer is the Spanish *que*. In the first clause, we have a subject realization (*I have*), in the second a subject omission (*ta*). Example (143) is less attractive, since we have both a Spanish complementizer and a Spanish finite verb. Therefore, no clear statement can be made.

In sum, this subsection provided evidence for the assumption that the head of the CP plays a crucial role in mixed utterances. Both data from a bilingual child and data from studies on adult code-switching have been analyzed. The fact that there is no counter-evidence to my claim and that the predictions made about what kinds of code-switches are possible cannot be falsified, is in my view a positive result. In other words, if there is no

evidence for a complementizer coming from an overt subject language going along with a subject omission in an embedded clause, then this is an outcome of the fact that this kind of switch is not possible.

As an important result, the present data show how CS underlines the role of functional categories in sentence structure. This evidence is not available when analyzing monolingual utterances, since one cannot identify which element is responsible for word order when all items in an utterance are taken from only one language.

7.3.3 *CS involving the TP*

MacSwan (1999, 2000) assumes that parametric variation is encoded within the lexicon. In this sense, in code-switching, lexical items coming from each of the two lexicons carry language-specific features, which will be introduced into the derivation, and will then be checked.

So far, the present data have confirmed this approach. But what happens if CS involves a construction which requires different parameter settings, hence, different language-specific requirements? I claim that the language of the highest functional category in an utterance is the one which provides the grammatical rules which must be followed. The language of C^0 determines the structure below. If C^0 is Italian, word order in the structure below is also Italian. C^0 being Italian, only features which regard the Italian grammar are checked, either on Italian items or on German ones. The data discussed in the previous subsection have shown that the Italian C^0 determined the features of the structure below, allowing for example, null-subjects to occur in the TP although the verb was German. Evidence for an Italian structure is also provided by word order, which is always Italian.

In the following, I expand on this claim by concentrating on the TP domain. Similarly to the analysis of the CP, it seems tenable to assume that the head of the TP, hence a functional element, will be responsible for projecting the whole structure below. Claim (i) is thus formulated in the spirit of the foregoing claim (g):

- (i) **T^0 determines the features of the code-switched complements**

This prediction is in line with Chan's (2003) claim that the language of any functional category determines the position of its complement.

Here, it is assumed that the lexical entry of the functional element, that is, the features the element carries, will determine word order in the sentence.

Since the beginning of research on code-switching, word order has been a topic of interest. The main question is: When there is CS between two languages which have different word orders, which one determines word order (phrase structure)? As a matter of fact, the Equivalent Constraint disallows mixing between two languages with different word orders. However, several studies show evidence to the contrary, namely, there is indeed mixing between language-pairs with different word orders. Myers-Scotton (1993) proposes that there is a ML which is responsible for word order in a mixed utterance. As already discussed, this account has several shortcomings, which begin with how to define the ML itself. Mahootian & Santorini (1996, based on Mahootian 1993) claim that in code-switching lexical and functional heads determine the word order of their code-switched complements, as they do in pure languages. In discussing this account, Chan (2003) points out that it is controversial to assume that word order is a lexical property. In fact, the current minimalist assumption is that word order depends on the strength of features in functional categories. If features are strong, relevant constituents have to move in order to check them. Therefore, word order should be independent of features encoded in the lexical item *verb* (and consequently independent of the language of the verb). Chan has evidence for both cases, namely, that the language of the verb determines the position of its complement, and that objects move to the specifier position of functional categories for the purpose of feature checking. Furthermore, there are problematic examples in which objects are base-generated (and do not move), but their position does not correspond to the language of the verb, for example, if the language of the verb asks for OV word order, the object is postverbal.

Following the production model of Levelt (1989), Chan suggests that word order is not stored in the lemma (which contains the morpho-syntactic information of a word), but depends on the order in which constituents are produced. For example, in building an utterance, after the subject has been processed, the structure for building the sentence and subsequently the predicate VP is triggered. When the lemma for

the verb has been retrieved, the parameter associated with this verb will be set (Chan 2003:91–92). With respect to the problematic cases in which the object position does not reflect the correct word order, Chan claims that ‘these patterns (...) do not arise out of violations of head parameters, but they result from a “mismatch” of *the fixed value of the VO/OV parameter* and *the language of the verb selected* in the production process’ (2003:94, italics in original). Summing up and dismissing Mahootian’s (1993) assumption, lexical heads do not necessarily determine the order of their complements. Chan assumes that functional categories are indeed responsible for the order of their complements. I agree with this assumption. In the last subsection, I have shown that the functional head C^0 is responsible for building the structure below. This assumption is now expanded to the functional head T^0 . However, as reported in Chan, in the following cases of CS which do not corroborate this claim are also discussed.

In analyzing a certain type of mixed utterances which seem to be in conflict with language-specific requirements, MacSwan (1999, 2000, 2004) posits that word order is determined by the language of the verb V^0 . This is a consequence of the fact that V^0 has to raise to T^0 in order to check ϕ -features. Given that the *PF Disjunction Theorem* predicts that no mixed-language heads are allowed, the two items V^0 and T^0 have to be from the same language. The language of V^0 will determine word order. This prediction is not consistent with the findings of the analysis in the previous section, where it has been claimed that the German V^0 raises to check features to the Italian T^0 . In fact, the outcome of the analysis was indeed a mixed-language head. The question arises as to what happens in tensed clauses formed by an auxiliary and a past participle or a modal and an infinitive. By implication, the finite verb moves to T^0 whereas the infinitive stays in V^0 .¹³

In German, the finite verb moves to CP. Since the following analysis concentrates on the Italian TP, this is put aside here.

The crucial question is whether V^0 or T^0 determine word order. The two languages under investigation are similar in present tense sentences, in that the finite verb always precedes the object, and in sentences without an object, because the auxiliary or the modal also always precede the finite verb. In contrast, Italian and German differ with respect to

the position of objects and other elements in clauses containing complex tenses, in that in German objects and negators precede the finite verb, whereas in Italian these elements appear after the infinite and finite verb.

Given these similarities and differences, we should now particularly look at CS in tensed clauses formed by an auxiliary and a past participle or a modal and an infinitive which contain objects (in Italian, clitics are also included) or other elements, as for example adverbs. The examples discussed are mostly drawn from the Lukas and the Aurelio corpus, since only a few occurrences of switches are attested at this boundary in the other children. The mixes, except for one, all occur in the Italian context and the finite verb (auxiliary or modal) is always Italian.¹⁴

Current assumptions suppose that in Italian the finite verb moves to T⁰ (see the invented example (144)). In tensed clauses with complex tenses, the structure looks different: the finite verb moves to T⁰, but the infinitive stays in its base position within the VP (Belletti 1990), as depicted in the invented examples (145) and (146):

- (144) [TP Sara suona [VP il sassofono]]
Sara plays the sax
- (145) [TP Sara ha [VP comprato un sassofono]]
Sara has bought a sax
- (146) [TP Sara vuole [VP comprare un sassofono]]
Sara wants (to) buy a sax

I claim that if T⁰ is Italian, it builds an Italian TP. As argued for the CP in the last subsection, this does not imply that the whole TP must be filled with Italian items. Still, word order will be Italian. Feature checking will be successful, since the relevant features will only come from Italian. Let us now look at CS in the children's data. In some instances of mixes between the auxiliary/modal and the past participle/infinitive in Lukas and Aurelio, word order is the same in both languages, because the object is not realized, so that no evidence as to whether word order is Italian or German can be drawn from these sentences.¹⁵ For purposes of transparency, the German translation and thus word order in a monolingual German utterance is also given.

- | | | |
|-------|--|---|
| (147) | a- adesso è <u>gelandet</u>
<i>now (he) is landed</i> | Ger.: jetzt ist er gelandet
(Lu, 4;2,28, IC) |
| (148) | noi abbiamo <u>gewonnen</u>
<i>we have won</i> | Ger.: wir haben gewonnen
(Au, 3;6,29, IC) |
| (149) | devi <u>weitergehen</u>
<i>(you) must go on</i> | Ger.: du musst weitergehen
(Au, 3;8,1, IC) |

In the next examples, the complement is realized as a clitic object. Mixes between an auxiliary/modal and a past participle/infinitive with an object realized as a clitic pronoun occur 21 times in Lukas and 15 in Aurelio. Word order is always Italian.

- | | | |
|-------|---|---|
| (150) | mi devi <u>festhalten</u>
<i>me clit (you) must hold</i> | Ger.: du musst mich festhalten
<i>you must me hold</i>
(Lu, 3;7,15, IC) |
| (151) | il papà lo ha <u>gekauft</u>
<i>the dad it clit has bought</i> | Ger.: der papa hat es gekauft
<i>the dad has it bought</i>
(Lu, 3;6,13, IC) |
| (152) | qua si può <u>sitzen</u>
<i>here one clit can sit</i> | Ger.: hier kann man sitzen
<i>here can one sit</i>
(Lu, 3;6,30, IC) |
| (153) | lo devi - lo dobbiamo <u>aufkleben</u>
<i>it clit (you) must - it clit (we) must stick</i> | Ger.: wir müssen das aufkleben
<i>we must it stick</i>
(Au, 4;0,9, IC) |
| (154) | non lo devi <u>verraten</u>
<i>not it clit (you) must tell</i> | Ger.: das sollst du nicht verraten
<i>this should you not tell</i>
(Au, 3;6,14, IC) |

In all utterances, the position of the clitic corresponds to that of Italian structure in monolingual utterances. In a German utterance, the object would appear between the auxiliary/modal and the past participle/infinitive. If we assume that clitics are heads (cf. e.g. Roberge 1986)¹⁶ which combine with the verb (also a head), thus creating a complex head, the PF/DT (MacSwan 1999, 2000) seems to predict that no clitic of language A can be combined with a verb coming from language B,

because mixed-language complex heads are disallowed. In section 7.2, however, there were several counter-examples, namely, instances of CS between a clitic and a finite verb.

Two explanations are possible in order to explain the incompatibility of the present data with the PF/DT: Either clitics are not heads, and therefore do not combine with the verb, forming a complex head, or the PF/DT is too restrictive and must be reformulated in order to allow these kinds of mixes with a clitic from language A and a verb from language B. I do not favor one of these explanations at present, since more data and a more specific analysis on the nature of clitics are needed. This is surely a topic for further research.

Taking a closer look at (154), one can observe that the position of the negator also reflects Italian rather than German word order. There is a consensus in the CS literature that mixing at this boundary is ill-formed (Timm 1975). However, as already presented in section 7.2, there are a few cases in which there is a switch between the negator and the finite verb in the present data. The examples are repeated below.

- (74) non lo brauchen (Lu, 3;1,30, IC)
not it need
- (75) ma questo non darf (Lu, 3;6,13, IC)
but this (one)(is) not allowed
- (76) allo io, io non spiel mit nicht =allora (Au, 3;5,30, IC)
then I, I not play with not
- (77) n-n-n-n non funzioniern (Au, 3;9,13, IC)
n-n-n-n not work (they)

When a negator is involved, the utterances always have Italian word order. It is noteworthy to say that, since we mostly have Italian negators in mixed utterances, and since the finite verb is always Italian in these mixes, the fact that the negator is in the Italian position is not a surprising result. Nevertheless, in the instances involving an Italian negator and a German finite verb in present tense clauses, word order is Italian. The explanation for this apparent contrast to the data discussed so far may be that *brauchen* and *funzioniern* in respectively examples (74) and (77) are in fact both the plural form in the present tense (*we/you/they need, we/you/they work*) and the infinitive form (*to need/work*). If we analyze

The next code-switches to be discussed involve DPs as direct objects. Since the German VP is right-headed, the complement always precedes V^0 in a German structure. By contrast, the Italian complement always follows the verb within the VP. These sentences are thus perfectly suited for checking whether the Italian T^0 indeed projects an Italian word order on the structure below it or not. Consider the ensuing examples:

- In (155), the mixed object DP follows the infinitive verb, whereas in example (156) there is a complete switch to German after the modal.¹⁸ These cases are evidence in favor of claiming that the head of an Italian TP projects an Italian structure below it. Usually, with a German V⁰, one should expect a German word order and thus the complement to precede the verb. But this is not the case, since we find Italian word order.

(157) vogliamo ein gefängnis machen (Lu, 3,6,13, IC)
(we) want a prison build

(158) adesso deve il cameliele wandern (Lu, 3;6,30, IC)
now must the waiter walk around

(159) adesso siamo al fest gegangen (Lu, 3;6,30, IC)
now (we) are to the party gone

- (160) vogliamo il il pirati la angel klauen (Lu, 3;7,15, IC)
 (we) want the the pirates the fishing rod steal

These utterances do not corroborate claim (h). By contrast, they show that the German verb inside the VP plays a role in word order, given that the position of the complement is German. This occurs independently of whether the object is a German DP (as *ein gefängnis* in example (157)), or an Italian DP (as *il cameriere* in (158)), or a mixed DP (as *al fest* or *la angel* in (159) and (160)).

In Aurelio's data, all instances of CS within this domain (besides the ones involving clitics and negators) reflect an *incorrect* word order: In fact, word order is not the one predicted by the language of T⁰ (Italian), but the one of the language within the VP, German. In Lukas, there are both cases of complements which precede the finite verb (15 instances), as German predicts, and others in which the complement follows the verb (4 instances), as is grammatical in Italian. How can we account for this heterogeneous data and what consequences do they have for claim (h)?

Let us first discuss the mixes involving a DP as the object. Two accounts can be put forward in order to explain German word order in these cases. One could assume that, V⁰ being German in all these utterances, a head-final VP is therefore projected. Consequently, the complement precedes the infinitive in these cases. In a nutshell, this argumentation leads to the assumption that when picking V⁰ from the German lexicon a head-final German VP is built. This occurs despite the finite verb being Italian and moving to the head of TP in order to check features. The telling point is: The Italian T⁰ is responsible for projecting the structure below, which will reflect Italian word order. However, the head of V will be responsible for word order inside VP. If V⁰ is German, word order within the VP will be German. Besides the fact that it does not corroborate claim (h), this explanation has some shortcomings. In fact, in 4 of the 19 cases in Lukas when V⁰ is picked from the German lexicon the VP is not head-final, as in the examples (155)–(156) above. It is not convincing to assume that the head of V only sometimes determines word order within the VP, but not always. Furthermore, this explanation leads to the assumption that not only functional elements

but also lexical elements, for example V^0 , are responsible for projecting phrase structure. If indeed this is the case, then the question arises as to what happens in conflicting cases, namely, when a lexical and a functional head compete, for example, in the DP: What is responsible for projecting the phrase, the determiner in D^0 or the noun? This explanation so far defies providing a persuasive explanation on why there seems to be German word order within the VP. Notwithstanding, this line of argumentation is corroborated by Chan's (2003) results on his analysis of OV/VO order. I will return to this below after discussing another possibility for explaining these kinds of mixes.

A second explanation abstracts away from assuming an influence from German. In view of the fact that in Italian there is evidence for a certain type of element located between the auxiliary/modal and the past participle/infinitive, one could hypothesize that the children *overgeneralize* this evidence. In other words, one could assume that in child speech the object DP is moved to a position which is not grammatical for these elements, but which is indeed a grammatical position for other elements. Consider the following invented Italian utterances (adverbs are bold):

- (161) dobbiamo **ancora** fare la spesa
 must (we) still make the shopping
- (162) puoi **già** cominciare a mangiare
 can (you) already start to eat
- (163) ho **solo** letto la prima parte del libro
 have (I) only read the first part of the book

According to general assumptions on the position of adverbs in Italian, there is no canonical order of AdvP (which is considered to be an adjunct), but rather a free distribution (Belletti 1990, Cinque 1999:12).¹⁹ Belletti (1990:67) further proposes that there are some types of *lower adverbs* which can also fill higher positions in the clause, in that they are adjoined to a higher projection. Descriptively, Italian adverbs are categorized in different domains. Not all AdvP can appear in different positions in the clause. Furthermore, functional projections hosting these different types of adverbs in their specifier are presupposed to be hierarchically ranked (Cinque 1999:106). With respect to the present discussion, the

- (167) uno (...) deve **adesso** rudern (Lu, 3;5,8, IC)
someone (...) must now row
- (168) io non voglio schlafen **adesso** (Lu, 3;4,25, IC)
I not want (to) sleep now
- (169) non sono **ancora** appen gegangen =appena
 (Au, 3;9,1, IC)
not are (they) already even gone
- (170) qua si può wi- **così** winken qua mit²⁰ (Lu, 3;5,18, IC)
here one can wa- so wave here with

- (171) tu devi là gehen (Lu, 3;6,30, IC)
you must there go
- (172) ma non si può qua machen (Lu, 3;7,15, IC)
but not one can here make
- (173) te devi qui klicken (Au, 3;10,3, IC)
you clit must here click
- (174) lo ha ingesperrt li drento =dentro
him clit has (he) locked in there inside (Lu, 4;3,28, IC)
- (175) lo ho solo weggezaubert (Au, 3;11,29, IC)
it clit have (I) just spirited away

In sum, 12 of the 27 cases in which Italian adverbs occur in mixed utterances are ill-formed with respect to the position of the adverb. In fact, (167) and (170)–(173) are ungrammatical in Italian. In four cases, the adverb is VP final. There are also four instances of German adverbs mixed into Italian. They all occur in Lukas and are perfectly well-formed with respect to German word order. For the sake of transparency, I add the parallel Italian utterances to these instances.

- (176) si deve wieder ranmachen (Lu, 3;6,13, IC)
one must again fasten it
 Italian: si deve **nuovamente** attaccare
- (177) io voio noch das essen =voglio
I want still this eat (Lu, 3;10,3, IC)
 Italian: io voglio **ancora** mangiare questo
- (178) e io voio sowieso schon schon sonne ansehen =voglio
and I want anyhow already sun watch (Lu, 3;6,30, IC)
 Italian: e io voglio **comunque** già vedere il sole
- (179) si può besser befendele (Lu, 3;7,15, IC)
one can better defend (it)
 Italian: si può difendere **meglio**

The question that remains is what influences does the German verb have on the fact that the Italian adverbs seem to be used like German ones? It is in fact crucial to say that the adverbs *here*, *there* and *now* precede the VP in German. It is untenable to assume that the Italian items have features belonging to German adverbs, since lexical items come from

the lexicon already having their features. It rather seems that the Italian items are inserted in a German structure which has German word order. Again, this can only be reasonable if one assumes that V^0 has an impact on projecting clause structure, at least the VP, and maybe on the adjunct. The only convincing explanation is that due to the fact that the head of the VP is German, German word order follows, the VP being head-final and allowing any other element to be in the specifier position and to precede the verb.

I argue that the instances of incorrect position of the Italian adverb only occur because there is evidence for this position being filled with at least some types of adverbs in Italian. The children may overuse this possibility and extend it to other adverbs, which in reality do not offer this option. Claiming so, I pursue an explanation within the Italian grammar, that is, an internal, monolingual one, and not an explanation based on cross-linguistic influence. I further predict that this overgeneralization also occurs in monolingual language acquisition. To the author's knowledge, this phenomenon has not been studied yet. It is indisputably a topic for future research.

Finally, the use of quantifiers and pronominal elements is discussed. Note the following examples:

- | | | |
|-------|--|------------------|
| (180) | ti voglio qualcosa <u>zeigen</u>
<i>you clit want (I) something show</i> | (Au, 4;0,9, IC) |
| (181) | quando te hai <u>gewürfelt</u> devi una (nehm)
<i>when you have thrown dice must (you) one take</i> | (Au, 3;8,1, IC) |
| (182) | devi tu <u>aufmachen</u>
<i>must you open</i> | (Lu, 3;6,30, IC) |
| (183) | te lo devo io <u>zeigen</u>
<i>you clit must I show</i> | (Au, 3;10,3, IC) |

The intermediate position is correct for German pronouns and quantifiers, but not for Italian ones. Since some Italian quantifiers have a free distribution in the clause, there is again evidence for the fact that, in Italian, the intermediate position between the finite verb and the infinite verb can be filled. This evidence argues in favor of an overgeneralization of the position preceding the VP.

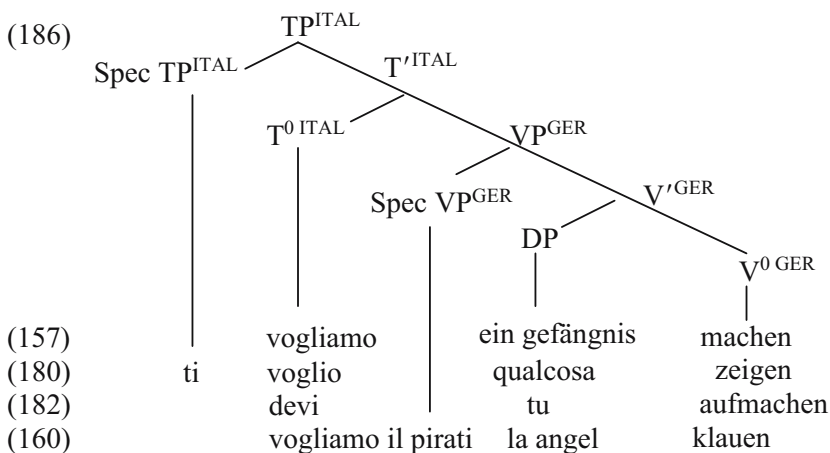
(184) valeia è **anche** gekommen (Au, 3;6,29, IC)
valeria is also came

(185) posso **ancoa** una nehmen (Au, 3;8,13, IC)
(I) can still one take

Another possible explanation is to assume that, given that there is evidence in Italian for the field preceding the VP to be filled with an AdvP adjunct, this possibility has been overused by the children, in that they also put other elements (e.g., other adverbs, DPs) in this VP initial position. This line of argumentation pleads for caution, since it

is very untenable to argue in favor of a DP being an adjunct. However, the explanation of an overgeneralization might hold with respect to the incorrect use of some classes of adverbs (e.g., *ancora* vs. *adesso*). A more specific analysis of monolingual utterances must be done in order to shed more light on this topic.

As depicted for the CP, the tree (186) below illustrates how the lexicons interact with respect to the TP and the VP domains. Along these lines, within the VP V^0 is responsible for word order. This has serious consequences with respect to claim (g) and (h). For the CP, the data provide a convincing explanation that C^0 determines the whole structure below. Regarding the TP, one has to state that T^0 might only determine the TP itself, but not the VP.



Chan (2003) claims that functional elements **always** determine the structure below, whereas lexical elements can determine it occasionally, but not throughout. The present findings do not corroborate the idea that lexical elements occasionally determine word order. I claim that the functional categories C and T are responsible for projecting the structure below, and hence word order, but that within the VP the head V is responsible for word order. Along these lines, if V is German, the VP will be head-final, as German predicts.

Table 7.4. Findings of word order analysis

T ⁰	Word order of VP	Complement				Predicted by analysis
		Clitic pronoun	DP	Adverb	Pronominal element	
Italian	German	0	15	12	7	No
Italian	Italian	36	4	15	0	Yes

The question arises how to explain the four cases in which Lukas shows an Italian word order within the VP (using a DP), although the finite verb is German. A possible explanation is that this word order might also sometimes occur in monolingual German utterances produced by bilingual children. Köppe (1997) reports only a few cases of OV word order in the French utterances of bilingual German/French children. This word order mostly occurs with the pronominal *ça* (*this/that*, equivalent to Italian *questo*). In German, the children show VO word order to a different degree. In this sense, some kind of cross-linguistic influence might be visible here, but only in one direction, namely German shows VO structures as is grammatical in French. These findings are in line with the present observations. It is probable that Lukas also has VO structures in monolingual German utterances. Hence, it is not surprising to find a few cases of VO word order in mixed utterances, too. Further research in this field will shed light on this assumption. The findings of this subsection are summarized in Table 7.4.

7.3.4 CS involving the DP

Previously, I claimed that the language of the highest functional head in a sentence determines word order in the structure below. However, in discussing mixes involving the TP, the data not always corroborate this prediction. In several cases, word order within the VP was not the one according to the language of T⁰, but rather the one predicted by the language of the lexical category V⁰.

I hypothesize that within the DP the role of the lexical element is crucial for projecting the phrase, whereas the functional element is unimportant. Given that the two languages under investigation do not

differ significantly in the structure of this domain (both are D-initial), an analysis of the order of complements is useless at this point, since no conclusions can be drawn in looking at mixed DPs. The present data cannot shed light on the role of the functional element in this domain. Nevertheless, the two languages differ with respect to their gender systems: Italian has two genders, masculine and feminine, whereas German has three, masculine, feminine, and neuter gender.²¹ In both languages, gender is marked on the determiner. In Italian, gender is mostly marked on nouns; number is marked on both elements in both languages. In German, case is also marked on determiners and nouns.

As has been shown in the preceding sections, language mixing between a verb and an object occurs independent of the DP being mixed or monolingual. This is not to say that mixed DPs in Italian/German bilingual data are not interesting. First of all, mixing within this domain is the object of controversial discussions. Some authors claim that CS at this boundary is not allowed (cf. the *Functional Head Constraint*, Belazi, Rubin & Toribio 1994), because a complement must be drawn from the same language as the head of a phrase. Other authors consider it to be borrowing rather than code-switching (e.g., Toribio 2001). Both argumentations have shortcomings. Switching at this boundary seems to be easy, since it has been observed to occur very often, in child as well as in adult code-switching. Hence, it is not tenable to consider mixing within the DP as ill-formed, because then most of the mixed utterances of bilinguals would be ungrammatical. In order to avoid this implausible claim that mixing is ill-formed, it has been proposed to consider these elements as borrowed or inserted rather than switched. In doing so, one can put aside an analysis of these elements, because they are just adapted and do not have to follow grammatical constraints imposed by the language in which they are inserted. But considering nouns as borrowed rather than switched neither explains away these mixes nor does it provide a convincing explanation. It only causes superfluous debates on what a code-switch is. I claim that all instances of mixes within the DP are code-switches.²² The following claim can thus be formulated:

- (j) **The switched noun determines the gender of the determiner**

In the following, all cases of mixed DPs in which the noun has been switched into the other language context will be analyzed.²³ In some cases, the determiner has been switched into the other language; but they are not presented here. Claim (i) leads to the following prediction: there are no cases in which the determiner is marked with the gender of the equivalent word, for example, if the Italian noun *stella* (*star*), which is feminine, is switched into German, the noun is accompanied by a feminine determiner, *die stella*, and not with a masculine one, *der stella*, although the German equivalent of *star* is masculine, *der stern*. This is the outcome of the two lexicons interacting with each other, while the noun is switched with all its properties, hence the gender is also switched into the other language. The rule of marking the determiner with the gender of the equivalent word is usually used on loan words in L2, for example, the Italian feminine *la mozzarella* (a typical Italian cheese) becomes *der mozzarella* in German, according to the German noun for cheese, which is the masculine *käse*. I assume that this does not hold for code-switching in bilingual speakers. Each determiner and each noun were labeled with the gender it is marked with (MAS for masculine, FEM for feminine, NEU for neuter). The translation is also provided.

- (187) ein_{MAS}treno_{MAS} German: ein_{MAS} zug_{MAS}
a train (Ma, 2;5,26, GC)
- (188) la_{FEM}überraschung_{FEM} Italian: la_{FEM} sorpresa_{FEM}
the surprise (Ca, 5;0,15, IC)

- (189) un_{MAS} hund_{MAS} Italian: il_{MAS} cane_{MAS}
a dog (Au, 3,5,30, IC)
- (190) sulle_{FEM} wolken_{FEM} Italian: sulle_{FEM} nuvole_{FEM}
on the clouds (Ja, 2;7,7, IC)
- (191) le_{FEM} erdbeeren_{FEM} Italian: le_{FEM} fragole_{FEM}
the strawberries (Lu, 2;8,26, IC)

Examples (187)–(191) cannot confirm claim (i), since in both languages the relevant nouns are marked with the same gender. But they are counter-examples to the claim that mixing does not occur in this domain. If borrowings are considered to be words with a specific cultural meaning, which do not have an equivalent, we can safely say that the nouns in (187)–(191) are by no means borrowings, since none of the words *train*, *surprise*, *dog*, *cloud* or *strawberries* has a specific meaning in one of the two languages. Now consider mixed DPs where the switched nouns have a different gender in the two languages.

- (192) eine_{FEM} pecora_{FEM} German: ein_{NEU} schaf_{NEU}
a sheep (Ma, 3;4,21, GC)
- (193) ein_{MAS} pomodoro_{MAS} German: eine_{FEM} tomate_{FEM}
a tomato (Ma, 2;5,26, GC)
- (194) ein_{MAS} girasole_{MAS} German: eine_{FEM}
a sunflower sonnenblume_{FEM}
 (Ma, 2;6,10, GC)
- (195) eine_{FEM} scimmia_{FEM} German: ein_{MAS} affe_{MAS}
a monkey (Ma, 2;8,26, GC)
- (196) ein_{MAS} gufo_{MAS} German: eine_{FEM} eule_{FEM}
an owl (Ma, 3;1,3, GC)
- (197) eine_{FEM} pentola_{FEM} German: der_{MAS} topf_{MAS}
a pot (Ca, 2;9,25, GC)
- (198) für die_{FEM} cintura_{FEM} German: für den_{MAS} gurt_{MAS}
for the belt (Ca, 3;6,3, GC)
- (199) una_{FEM} blume_{FEM} Italian: un_{MAS} fiore_{MAS}
a flower (Au, 3;8,13, IC)
- (200) il_{MAS} schwanz_{MAS} Italian: la_{FEM} coda_{FEM}
the tail (Ja, 3;7,1, IC)

- (201) un_{MAS} kampf_{MAS} Italian: una_{FEM} lotta_{FEM}
a fight (Ja, 4;4,6, IC)
- (202) quel_{MAS} licht_{MAS} Italian: quella_{FEM} luce_{FEM}
that light (Lu, 3;5,8, IC)
- (203) nel_{MAS} mio_{MAS} koffer_{MAS} Italian: nella_{FEM} mia_{FEM}
in the my bag valigia_{FEM}
 (Lu, 3;4,7, IC)

In examples (192)–(203), the gender marked on the determiner always corresponds to the gender of the switched noun and not with the equivalent translation. These data corroborate the claim that the noun carries gender features, which are consequently switched with the word. There are also counter-examples in the child data, namely, cases in which the determiner is not marked with the gender of the noun. In these instances, the gender marked on the determiner is either that of the equivalent word in the respective other language, or a different gender, which cannot be attributed to either of the two words.

A quantitative analysis of the mixed DPs is depicted in Table 7.5. In the third column, we find all occurrences of mixed nouns, whose equivalent

Table 7.5. Gender in mixed DPs²⁴

Child	Language context	Same gender class	Different gender classes		Other gender errors
			Gender of switched N	Gender of equivalent N	
Carlotta	Italian	23	16	0	1
	German	32	7	0	1
Lukas	Italian	121	49	6	1
	German	0	0	0	0
Jan	Italian	40	24	4	4
	German	9	1	1	2
Aurelio	Italian	89	20	11	2
	German	5	8	2	2
Marta	Italian	23	7	1	0
	German	56	18	5	7
Total		398	150	29	21

noun is in the same gender class. These instances are not important for the present analysis, because they neither confirm nor disconfirm claim (i). The fourth column is the most relevant with respect to my prediction: In these utterances, the gender of the noun is marked on the determiner although the equivalent word in the other language belongs to another gender class. Column 5 shows the cases in which the determiner is marked with the gender of the equivalent word of the switched noun. Finally, in column 6 gender errors with no apparent explanation are presented.

The quantitative analysis leads to the conclusion that in most of the cases (84%) the children mark the determiner with the gender of the switched noun. The remaining 16% will now be discussed. In some cases, the determiner was marked with the gender of the equivalent noun. In four of the six cases in Lukas there is evidence both for marking the determiner with the gender of the noun and for marking the determiner with the gender of the equivalent word, as depicted in (208) and (209). There are also cases of gender marking which neither reflect the gender of the switched nouns nor that of the equivalent, as in examples (210)–(213):

- (204) una_{FEM} kreuz_{NEU} Italian: una_{FEM} croce_{FEM}
a cross (Lu, 3;4,7, IC)
- (205) con i_{MAS} blumen_{FEM} Italian: con i_{MAS} fiori_{MAS}
with the flowers (Ja,3;4,23, IC)
- (206) eine_{FEM} sole_{MAS} German: eine_{FEM} sonne_{FEM}
a sun (Au,2;9,20,GC)
- (207) la_{FEM} adler_{MAS} Italian: l'_{FEM} aquila_{FEM}
the eagle (Ma,3;10,5,IC)
- (208) una_{FEM} mia_{FEM}, arztkoffer_{MAS} vs. nel_{MAS} mio_{MAS} koffer_{MAS}
one my/in my medical bag
 Italian: una_{FEM} mia_{FEM} / nella_{FEM} mia_{FEM} valigia_{FEM}
- (209) al_{MAS} schlange_{FEM} vs. dalla_{FEM} schlange_{FEM}
to the / from the snake
 Italian: al_{MAS} / dal_{MAS} serpente_{MAS}
- (210) il_{MAS} puppe_{FEM} (Lu, 3;5,18, IC)
the doll
 Italian: la_{FEM} bambola_{FEM} German: die_{FEM} puppe_{FEM}

- (211) tante_{FEM} flugzeuge_{NEU} (Ja, 3;6,11, IC)
a lot of airplanes
 Italian: tanti_{MAS} aerei_{MAS} German: viele flugzeuge_{NEU}
- (212) le_{FEM} füße_{MAS} (Au, 3;5,30, IC)
the feet
 Italian: i_{MAS} piedi_{MAS} German: die füße
- (213) die_{FEM} motore_{MAS} (Ma, 2;11,29, GC)
the motor-bike
 Italian: il_{MAS} motore_{MAS} German: das_{NEU} motorrad_{NEU}

There is no explanation for why Lukas marks masculine gender on the determiner in example (210). As a matter of fact, he also utters *una puppe* in another recording, showing that he does not categorize the German noun *puppe* as a masculine. In (211), Jan marks the Italian indefinite pronoun *tante* with feminine gender. But the correct form is *tanti*, given that the noun is a neuter (in fact, in most cases with neuter the Italian masculine is used). If we have a closer look at this example and also at examples (212) and (213), it seems that the determiner has not been chosen according to the gender of the noun, but rather in accordance with phonological rules. In fact, this way the determiners end as the nouns do, or, at least in (213), with a vowel. Phonological overgeneralization is also stated in other cases:

- (214) una_{FEM} mausa_{FEM} (Ca, 2;6,23, IC)
a mouse
 Italian: un_{MAS} topo_{MAS}
 German: eine_{FEM} maus_{FEM}
- (215) sul_{MAS} betto_{MAS} (Lu, 3;3,23, IC)
on the bed
 Italian: sul_{MAS} letto_{MAS}
 German: auf das_{NEU} bett_{NEU}

In example (214), Carlotta switches the German feminine noun *maus*, marking the determiner with feminine gender, too. Additionally, she underlines the gender classification of the noun providing it with the Italian feminine suffix *-a*. In example (215), the same procedure can be stated for Lukas: He switches the German noun *bett* adding the masculine suffix *-o* in order to underpin the gender classification. As a matter

(216) die_{FEM} porte_{FEM} (Ma, 2;10,20, GC)
the door
 German: die_{FEM} tür_{FEM}
 Italian: la_{FEM} porta_{FEM}

(217) eine_{FEM} finestre_{FEM} (Ma, 2;11,15, GC)
a window
 German: das_{NEU} fenster_{NEU}
 Italian: la_{FEM} finestra_{FEM}

In sum, the data have shown that in most of the cases the children mark the determiner which accompanies a switched noun with the noun's gender and not with the gender of the translation equivalent. This is in line with the assumption that gender is an inherent feature which is stored in the lexicon together with the noun. In these cases of code-switching, the lexical head N^0 plays a crucial role, in that it determines the features of the functional head D^0 , and not vice versa. This claim is in contrast to for example Belazi, Rubin & Toribio (1994), who argue that the language of the head determines the features of its complement.

Only the child Aurelio does not follow claim (i): He has 11 instances of *incorrect* gender marking on the determiner. Interestingly, Aurelio's language development is considered to be *unbalanced*, since he has

Cantone & Müller (2007) propose two possible explanations for these errors. In both explanations the crucial point is the representation of gender. One possibility is that gender representation is different in the children. This might be due to factors like *language proficiency*, and might lead to a wrong gender selection. The other explanation has to do with language acquisition. The authors argue that the children who select the *wrong* gender pass through a developmental stage. Which of these explanations is the correct one cannot be answered here. With respect to claim (i), it should just be pointed out that the frequency of *wrong* gender selection is very low.

(91) la schaufel magica (Lu, 3;1,30, IC)
the shovel magic

(92) però ho visto un-un grosso nest (Ja, 4;4,27, IC)
but have I saw a- a big nest

(93) io sono un grüne monstere sono un mosto
 = monster/mostro (Au, 3;5,2, IC)
I am a green monster am a monster

- (94) ci mettiamo una cosa schwer (Au, 4;0,9, IC)
there put (we) a thing heavy
- (95) das ist ein pannolino klein (Ca, 2;9,25, GC)
this is a diaper small

If we want to claim that the language of the noun is relevant for the adjective's position, then all examples but (91) are felicitous. In fact, in (92), the Italian *grosso* occurs pre-nominally, as is allowed for these types of adjectives. In (93), both the adjective and the noun are German, but the determiner is Italian. Given that word order is German, we can presume that the functional head D does not allow predictions about word order. In (94) and (95), the German adjective occur in post-nominal position, as is ungrammatical in German, but as is target-like in an Italian noun-adjective string. Consider that (94) and (95) differ with respect to the language context: Whereas Aurelio mixed the German adjective into an utterance produced in the Italian context, Carlotta mixes the Italian noun *pannolino* into a German utterance produced during a German recording.

From the 24 cases, in 9 one cannot predict which language determines the adjective's position because the adjective is pre-nominal in both languages, as in (92) or (218). However, although the adjective *piccolo* (small) can be both pre-nominal and post-nominal in Italian, the equivalent *klein* in German must be pronominal. Therefore, contrary to my prediction, in (219) Jan shows an Italian word order in spite of the noun being German.²⁶ By contrast, in (95) *klein* occurs in post-nominal position, maybe due to the fact that the Italian noun allows it. Example (220) is another counter-example to my prediction: It is again Jan who shows an Italian word order (post-nominal adjective) with a German noun. In contrast to this, see example (221), in which Lukas utters the same German noun as Jan, but this time the noun goes along with a pre-nominal German adjective (although the determiner is Italian). A German noun with a German adjective occurs seven times in the present data. Of course, these examples cannot help shed light on the adjective's position, but they make clear that the determiner being Italian does not have any consequences within the DP. It is rather the case that word order depends on the noun (cf. also (222) and (223)).

- | | | | |
|-------|---|------|-------------------|
| (218) | so'n kleiner <u>motoscafo</u>
<i>such a small motorboat</i> | =ein | (Ja, 4;2,25, GC) |
| (219) | i <u>boxerhunde</u> piccole
<i>the boxerdog small</i> | | (Ja, 4;9,16, IC) |
| (220) | con suo <u>teppich</u> volante
<i>with his carpet flying</i> | | (Ja, 4;10,6, IC) |
| (221) | un <u>fliegenden teppich</u>
<i>a flying carpet</i> | | (Lu, 2;11,13, IC) |
| (222) | il <u>böse tiger</u>
<i>the bad tiger</i> | | (Lu, 2;7,29, IC) |
| (223) | un <u>lustiges gesicht</u>
<i>a funny face</i> | | (Lu, 3;6,13, IC) |

Summing up, in 11 cases it cannot be predicted what determined the word order, because the adjective's position is in accordance with both languages. In three examples, namely, (91), (219) and (220), we find a different word order than predicted, since the adjective's position does not reflect the language of the noun but rather the language of the determiner, which is also the language of the context. In seven instances the adjective and the noun are in the same language. Only in three cases the position of the adjective seems to be determined by the language of the noun ((91), (92), and (94)). I am aware that the data only provide little evidence, given that the switches between a noun and an adjective occur so rarely. Nevertheless, I argue that the seven cases in which both the adjective and the noun are in the same language also corroborate the claim that the noun is responsible for determining word order, and not the head of D. We still need more analyses in order to support this claim. As a matter of fact, the present data do not disconfirm that the adjective could be responsible for word order. This is surely a topic for future research in code-switching.

7.4 CONCLUSIONS

This chapter focussed on the analysis of code-switching in five bilingual children. First, a quantitative analysis of the mixes has been presented. This analysis has shown that the children mix to a different extent during

the time span investigated. I argue that these results reflect individual patterns and cannot be explained by language-internal factors as for example language dominance. Along these lines, the model proposed by Weinreich (1968), although having several shortcomings, basically makes correct predictions: There are different *types* of bilingual individuals who treat their languages in a different way. Consequently, there is not only one way of having an unbalanced language development (cf. Cantone, Kupisch, Müller & Schmitz 2006), as there is not only one reason for the quality and the quantity of language mixing.

Several examples of CS taken from the five corpora analyzed have been discussed with respect to the main constraints proposed in code-switching literature. The goal was to provide evidence that CS occurs at all possible boundaries within an utterance. This is in contrast to most of the predictions put forward by researchers in the last 30 years.

The main claim, in the spirit of MacSwan (1999, 2000), was to show that all kind of mixes are allowed as long as grammatical properties of the two languages involved are respected. As a consequence, I attempted to provide explanations for the cases in which mixes apparently violated language-specific constraints.

Discussing occurrences of null-subjects in main clauses when the finite verb was German, I claimed that these omissions adhere to a possibility of omitting the subject in specific contexts in German (*Topic-Drop*). This possibility is not given in subordinate clauses in German. Nevertheless, in the present data there are several instances where a null-subject occurs with a German finite verb in an embedded clause. These utterances have been explained by saying that the language of the complementizer will project the structure below (claim (g)). Since the complementizer is Italian in all the problematic cases, the German verb is just *inserted* into an Italian structure, more specifically, into the head of T, which by contrast allows null-subjects in subordinate clauses.²⁷ In other words, a German lexical item is inserted into an Italian structure. The question arises as to how features are checked in these cases. Nevertheless, the data discussed confirm this assumption. I then proposed a similar claim with respect to CS involving the TP, namely that the language of the head of T determines word order in the structure below. This is corroborated by several mixed utterances. Counter-examples show that claim (h) does not hold throughout. In

fact, word order within the VP is not determined by T^0 but by V^0 . This becomes visible when analyzing the object's position within the VP. The findings suggest that the language of V^0 determines word order within the VP. By way of conclusion, the head of the lexical category V is not overruled by the functional category T. In the same vein, I finally proposed claim (i) for code-switching between a determiner/adjective and a noun. Analyzing gender marking, it has been assumed that the language of the noun and not the language of the determiner play a crucial role in gender marking. I also shed light on the adjective's position, which seems to occur according to the language of the noun.

To conclude, I argue that, besides a few cases in which it is not clear what determined the word order, almost all CS instances discussed corroborate the claims (g)–(i).

NOTES

1. The numbers given here might differ from previous countings, since both nouns and verbs could have been switched into the other language context without providing a mixing point, e.g., when mixing an imperative or a whole DP.
2. The Italian adjective *grosso* (big) can also occur in pre-nominal position, as in (92).
3. For a more detailed analysis of mixes within a compound cf. Müller & Cantone (to appear).
4. In the German verb paradigm the infinitive form and the first person plural indicative match.
5. For a discussion on the acquisition of the CP cf. de Villiers (1992), Müller (1993).
6. See for example, *kaufen* (buy) vs. *einkaufen* (buy), subsequently *neu kaufen* (buy (new)).
7. Clear evidence is given in example (120). If word order was German, the object would be before both the finite and infinite verb, as in *si che questo voiono sägen*, according to the monolingual German utterance *klar, dass sie das sägen wollen*.
8. At present, I assume VP to be Italian too. Cf. however 7.3.3.
9. The role of *v* is not discussed here, since it is not important for the present work.
10. For the sake of simplicity, I do not mention both possibilities, namely, *sai che sa singen* and *weiss du che sa singen*; the same goes for *sai che lei sa singen* and *sai che sie sa singen*. When the finite verb is German, only one case of TP is shown, as in *sai che kann singen*, but not *sai che kann cantare*, because I believe that both cases should be analyzed in the same way.
11. Recall that here child language mixing is supposed to be grammatically constrained in the same way as adult CS is, at least from the point when there is evidence for grammar in child speech. Therefore both is considered to be code-switching.

12. This collection of examples is not intended to be exhaustive. However, the aim is to show that mixes of the type mentioned above are not to be found.
13. It has been stated that V⁰ systematically moves to the highest inflectional head position in Italian (cf. e.g. Belletti 1990). It is not my intention to provide a theoretical analysis on how to label the functional category where the verb moves to, that is, if it is the head of I, AgrS or T. I simply use the term Tense Phrase in the spirit of the latest minimalist assumptions which aim at an economical representation.
14. There is one exception, namely, the following utterance: *ja wenn du- wenn du so machst wenn die sich dai- sdra-sdraiare will dann muss sie xxx* (yes if you – if you so makes when she herself (to) lay wants then must she xxx), produced by Carlotta (4;4,20, GC).
15. The position/realization of subjects in the German clauses is not taken into account, since we are dealing with Italian finite verbs which allow subject omissions.
16. For the view that clitics are not heads cf. Schmitz & Müller (2005), Gabriel & Müller (2005).
17. It is not my intention to discuss the role of NegP here, because these few examples are very marginal, so that no convincing explanation based on both a qualitative and a quantitative analysis can be provided.
18. Note that Lukas hesitates before switching into German.
19. I put aside the discussion of the fact that, as argued in Belletti (1990:66–67), if an adverb is a VP adverb, it should not precede the past participle, since the past participle morphology is expected to be located higher than the VP.
20. Note that Lukas broke off while uttering the verb *winken*. Otherwise the modal would correctly have followed the finite verb. Plus, German *winken* occurs with the German particle *hiermit* (with this), which is partly translated into Italian here (*qua mit*).
21. For more information on gender and its acquisition in Italian and German cf. Mills (1986), Pizzuto & Caselli (1992), Chini (1995), Müller (1999), Cantone (1999), Kupisch, Müller & Cantone (2002).
22. I do not take into consideration cases of loan words.
23. The children Carlotta, Lukas, Jan and Aurelio have also been discussed in Cantone & Müller (2007).
24. Adapted from Cantone & Müller (2007). Marta has only been analyzed in the present work.
25. Possessive adjectives are counted in the domain *mixes between determiner and noun*, because they are pre-nominal in both German and Italian. However, no evidence in favor of language-specific word order can be drawn from analyzing them.
26. Note that Jan changes the adjective's ending in order to make it agree with the noun.
27. Of course, Italian being a null-subject-language, the omission of subject is always allowed in both main and subordinate clauses. I just want to point out that in German null-subjects in an embedded clause are impossible.

FINDINGS AND CONCLUSIONS

This chapter recapitulates the main points raised and the main findings of the present book.

Three central goals have been in the focus of this study. First of all, the claim is raised that language mixing in young bilingual children can be analyzed in the same way as adult code-switching. Then it has been assumed that there is no need to constrain code-switching with external restrictions, but that what is possible within the two grammars involved is in line with mixed utterances, too. Finally, the main scope in the grammatical analysis of code-switching was to predict which language determines the structure of a mixed utterance. In the following, these goals will be summarized. The present chapter ends with some proposals for future research.

8.1 MIXING IN YOUNG BILINGUAL CHILDREN

I argue in favor of analyzing young bilingual children's (in the present study, age 1;8 to 5 years) mixed utterances in the same way as adult language mixing.

Earlier studies on language mixing in young bilinguals proposed different accounts in order to explain why the children mixed. In most of the cases, it has been claimed that mixing was due to some kind of lacks in language development. In discussing the early stage of language acquisition in the children studied here, I have shown that not all cases of mixing can be explained by these accounts. It is rather a combination of all them which helps shedding light on the children's mixing.

The present approach differs from previous studies on early mixing in bilingual children. The existence of a stage with a high rate of

mixing in young bilinguals studied here is only confirmed when counting mixed words in tokens. If we adopt a counting of types of mixed words, then the number of mixed words decreases.

I assume that mixing depends on an individual choice, that is, either children mix throughout or they do not. The fact that children repeatedly mix some words during the early stage can be explained by assuming (following Cantone & Müller 2005) that this might be due to a performance factor: Since the operation *Select* has no full practice to pick items according to the language context yet, some *errors* might occur as long as fluency has not been reached.

I further claim that child grammar is organized in the same way as adult grammar. Therefore, a grammatical development should not explain a different type of switching. The prediction is that mixing is similar before or after grammar is visible.

This approach makes it possible to adopt MacSwan's (1999, 2000) architecture of the bilingual's language faculty to the present data. I claim that spontaneous child data reflect what is possible in code-switching, because children are not influenced by external factors like for example the negative reputation of one of the two languages or disapproving reactions towards language mixing by monolingual speakers.

Following a structure-building approach (Clahsen, Eisenbeiss & Penke 1996), and in the spirit of minimalist assumption (Chomsky 1995), it is argued that children project structure on the basis of the lexical properties of the items they acquire. As long as functional categories (which are said to encode parametric variation) have not been acquired, no functional projections will be visible. Consequently, it is untenable to analyze the grammaticality of mixing at the early stage of language acquisition.

Thus, I focussed primarily on the question why the children have mixed and what kinds of elements have been mixed. However, the question whether or not grammar is there at this early stage has not been deeply explored. This is for sure a topic for future research in the domain of child language acquisition. The intention here was just to demonstrate that mixing in the early stage of language acquisition is not related to issues like *language dominance/distance*, *lexical need* or *grammatical development of the two languages*.

8.2 CODE-SWITCHING AND THE NEED TO CONSTRAIN IT

Studies on code-switching in the last decades have formulated several constraints in order to regulate this speech style. Unfortunately, most of the constraints make incorrect predictions which can be rejected by showing that mixing indeed occurs at several boundaries where it has been disallowed, or by claiming that predictions are not general enough, in the sense that some types of switches might occur within a certain language-pair combination, but not within another one.

Following MacSwan (1999, 2000, 2004, 2005a,b), it has been assumed that in code-switching no external *third* grammar is required, but that ‘nothing constrains code switching apart from the requirement of the mixed grammars’ (1999:146). As a consequence, what is possible in *monolingual* grammar is also possible in code-switching.

The analysis of the present data confirms this approach. The data are very telling in terms of occurrences of switches: The children investigated mix at all possible boundaries within an utterance. Given this scenario, it is desirable to assume that these switches are all in accordance with language-specific grammatical requirements. Nevertheless, predictions can be made for switches which should not be allowed in a certain language-pair combination. It should also be possible to detect which language-specific requirement will *win* when two requirements are competing. This way, control structures can be avoided and the analysis will only be concerned with language-specific constraints. If we can provide evidence for the bilingual speaker’s, in particular the children, to follow the requirements of both grammars when they produce mixed utterance, then this a fashionable outcome on the path to focussing on the positive representation of the phenomenon of code-switching.

8.3 THE ANALYSIS OF SPECIFIC DOMAINS

In the spirit of MacSwan (1999, 2000, 2004, 2005a,b), in the analysis of the mixed utterances in the present corpus I have primarily focussed on the role of the two languages under investigation, namely Italian and German. External constraints are not considered. The claim was to show

all kinds of mixes are allowed as long as grammatical properties of the two languages involved are respected.

As a consequence, I concentrated on seeking explanation for the cases in which mixes apparently violated language-specific constraints. In particular, several instances where a null-subject occurs with a German finite verb in an embedded clause have been discussed. The analysis proposed is that the language of the complementizer will be responsible for projecting the structure below (claim (g)). Along this line, the complementizer being Italian in all the problematic cases, the German verb is just *inserted* into an Italian structure, more specifically, into the head of T, which (being Italian) allows null-subjects in subordinate clauses. The data discussed (including examples from other studies and other language-pairs) confirm claim (g). Hence, the present findings seem to support the idea that the language of the complementizer plays a crucial role in projecting sentence structure. Code-switching data thus provide evidence in support of claims regarding the role of functional categories in monolingual utterances.

A similar claim has been proposed with respect to mixed utterances within the TP domain. The prediction is that the language of the head of T determines word order in the structure below (claim (h)). This is corroborated by several examples. However, counter-examples suggest that claim (h) does not hold throughout. In fact, word order within the VP is not determined by T^0 but by V^0 . Support for this assumption comes from analyzing the object's position within the VP. The findings imply that the language of V^0 determines word order within the VP. Along this line, the head of the lexical category V seems not to be determined by the functional category T.

In the same vein, I propose claim (i) for mixes within the DP. Analyzing gender marking, it is assumed that the language of the noun and not the language of the determiner play a crucial role within the DP. As a matter of fact, the gender of the noun is marked on the determiner coming from the other language, and not the gender of the equivalent noun in the language of the determiner. Some cases involving the adjective's position have also been analyzed. Here, the language of the noun seems to determine word order.

In sum, I state that all instances of code-switching discussed in chapter 7 are felicitous. In some few cases, the question arises as to which of the two languages determines word order. However, in almost all cases it is assumed that the claims (g)–(i) are respected. By implication, the claim (e) proposed by MacSwan is confirmed by these data, too.

With respect to the requirements formulated in MacSwan's PF/DT, I argue that the present data perfectly follow them, insofar as they show that code-switching is the 'union of at least two (lexically-encoded) grammars' (MacSwan 1999:188). Nevertheless, the prediction that no mixing is possible within and below X^0 is not corroborated in the data, since there is evidence for several mixed-language heads. A number of questions remain unsolved with respect to how the PF/DT might be reformulated in order to be able to explain the few counter-examples found in spontaneous data. At any rate, the present findings fully support MacSwan's prediction on the role of the two languages involved.

The mixed utterances within the TP and DP domain seem to open new grounds with respect to the issue of a universal base word order, as proposed by Kayne (1994) regarding SVO and Cinque (1999) regarding the AP. Kayne assumes that VO is the base word order, and that OV occurs when the object moves to a functional phrase. Whether this functional phrase is AgrOP or ν P is not important for the present discussion. What matters is that, if Kayne's prediction is correct, the claim that the verb is responsible for word order within the VP is incorrect. The same discussion holds for the adjective's position. Following Cinque (1999), the universal base word order is supposed to be AN. In Romance languages, N-movement will be responsible for the noun to move leftward, generating NA word order. Again, if Cinque's assumption is correct, the claim that the noun is responsible for the adjective's position is incorrect.

The underlying idea for the claims (g)–(i) is that the functional heads C and T project the structure below, **but** that when competing with the lexical heads V and N, the latter determines the structure within their phrase, and not the functional categories. However, if we assume that objects as well as nouns move to higher **functional** phrases, then functional categories indeed determine the whole structure, including the phrases headed by lexical heads. The question arises as to whether

it is desirable to claim in favor of additional movement in order to have OV and NA word order. Moreover, on which grounds does an Italian object DP move to [Spec AgrOP] in order to have OV word order when V is German, as in example (158) repeated below?

- (158) adesso deve il cameliele wandern (Lu, 3;6,30, IC)
now must the waiter walk around

It seems more tenable to assume that, V being German, a head-final VP will be projected with OV word order. According to my prediction, it is unimportant whether the object is realized as an Italian or a German DP. However, the limited goal here was to defend claim (h) and not to propose a new analysis of whether there is a universal base word order or not. Future research on these issues will have to shed more light on these and other unanswered questions.

Another question which remains unexplained in this work is how feature checking works when different languages with different feature strength are involved. Of course, the idea that lexical items from language A might just be *inserted* into the structure of language B is very attractive. It is a topic for future studies to determine how competing features will interact then.

8.4 PROPOSALS FOR FURTHER STUDIES

The present findings seem to support that code-switching in young children provides the same piece of evidence for the function of this speech style as adult switching does.

Although data collection procedures did not support language mixing, some of the children analyzed mixed during the recordings. Along these lines, individual differences rather than *language dominance* or *filling lexical gaps* might explain the different percentages of mixing among the children. Future research should concentrate on the issue of individual tendencies, maybe by providing more evidence for interaction with different interlocutors. Furthermore, the monolingual language development (lexical and grammatical) of each language should be analyzed in more depth in order to better explain the occurrence of mixing in young

children. Finally, the linguistic environment should be considered more carefully in longitudinal studies.

Preliminary conclusions of the present work lead to the assumption that CS provides evidence not only for claims regarding the interaction of the two languages in the bilingual, but also provides an insight to questions concerning the general organization of grammar. As a matter of fact, the discussion on both functional and lexical categories might confirm or reject proposals made for monolingual speech. For example, the evidence that the complementizer plays a crucial role with respect to the structure below is not *visible* in monolingual utterances, but, according to claim (g), it is possible to show what role it plays within a code-switch.

Along these lines, one can claim that mixed utterances might contribute on shedding light on several theoretical questions on the interaction of grammatical properties of language. This is a striking result, which should be taken into account in further research.

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APPENDIX

The following tables depict data concerning the Italian/German bilingual children analyzed in the present study: MLU-values, monolingual and mixed utterances per recording are illustrated (MLU from Cantone, Kupisch, Müller & Schmitz 2006). Please note that the category *Italian Utterances* is not necessarily the same as the base for the MLU-counting, since it includes all monolingual utterances, whereas for MLU, for example, imitations have not been counted.

Table A.1. Carlotta – The Italian data analyzed

Age	MLU	Italian utterances	Mixed utterances	% of mixes
1;10,8	1,2	76	2	3
1;10,30	1,1	179	1	1
1;11,12	1,4	179	20	10
1;11,27	1,4	170	3	2
2;0,11	1,7	223	1	0
2;0,25				
2;2,4	2,2	161	0	0
2;2,19	2,2	143	37	21
2;3,2	2,6	199	13	6
2;3,17	2,5	141	8	5
2;4,7	2,6	210	14	6
2;4,21	2,6	173	2	1
2;6,9	2,6	99	0	0
2;6,23	2,8	237	2	1
2;7,13	2,4	111	14	11

(Continued)

Table A.1. (*Continued*)

Age	MLU	Italian utterances	Mixed utterances	% of mixes
2;8,0	2,3	117	1	1
2;8,21	2,5	173	4	2
2;9,11	2,4	146	6	4
2;9,25	3,3	135	4	3
2;10,16	3,9	116	9	7
2;10,30	3,7	155	1	1
2;11,13	4,0	114	2	2
2;11,27	4,4	146	0	0
3;0,25	4,4	212	0	0
3;1,16	3,6	226	0	0
3;1,30	4,2	293	1	0
3;2,13				
3;2,27	4,6	213	0	0
3;3,11	3,6	172	2	1
3;3,25	3,0	146	3	2
3;4,8	4,5	141	3	2
3;4,22	3,8	184	0	0
3;5,6	3,7	55	0	0
3;6,3	4,1	104	0	0
3;6,17	3,2	174	4	2
3;7,0	2,9	157	12	7
3;7,13	3,3	225	2	1
3;8,6	3,5	179	1	1
3;8,27	2,6	152	3	2
3;9,18	3,1	253	0	0
3;10,2	3,7	109	0	0
3;10,22	2,9	129	2	2
3;11,6	2,1	89	4	4
3;11,26	3,7	159	0	0
4;1,0	4,3	239	2	1
4;1,14	3,7	121	0	0
4;1,28	3,8	152	2	1
4;2,11	3,6	148	5	3
4;2,25	3,7	115	2	2
4;3,9	3,5	89	3	3
4;3,23	3,4	91	2	2
4;4,6	4,1	100	2	2
4;4,20	3,0	113	7	6

Age	MLU	Italian utterances	Mixed utterances	% of mixes
4;5,11	5,3	94	3	3
4;6,8	5,7	116	1	1
4;6,29	6,7	102	4	4
4;7,19	4,9	192	2	1
4;8,11	4,5	150	1	1
4;9,1	4,1	124	21	14
4;9,29	3,5	170	9	5
4;10,13	3,6	123	6	5
4;11,3	2,9	115	6	5
4;11,24	3,5	168	1	1
5;0,15	2,8	159	7	4
5;2,16	3,2	113	2	2
5;4,4	4,9	139	7	5
5;5,17	4,4	163	0	0
5;7,24	4,2	163	0	0

Table A.2. Carlotta – The German data analyzed

Age	MLU	German utterances	Mixed utterances	% of mixes
1;10,8	1,7	78	7	8
1;10,30	1,3	117	15	11
1;11,12	1,4	76	34	31
1;11,27	1,5	65	13	17
2;0,11	1,5	34	6	15
2;0,25	1,5	205	16	7
2;2,4	1,8	36	36	50
2;2,19	1,7	59	26	31
2;3,2	2,4	254	12	5
2;3,17	2,0	130	0	0
2;4,7	2,3	252	1	0
2;4,21	2,5	228	1	0
2;6,9	2,7	163	1	1
2;6,23	2,8	137	3	2
2;7,13	2,4	127	3	2
2;8,0	2,3	105	3	3
2;8,21	2,7	193	0	0
2;9,11	2,6	112	0	0
2;9,25	3,1	203	13	6
2;10,16	3,6	229	2	1
2;10,30	2,5	104	3	3
2;11,13	3,9	140	1	1
2;11,27	3,8	171	5	3
3;0,25	3,6	114	13	10
3;1,16	3,5	213	3	1
3;1,30	4,4	221	2	1
3;2,13	4,4	126	2	2
3;2,27	3,4	270	11	4
3;3,11	4,2	125	5	4
3;3,25	3,6	138	3	2
3;4,8	4,0	268	9	3
3;4,22	4,4	311	7	2
3;5,6	3,6	106	0	0
3;6,3	4,0	151	1	1
3;6,17	3,3	194	0	0
3;7,0	2,9	163	0	0
3;7,13	4,8	226	0	0
3;8,6	4,4	182	1	1

Age	MLU	German utterances	Mixed utterances	% of mixes
3;8,27	4,2	281	10	3
3;9,18				
3;10,2	3,8	266	0	0
3;10,22	3,2	169	0	0
3;11,6	4,0	139	0	0
3;11,26	3,7	374	0	0
4;1,0	4,3	263	3	1
4;1,14	4,0	285	2	1
4;1,28	4,5	291	6	2
4;2,11	3,7	202	1	0
4;2,25	4,7	287	1	0
4;3,9	4,8	206	1	0
4;3,23	4,2	99	0	0
4;4,6	4,8	212	2	1
4;4,20	5,2	327	1	0
4;5,11	5,0	152	0	0
4;6,8	5,1	222	3	1
4;6,29	5,0	269	1	0
4;7,19	5,0	281	1	0
4;8,11	4,9	256	0	0
4;9,1	4,8	174	0	0
4;9,29	5,0	263	3	1
4;10,13	4,6	229	0	0
4;11,3	5,4	182	0	0
4;11,24	4,8	285	0	0
5;0,15	3,9	364	1	0
5;2,16	4,7	196	3	2
5;4,4	4,1	234	0	0
5;5,17	4,8	341	0	0
5;7,24	4,8	239	0	0

Table A.3. Lukas – The Italian data analyzed

Age	MLU	Italian utterances	Mixed utterances	% of mixes
1;8,14	1,1	34	12	25
1;9,13	1	47	18	28
1;10,3	1	70	25	26
1;10,17	1,1	84	57	40
1;11,1	1,1	60	44	42
1;11,22	1,1	121	61	34
2;0,5	1,2	117	62	35
2;1,3	1,4	51	23	31
2;1,23	1,4	206	29	12
2;3,6	1,9	412	8	2
2;4,9	2,6	213	2	1
2;4,23	2,3	195	4	2
2;5,6	2,4	332	3	1
2;5,20	1,9	52	0	0
2;6,18	2,7	176	0	0
2;7,15	3,6	184	5	3
2;7,29	4,1	232	5	2
2;8,12	3,1	128	1	1
2;8,26	3,9	192	7	4
2;9,18	3,9	153	10	6
2;10,1	2,6	158	9	5
2;10,22	3,3	183	21	10
2;11,13	3,6	197	13	6
2;11,27	3,6	165	12	7
3;1,16	3,8	153	7	4
3;1,30	3,6	215	32	13
3;2,19	4,4	132	9	6
3;3,2	3,8	74	7	9
3;3,23	3	120	38	24
3;4,7	3,1	58	36	38
3;4,25	2,9	106	56	35
3;5,8	2,7	99	47	32
3;5,18	2,8	116	39	25
3;6,13	2,8	117	61	34
3;6,30	2,4	83	44	35
3;7,15	2,6	62	79	56
3;8,3	3	89	41	32
3;8,17	2,1	35	14	29

Age	MLU	Italian utterances	Mixed utterances	% of mixes
3;9,9	2,1	24	6	20
3;9,20	1,9	19	8	30
3;10,3	2,5	30	16	35
3;10,17	1,7	63	5	7
3;11,4	1,7	34	10	23
3;11,22	1,5	7	5	42
4;0,5	1,2	19	8	30
4;1,20	4	192	6	3
4;2,28	3,8	184	9	5
4;3,14	3,3	151	3	2
4;3,28	4	100	6	6
4;4,12	4	111	9	8
4;4,26	4,2	102	6	6
4;5,11	3,8	111	7	6

Table A.4. Lukas – The German data analyzed

Age	MLU	German utterances	Mixed utterances	% of mixes
1;8,14	1	89	0	0
1;9,13	1	95	5	5
1;10,3	1	180	6	3
1;10,17	1	127	0	0
1;11,1	1	149	0	0
1;11,22	1	316	7	2
2;0,5	1,1	209	8	4
2;1,3	1,1	186	26	12
2;1,23	1,2	225	2	1
2;3,6	1,6	322	4	1
2;4,9	2	276	7	2
2;4,23	2	138	4	3
2;5,6	2,5	278	10	3
2;5,20	2,5	161	12	7
2;6,18	3,1	153	1	1
2;7,15	3,9	196	11	5
2;7,29	3,5	238	5	2
2;8,12	3,6	229	9	4
2;8,26	4,1	255	5	2
2;9,18	3,7	220	6	3
2;10,1	3,5	249	5	2
2;10,22	3,4	274	2	1
2;11,13	3,3	234	3	1
2;11,27	3,6	226	0	0
3;1,16	4,2	260	1	0
3;1,30	5	314	2	1
3;2,19	4,2	212	3	1
3;3,2	4,2	233	0	0
3;3,23	3,9	227	3	1
3;4,7	4,2	196	0	0
3;4,25	3,4	202	0	0
3;5,8	3,8	229	4	2
3;5,18	3,7	238	1	0
3;6,13	4,2	341	0	0
3;6,30	4,3	260	3	1
3;7,15	4,3	281	0	0
3;8,3	4,7	228	0	0
3;8,17	4,7	194	0	0

Age	MLU	German utterances	Mixed utterances	% of mixes
3;9,9	4	273	0	0
3;9,20	4,5	174	0	0
3;10,3	4,2	203	0	0
3;10,17	4	177	0	0
3;11,4	4,6	177	0	0
3;11,22	4	145	0	0
4;0,5	3,8	86	0	0
4;1,20	3,9	121	1	1
4;2,28	4,4	207	0	0
4;3,14	4,2	123	1	1
4;3,28	5,2	178	0	0
4;4,12	3,8	176	0	0
4;4,26	3,8	127	0	0
4;5,11	4,7	157	0	0

Table A.5. Jan – The Italian data analyzed

Age	MLU	Italian utterances	Mixed utterances	% of mixes
2;1,3	1,19	48	32	40
2;3,6	1,45	218	5	2
2;4,15	1,74	208	13	6
2;5,26	1,59	92	7	7
2;6,17	1,97	148	4	3
2;7,7	1,99	115	3	3
2;7,28	1,57	76	8	10
2;8,18	1,72	130	18	12
2;9,12	1,59	150	6	4
2;10,8	1,73	55	8	13
2;11,6	1,43	66	0	0
2;11,27	2,19	176	1	1
3;0,10	1,66	101	8	7
3;1,1	1,55	164	4	2
3;2,19	2,23	227	1	0
3;3,8	2,92	210	0	0
3;4,1	2,31	178	6	3
3;4,23	3,39	261	5	2
3;5,12	2,97	74	0	0
3;5,24	2,79	137	0	0
3;6,11	2,74	140	3	2
3;7,1	2,84	196	11	5
3;7,22	2,33	76	0	0
3;8,5	2,31	41	1	2
3;8,24	2,45	176	2	1
3;9,15	3,08	147	1	1
3;10,7	2,36	118	1	1
3;10,27	2,66	137	2	1
3;11,19	2,32	95	1	1
4;0,14	2,94	164	7	4
4;1,7	2,73	203	5	2
4;2,25	3,37	238	3	1
4;3,8	2,97	171	4	2
4;4,6	2,96	148	9	6
4;4,27	2,94	222	10	4
4;5,17	3,35	192	7	4
4;6,15	3,14	206	16	7
4;7,5	3,21	177	9	5
4;7,26	2,95	88	0	0
4;9,16	3,7	205	10	5
4;10,6	4,5	129	6	4
4;10,27	2,98	140	6	4
5;0,8	3,19	114	3	3

Table A.6. Jan – The German data analyzed

Age	MLU	German utterances	Mixed utterances	% of mixes
2;1,3	1,93	199	3	1,49
2;3,6	2,24	277	6	2,12
2;4,15	2,02	149	2	1,32
2;5,26	2,72	238	0	0
2;6,17	2,29	110	1	0,9
2;7,7	2,54	197	4	1,99
2;7,28	2,67	170	4	2,3
2;8,18	2,81	193	0	0
2;9,12	2,39	99	0	0
2;10,8	2,91	309	0	0
2;11,6	2,98	236	0	0
2;11,27	3,14	268	1	0
3;0,10	2,99	202	0	0
3;1,1	3,82	403	2	0
3;2,19	4,06	160	4	2
3;3,8	3,32	228	1	0
3;4,1	2,98	214	0	0
3;4,23	3,46	83	3	3
3;5,12	3,59	206	1	0
3;5,24	3,79	282	3	1
3;6,11	3,26	195	0	0
3;7,1	3,18	161	5	3
3;7,22	3,4	190	7	4
3;8,5	3,63	239	3	1
3;8,24				
3;9,15	3,88	365	0	0
3;10,7	4,01	312	0	0
3;10,27	3,28	201	0	0
3;11,19	3,76	146	0	0
4;0,14	3,83	177	0	0
4;1,7	4,49	252	0	0
4;2,25	3,79	197	13	6
4;3,8	3,75	266	8	3
4;4,6	3,83	234	1	0
4;4,27	4,12	206	0	0
4;5,17	3,47	405	0	0
4;6,15	3,99	250	0	0
4;7,5	4,01	161	0	0
4;7,26	3,95	162	0	0
4;9,16	4,29	260	0	0
4;10,6	5,21	244	8	3
4;10,27	4,02	243	0	0
5;0,8	4,13	239	0	0

Table A.7. Aurelio – The Italian data analyzed

Age	MLU	Italian utterances	Mixed utterances	% of mixes	
1;10,23	1,22	33	8	63	68
1;11,14	1,03	35	5	49	61
1;11,28	1,39	44	27	62	69
2;0,11	1,12	78	52	66	60
2;0,24	1,18	147	8	48	28
2;1,9	1,21	98	90	25	54
2;1,23	1,33	103	41	35	42
2;4,10	2,17	259	1	43	15
2;4,23	2,31	215	8	45	20
2;5,6	2,21	201	3	21	11
2;5,21	2,32	156	2	19	12
2;6,4	2,44	328	5	34	11
2;7,16	3,28	306	0	47	13
2;7,30	2,95	282	3	61	19
2;8,13	2,48	157	4	18	12
2;9,5	3,06	362	2	54	13
2;9,20	2,68	244	4	36	14
2;10,10	3,09	267	11	69	23
2;10,24	3,34	161	5	25	16
2;11,8	3,83	201	9	34	18
2;11,22	3,17	202	8	35	18
3;0,5	3,8	187	7	35	17
3;0,19	3,66	222	6	17	9
3;0,29	3,64	263	7	20	9
3;4,17	2,97	213	1	0	0
3;5,2	4,34	211	8	0	4
3;5,16	3,55	210	26	0	11
3;5,30	3,47	140	14	0	9
3;6,14	3,95	163	31	0	16
3;6,29	3,6	132	31	0	19
3;7,9	3,75	223	30	0	12
3;8,1	3,27	96	31	0	24
3;8,13	3,64	157	39	0	20
3;9,1	3,53	113	25	0	18
3;9,13	3,57	74	22	0	23
3;10,3	2,7	124	29	0	19
3;11,7	4,41	198	6	0	3
3;11,26	3,6	122	11	0	8
4;0,9	3,34	181	28	0	13
4;0,28	2,9	102	12	0	11

Table A.8. Aurelio – The German data analyzed

Age	MLU	German utterances	Mixed utterances	% of mixes
1;10,23	1,03	34	0	0
1;11,14	1,09	45	17	27
1;11,28	1,21	41	11	21
2;0,11	1,09	57	16	22
2;0,24	1,17	92	14	13
2;1,9	1,17	66	33	33
2;1,23	1,27	49	8	14
2;4,10	1,11	10	2	17
2;4,23	1,35	27	6	18
2;5,6	1,38	28	8	22
2;5,21	1,14	20	16	44
2;6,4	1,21	24	15	38
2;7,16	1,4	18	24	57
2;7,30	1,43	68	29	30
2;8,13	1,33	25	6	19
2;9,5	1,33	77	13	14
2;9,20	1,65	101	11	10
2;10,10	2,08	113	24	18
2;10,24	2,22	85	9	10
2;11,8	2,19	155	0	0
2;11,22	2,19	127	3	2
3;0,5	2,45	124	5	4
3;0,19	2,17	113	1	1
3;0,29	2,34	33	3	8
3;4,17	1,9	31	0	0
3;5,2	2,47	156	6	4
3;5,16	3,16	218	3	1
3;5,30	3,4	127	0	0
3;6,14	3,49	198	3	1
3;6,29	3,39	110	0	0
3;7,9	3,3	212	0	0
3;8,1	3,8	153	3	2
3;8,13	3,9	229	2	1
3;9,1	3,92	240	1	0
3;9,13	3,88	214	0	0
3;10,3	4,17	212	1	0
3;11,7	4,39	192	2	1
3;11,26	4,12	155	0	0
4;0,9	4,47	328	1	0
4;0,28	4,47	328	0	0

Table A.9. Marta – The Italian data analyzed

Age	MLU	Italian utterances	Mixed utterances	% of mixes
1;7,10	1,28	39	1	3
1;8,1	1,23	63	0	0
1;8,22	1,18	70	0	0
1;9,12	1,15	91	0	0
1;10,2	1,48	135	0	0
1;11	1,83	103	0	0
1;11,21	1,6	179	0	0
2;0,2	2,03	137	0	0
2;0,16	2,03	129	0	0
2;1	1,97	152	0	0
2;1,21	1,65	177	4	2
2;2,4	1,81	158	0	0
2;2,26	1,42	181	0	0
2;3,26	2,21	235	3	1
2;4,16	2,28	188	1	1
2;4,27	2,61	146	0	0
2;5,12	2,99	145	0	0
2;5,26	2,98	248	0	0
2;6,10	3,01	245	0	0
2;6,26	2,93	239	0	0
2;7,7	3,55	173	4	2
2;8	3,06	129	0	0
2;8,26	2,98	63	0	0
2;9,9	3,31	103	1	1
2;9,22	2,5	138	0	0
2;10,6	3,47	198	0	0
2;10,20	3,16	189	0	0
2;11,15	3,61	196	1	1
2;11,29	3,97	135	0	0
3;0,17	3,12	51	0	0
3;1,3	3,61	165	3	2
3;1,27	3,36	140	1	1
3;2,12	3,18	74	2	3
3;2,26	3,58	137	0	0
3;3,10	2,99	107	3	3
3;3,24	2,46	80	0	0
3;4,8	3,58	76	0	0
3;4,21	3,35	91	2	2

Age	MLU	Italian utterances	Mixed utterances	% of mixes
3;5,11	3,96	159	0	0
3;6,9	2,88	201	0	0
3;6,23	3,33	190	0	0
3;7,12	4,22	194	4	2
3;7,27	3,77	200	4	2
3;8,4	4,12	202	15	7
3;8,27	4,31	150	8	5
3;9,8	4,24	90	4	4
3;9,23	4,11	170	3	2
3;10,5	3,96	230	5	2
3;11,6	4,68	261	8	3
3;11,18	3,4	114	8	7
4;0,10	3,76	138	4	3

Table A.10. Marta – The German data analyzed

Age	MLU	German utterances	Mixed utterances	% of mixes
1;7,10	1	10	3	23
1;8,1	1	6	14	70
1;8,22	1,57	36	9	20
1;9,12	1,05	23	5	18
1;10,2	1,07	24	1	4
1;11	1,3	23	27	54
1;11,21	1,77	98	2	2
2;0,2	1,76	161	2	1
2;0,16	1,78	143	14	9
2;1	1,26	92	4	4
2;1,21	1,55	157	1	1
2;2,4	1,61	137	13	9
2;2,26	1,8	101	0	0
2;3,26	2,05	94	0	0
2;4,16	2,15	166	5	3
2;4,27	2,23	116	5	4
2;5,12	2,18	84	0	0
2;5,26	2,42	183	14	7
2;6,10	2,76	196	30	13
2;6,26	2,68	142	7	5
2;7,7	2,6	149	2	1
2;8	2,66	83	1	1
2;8,26	2,21	46	14	23
2;9,9	2,22	111	18	14
2;9,22	2,51	85	7	8
2;10,6	2,8	131	1	1
2;10,20	2,79	136	17	11
2;11,15	3,31	131	18	12
2;11,29	3,07	43	2	4
3;0,17	3,26	31	1	3
3;1,3	2,88	108	5	4
3;1,27	2,45	73	1	1
3;2,12	3,66	118	7	6
3;2,26	3,21	155	8	5
3;3,10	3,24	107	0	0
3;3,24	3,43	90	0	0
3;4,8	3,34	76	0	0
3;4,21	3,43	112	10	8

Age	MLU	German utterances	Mixed utterances	% of mixes
3;5,11	4,09	193	1	1
3;6,9	3,54	232	0	0
3;6,23	3,72	224	0	0
3;7,12	3,71	270	11	4
3;7,27	3,96	222	1	0
3;8,4	3,61	283	7	2
3;8,27	3,94	215	14	6
3;9,8	3,45	183	0	0
3;9,23	3,8	225	3	1
3;10,5	4,03	252	2	1
3;11,6	4,29	238	1	0
3;11,18	3,35	216	2	1
4;0,10	5,54	147	0	0

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