

# **The Onset of Bilingualism:**

Novel Evidence from Root Infinitives, Parameter Setting and Participial  
Constructions in support of the Separate Systems Hypothesis

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## Introduction

The central focus of bilingual language acquisition research has been concerned with the question of whether or not the child separates the linguistic systems of the various languages acquired. Initially, it has been proposed that bilingual children construct a unitary grammatical system before separating the systems of the acquired languages (cf. Leopold (1949), Volterra & Taeschner (1978)).

More recently, however, it has been claimed that bilingual children construct a separate grammar and lexicon for each language from the onset of acquisition (cf. Meisel (1989), De Houwer (1990), Paradis & Genessee (1997), Hulke and Müller (2001) among others). The purpose of this study is to investigate the validity of these hypotheses by analyzing the spontaneous speech samples of two bilingual children acquiring German and Italian.

In particular, I will provide evidence for the Separate Systems Hypothesis based on two aspects of early grammar, namely parameter setting and the RI phenomenon.

First we will consider the parameter setting in bilingual first language acquisition discussing the data from an original corpus of a bilingual German-Italian speaking child, Renzo (age range 3.5-4.1). We will focus on areas where the two grammars differ, specifically the *Verb-Second (V2)*, *Topic-drop*, and *Pro-drop* parameters.

Secondly we will consider the occurrences of Root Infinitives (RIs), a developmental phenomenon that is attested in German, but not in Italian in the spontaneous speech of a younger bilingual German-Italian child, Leo (age range 2.0-2.7). Thus, if such a dichotomy concerning RIs can be observed in the speech of bilingual children as well, then we may provide an additional argument for the

hypothesis that the child from the earliest stages of language acquisition is able to separate the different grammars.

Based on the data of Leo and of three monolingual Italian children we will also provide evidence that there is an analogue to the RI stage in the Romance null subject languages. We propose that the RI analogue is the imperative. We provide a unified structural account of the RI and RI analogues.

Finally, the last part of the thesis will be concerned with the study of participial construction in the acquisition of German and Italian. First, we compare the development of participial constructions, specifically the present perfect construction, in early German and Italian. We provide evidence from three German monolingual children (age range 1;6-2;6) and three Italian monolingual children (age range 1;8-2;7) that there exists a difference with regard to the frequency and to the types of participial constructions that are used in these two languages. Secondly, we examine whether this difference also holds in the language of a German-Italian bilingual child, Leo (2;0-2;7). Our findings have important implications for the validity of the Separate Systems Hypothesis (SSH) of Bilingual First Language Acquisition. Finally, we will propose a formal analysis that will account for the observed type asymmetries in participial constructions of child German and Italian.

The thesis is organized as follows: the first chapter will be concerned with the issue of parameter setting in bilingual acquisition. In the second chapter I will concentrate on the study of the RI phenomenon. In the third chapter I will present a new proposal regarding the presence of a RI analogue in romance languages. Finally, the fourth chapter will be devoted to the study of participial construction in the early acquisition of German and Italian.

## Data

**Table 1.** *Age and language of children*

<i>Child</i>	<i>Age-range</i>	<i>Language</i>	<i>Source</i>
Francesco	1;5-1;8	Italian	from Childes, Roma corpus
Denis	1;5-2;2	Italian	from Leonini 2002
Martina	1;10-2;7	Italian	from Childes, Calambrone corpus
Diana	1;8-2;6	Italian	from Childes, Calambrone corpus
Viola	2;1- 2;7	Italian	from Childes, Calambrone corpus
Caroline	1;3-2;6	German	from Childes, Nijmegen corpus
Kerstin	2;0	German	from Childes, Nijmegen corpus
Simone	2;0-2;7	German	from Childes, Nijmegen corpus
Leo	2;0-2;7	Ita-Germ	from Berger-Morales & Salustri 2003
Renzo	3;5-4;1	Ita-Germ	from Salustri 1998

The recordings of Leo and Renzo took place in Tuscany, Italy. Both children were raised using the *one person-one language* method, i.e., the mother of the children would speak with them in German, while the father would speak with them in Italian. Both children spend more time with the mother, however, as the language of the environment is Italian, and as both children used to spend some time with Italian baby-sitter, we will assume that these two languages are roughly equivalent in both cases.

Recording sessions took place at the children's house. The mother and the father were usually present, and the child interacted with a monolingual Italian speaker (

myself or the father), and a monolingual German speaker, (the mother, a German investigator).

The recordings of Renzo were transcribed by myself and successively checked by a German native speaker. Leo's German speech was transcribed by Julia Berger-Morales.

## CHAPTER I

### SETTING OF PARAMETERS IN BILINGUAL GERMAN-ITALIAN CHILDREN

#### 1. 1. Introduction.

First let us turn to the issues of parameter setting in Bilingual First Language Acquisition (BFLA). Particularly I will look at three parameters, Verb second, Topic drop and pro-drop. I have chosen these parameters because they occur in only one of the target languages involved either German or Italian. The first parameter I will analyse is Verb second. As we can see in (1) in German the finite verb always occupies the second position in main clauses and the final position in subordinate clauses.

#### (1) **Verb Second**

a) Julia **las** ein Buch

Julia read a book

b) ...,daß Julia ein Buch **las**

...,that Julia a book read

Research on word order acquisition in monolingual German children (cfr. Poeppel & Wexler 1993 among others) has shown that children set the V2 parameter very

early. As soon as children start producing subordinate clauses, the verb is always in final position.

The next parameter I will consider is the Topic-drop parameter. As we can see in (2) , in the adult grammar of German, the first element of the sentence, if it is known and relates to the discourse, can be dropped in main clauses, but not in subordinate clauses.

## (2) Topic-drop

a) \_\_ habe eingekauft

(I) have bought

b) \_\_ hat er gekauft

(it) has he bought

c)\*, dass \_\_ gekauft hat

, that (he) eat has

Topic drop is limited only to subject and object and may apply only one of these element at time, either subject or object. Expletives can't be dropped, as they can't be topicalized.

In languages that exhibit topic-drop (German, Dutch...) children seem to adhere to this phenomenon as they omit object and subject from the first position of the sentence from very early on (see Hamann 1996).

The third phenomenon that I will discuss is the Pro-drop parameter. Contrary to the previous two parameters this particular parameter is observed only in Italian and not in German. As we can see in (3), in Italian subjects can be dropped in main

clauses, in wh-questions and in subordinate clauses and therefore pro-drop differs from topic-drop which is only permitted in main clauses and in initial position.

(3) **Pro-drop**

a) \_\_ è arrivato

(he) is arrived

b), che \_\_ è arrivato

, that (he) is arrived

c) cosa \_\_ ha comprato?

What (he) has bought?

Rizzi 1992 (see also Guasti 1996) claimed based on data of monolingual Italian children that children speaking *pro-drop* languages follow this pattern from very early on.

Summing up, the three parameters presented here sharply differentiate between German and Italian as they only occur in one of the target language but not in the other. V2 and Topic-drop are only attested in German, whereas pro-drop is only attested in Italian. We have seen that such a generalization holds for the respective adult grammars as well as for the early grammar of monolingual children of these languages.

If it is true that bilingual children develop separate grammatical systems for the target languages from very early on, we predict that they follow the same developmental patterns as monolinguals, more specifically we predict that German-Italian bilingual children restrict Topic-drop and V2 to the German grammar and Pro-drop to their Italian grammar.

## 1.2. Method.

In order to evaluate if bilingual children are able to set these parameters separately, let us turn to the naturalistic speech data of a bilingual child, Renzo.

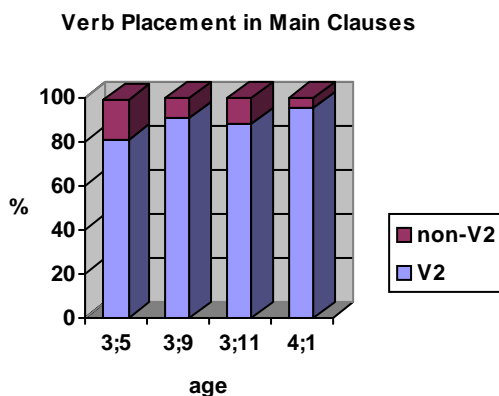
The data collection of Renzo's corpus started in January '98, when Renzo was 3;5 and continued until September '98, when the child was 4;1. The recordings were taken for about two hours every two months. In every section (except the second one) a German speaker (the mother, or another German investigator) and an Italian speaker (myself) were present. In this way the child always had an Italian and a German referent. Renzo speaks German with his mother and Italian with his father and he was exposed to the two languages from birth. The child started going to kindergarden after the last recording .

## 1.3. Analysis of the Data.

Let us first determine whether Renzo has acquired the V2 parameter<sup>1</sup>. As we can see in figure 1 the vast majority of Renzo's sentences containing finite verbs have the verb in second position. In Figure 1 we can see that in the first recording about 20% of the sentences present an order different from V2 and this percentage decreases to around 5% in the last recording.

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1. The present study is part of a bigger one which also includes data of two other bilingual German-Italian children, Marianna and Samuele. As Renzo's data are the most extensive, we will concentrate on those. Note that the data of Samuele and Marianna, show the same pattern of Renzo (cfr. Salustri 2002b). Also in Leo's data the V2 parameter seems to be already set (see Berger-Morales & Salustri 2000). The data of this child, recorded from 2.0 to 2.4 , show that children are able to separate the different grammar from the onset of language acquisition.



**Figure 1**

The low percentage of mistakes in itself suggests that he has acquired the V2 parameter. Such an assumption is furthermore strengthened when we look at the types of sentences in which we have the non-V2 order word order. The majority of such cases that we found in main clauses involve V1 sentences.

Renzo produces V1 clauses, as in (4):

(4) Examples of V1 sentences:

a) \_\_ weiss auch nicht wie man's zurücksput (Renzo 3;5)

(I) know also not how one it rewind

b) \_\_ brauche ich nicht

(that) need I not

We will assume that these sentences are not mistakes, but they are the result of a particular Topic-drop parameter setting. Adult spoken language in German allows sentences like (4).

However, consider Table 2:

**Table 2.** Subject and object drop in Renzo's corpus

Age	Subject drop %	Object drop %
3;5	9,7	3
3;9	2,9	1,2
3;11	5	2,6
4;1	1,8	1,2

We can observe a decrease of empty preverbal null subjects from 9,7% to 1,8% (in line with the results of Hamann (1996) who also found this decrease in monolingual German speaking children), whereas the figures for object drop remain relatively constant.

If all V1 sentences in child German were due to Topic-drop, we would not expect a decrease in subject drop over time, and object drop remaining constant at the same time. We will assume that Topic-drop is not the only mechanism licensing Subject drop in L1 German. We argue that V1 results from two different types of licensing mechanism: Topic drop, which is grammatical in adult German, and Subject drop, which is not.

We will assume an Early Null Subject stage in the German bilingual child as well. The presence of the drop of expletives, as in (5), which are not allowed in Topic-drop, also confirm this claim.

(5) (Es) gibt eine Treppe (Renzo 3;5)

(There) is a stairs.

Let us turn to subordinate clauses. As we can see in figure 2 the majority of Renzo's sentences containing finite verbs shows the verb in final position. In the first

recording we found around 20% of subordinate clauses with the finite verb not in final position. This percentage doesn't decrease significantly.

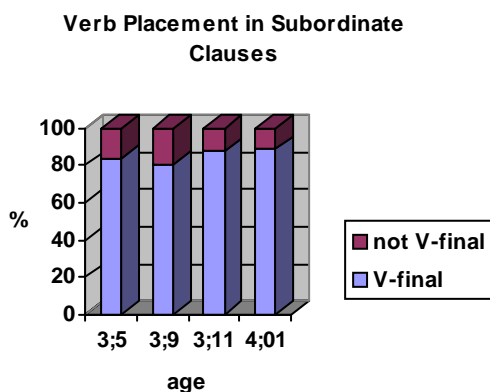


Figure 2

If we consider the graph in figure 3 we observe that the majority of these sentences are subordinate clauses introduced by “weil” (because) as in (6). Renzo displays a strong tendency to use V2 in sentences beginning with “weil” (because), a phenomenon that has been reported for monolingual German-speaking children (Hamann 1997, Schönenberg 1998, Meisel & Müller 1992).

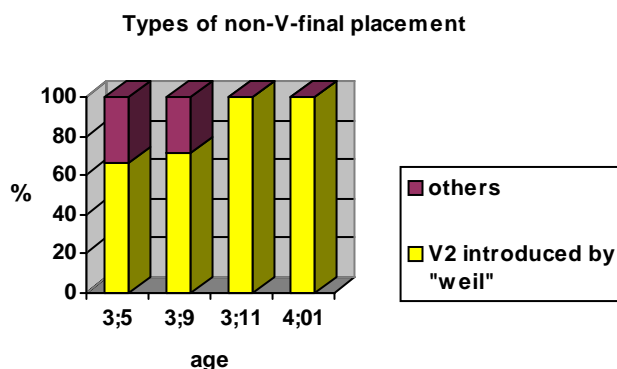


Figure 3

Initially it looks as if Renzo is using incorrect word order in subordinate clauses. However, as we can see in (6) the use of V2 in *weil*-sentences is also found in the mother's utterances. They were also found in the speech of the German investigator. Therefore, V2 in *weil*-subordinate clauses appears to be a feature of colloquial spoken German, and does not reveal a mistake in Renzo's productions.

- (6) Die Manola hilft dir bestimmt weil ich **muss** Wäsche aufhängen  
the Manola helps you certainly because I have to laundry hang (Renzo's mother)

Let us next turn to the pro-drop parameter. As we can see in (7) in Italian Renzo produces sentences with non-overt subject in *wh*- and post-verbal contexts.

(7) Examples of pro-drop in Italian.

- a) perchè tra poco \_\_ vado a scuola (Renzo 3;7)  
because in a while (I) go to school
- b) se \_\_ vuoi prendi qualcosa  
if (you) want take something
- c) Quando \_\_ hai finito di fare la spesa  
When (you) are finished shopping

In Table 3, we can see that at age 3.7 the percentage of non-root null subjects in Renzo speech is around 52,5% of the total of Null Subjects.

**Table 3.** *Root null subject in Renzo's Italian data*

File	Age	Total # of sentences	Total # of null subjects	Root null subjects	Non-root null subjects
II	3;7	367	(118) 32%	(56) 15,2 %	(62) <b>16,8 %</b>

On the contrary, only few cases of subject omission in non-root contexts are attested in the German data (less than 1,5% in the whole corpus). This result shows that pro-drop parameter is activated in Italian, but such a parameter is not attested in German, where null subjects are restricted to the root position.

#### 1.4. Conclusion

Summing up our results, first, based on the correct position of finite verbs in main and subordinate clauses in the German data of Renzo we have shown that the V2 parameter is active in this language<sup>2</sup>. Moreover, the presence of subject and object drop in the German data of Renzo shown that the Topic-drop parameter is set. Finally the data in (7) and the table 8 show that the pro-drop parameter is set in Italian but not in German.

<sup>2</sup> Note that OVS order is not attested in Renzo's Italian data.

## CHAPTER II

### ROOT INFINITIVES IN BILINGUAL GERMAN-ITALIAN ACQUISITION

#### 2.1. Introduction

Let us turn now from the issues of parameter setting to another aspect of early language acquisition, namely Root Infinitives (RIs). It is well known that at around the age of two children acquiring certain languages such as German, Dutch or French use infinitives in root context, in a non-adult like manner, as in the examples in (8)

(8)

- a. Leo malen. (German, Salustri (2001))  
Leo draw-INF
- b. Papa schoenen wassen. (Dutch, Weverink (1989))  
Daddy shoes wash-INF
- c. Michel dormir. (French, Pierce (1992))  
Michel sleep-INF

In table 4 we can see some of the languages that show such a phenomenon and the relative sources. Longitudinal and cross-sectional data have shown that with increasing age the proportion of RIs decreases gradually ( Bol and Kuiken 1988, Wijnen and Bol 1993, Haegemann 1993).

**Table 4.** *Frequency of RI (adapted from Hyams 2000)*

Type	Language	Frequency	N of children	Age range	Source
RI	French	<b>37%</b>	3	1;8-2;6	Pierce (1992)
RI	German	<b>43%</b>	1	2;1-2;2	Guasti (1994), Weissenborn (1990)
RI	Dutch	<b>56%</b>	4	1;8-2;4	Weverink (1989), Haegemann (1994)
RI	Icelandic	<b>36%</b>	1	2;0-2;3	Sigurjónsdóttir (1998)
RI	Swedish	<b>51%</b>	2	1;8-2;2	Guasti (1994), Platzack (1990)

As Wexler (1994) pointed out, the infinitive stage is optional, i.e. during this time children also use finite verbs in finite context. Moreover, when finite forms are used, agreement is almost always correct. Therefore, it is generally assumed that infinitives forms are not due to a lack of knowledge of the relevant finite morphology.

Importantly, it has long been noticed that RIs appear in positions in accordance with the target grammar. In French, for instance, finite verbs appear to the left of the negative adverbs “pas”, while infinitives appear to its right (Emonds (1978), Pollock (1989)). Similarly, various studies of Dutch and German and other V2 languages have shown that RIs appear in the position of infinitives (clause finally in Dutch in German, after negative adverb in the Scandinavian languages), while finite forms appear in second position (German : Jordens, (1991), Meisel, (1990), Boser et al. (1992), Weissenborn (1991), Poeppel and Wexler (1993) )<sup>3</sup>

<sup>3</sup> English and Greek children optionally use non-finite forms in -root contexts. As we can see in (1) children acquiring English show an optional use of bare stems, i.e. verbal form without inflection.

The use of non finite forms in finite contexts is not prohibited in adult grammars. In German, for example, these forms are used, but not in the high percentage that we find in child grammar. The goal of next section would be to examine if, not only a difference in frequency, but also a difference in RI's interpretation in child and adult grammars is found. First we will present the different interpretation of RI in adult grammar, and then we will analyze how these forms are interpreted in early grammar.

---

(1) Annie help. (English, Unsworth (2000))

Children acquiring Greek, on the other hand, use a non-adult form which can be analyzed as non-finite, as in (2).

(2) Pio vavási  
Spiro read

In table 1 we can see the percentage of these two phenomena and the relative's sources.

**Table1.** *Frequency of non-finite forms in early English and early Greek.*

Type	Language	Frequency	N of children	Age range	Source
Bare Stem	English	<b>78%</b>	3	1;6-3;0	Hoekstra & Hyams (1999)
Bare Subj.	Greek	<b>70%</b>	4	1;8-1;11	Stephany (1981)

Both these two phenomena have been associated with the RI phenomenon. In particular Wexler (1994) argues that bare stems in English are the analogue of the RI (but see Hyams 2001 for a different interpretation). Vainikka et al. and Hyams provide different analyse claiming a relation between the Greek phenomenon and the RI stage. We will return to this hypothesis later.

## 2.2. RI in adult grammar

Although RIs in adult grammar have not attracted much attention in the theoretical literature, a few authors have specifically discussed them. Akmajjan (1984), more recently Kondrashova (1993) and Avrutin( 1997) have discussed RIs in Russian.

Lasser (1997) also discusses the use of these verbal forms in adult languages. An important point in Lasser's discussion is the distinction between *sentence form* and *sentence function*. As Lasser pointed out, sometimes illocutionary functions are also used to refer to structural forms of sentences. This is because illocutionary functions are characteristically associated with certain structural devices, i.e. syntactic and morphological expressions. Imperatives, for example, in many languages, can be expressed using special verbal morphology. However, it is also clear that structure is not always predictive of illocutionary function. In fact, while the sentence form is defined exclusively in terms of the lexical and structural content of the sentence, illocutionary function depends on more than just its form. Therefore, a given utterance can potentially have more than one illocutionary function, not all of which are suggested by the structure of the utterance. RIs constitute an extreme case of this general situation, because in RI no explicit syntactic or morphological process refers to the (potential) illocutionary function. We will present some of the functions that RI can have, but first let me describe the illocutionary functions I will refer to.

(9)

*Definitions of three illocutionary functions:*

- a. Declarative: asserts the propositional content of the utterance
- b. Interrogative: solicits verbal information from the addressee with respect to some aspect of the proposition
- c. Imperative: solicits action on the part of the addressee.

### 2.2.1. RI as declaratives

Although it is not their most common use, RIs can be used as declaratives. For instance, as pointed out in Weuster 1983, one can use an infinitival clause to express a desire. For sentence which expresses a desire we will use the term “desiderative”.

- Adult German desideratives Root Infinitives

(10)

- a. Einmal richtig ausschlafen (Weuster 1983)  
once right sleep-in-INF  
„really sleep in for once”
- b. Ach, nur ein bisschen in der Ecke sitzen (Miller corpus)  
oh just a little in the corner sit-INF  
‘oh just sit in the corner for a little bit’
- c. Aber erst Nachrichten gucken (Miller corpus)  
but first news watch-INF  
„but first watch the news“

Using the definition in (9), these sentences are not interrogatives or imperatives, but declaratives statements. They can be paraphrased with finite sentences containing a modal expressing the desiderative content, as in (11).

(11)

- a. ich moechte einmal richtig ausschlafen  
 I would like once right sleep-in-INF  
 “I would like to really sleep in for once”
- b. Ich will nur ein bisschen in der Ecke sitzen  
 I want first a littel in the corner sit-INF  
 I first want to sit in the corner for a little bit
- c. Ich will aber erst Nachrichten gucken  
 I want but first news watch-INF  
 “But first I want to watch the news”

RIs with a declarative function are not limited to German, but that Russian and Dutch RIs permit them also, as in (12).

- Adult Russian RI declaratives

(12)

- a. reporting an Event  
 Carevna xoxotat  
 Princess laugh-inf  
 “The princess started to laugh” (Avrutin 1997)
- b. negative declarative statement  
 Emu nas ne obmanut  
 He-dat we acc neg deceive-inf  
 “He wouldn’t deceive us”

### 2.2.2. RI as Interrogatives

RIs can also be used to solicit information from one's addressee. Consider examples in (13)

(13)

- |                                    |                                   |
|------------------------------------|-----------------------------------|
| a. Du auch noch ein Bier trinken?  | (from Lasser, diary; at a party)  |
| you too still a beer drink-INF     |                                   |
| “Do you too want to drink a beer?” |                                   |
| b. Konkave schneiden?              | (from Lasser, at the hairdresser) |
| cut-INF                            |                                   |
| c. mal proibiren?                  | (from Lasser)                     |
| once try-INF                       |                                   |
| „do you want to try?”              |                                   |

These examples are genuine interrogatives, in the sense that they presuppose a verbal response from the addressee.

### 2.2.3. RI as Imperatives

Imperatives can also be addressed to a non-referential 3<sup>rd</sup> person entity, roughly to “whoever hears/reads this”, as in the case in German public notices, which often appear in infinitival form:

(14)

- a. Hunde an die Leine nehmen (from Lasser, notice in a park)  
dogs on the leash take-inf  
“Dog must be leashed”

In sum, RIs in adult grammar can be used in declarative, interrogative and imperative sentences. Following Lasser, however, the majority are used as imperative forms in adult German.

### 2.3. The interpretation of RIs in Child grammar

It is an old observation that RIs in early grammar typically have a modal/future interpretation (Van Ginneken 1917). Quantitative data for this observation is supplied in Table 5 which displays the interpretation of RIs in the speech of 4 Dutch children:

**Table 5.** *Temporal/Modal reference of RIs and finite form (from Wijnen 1996)*

	Present	Future/Modal	Past	Total
RI	194 (10%)	1625 ( <b>86 %</b> )	64 (3%)	1883
Finite	657 (93%)	21 (3%)	21 (3%)	699

In this section, however, we will present some recent studies which show how these verbal forms can also carry a present and past interpretation.

Following Behrens (1993), German children encode temporal reference before they start using the appropriate temporal morphology by means of what she calls multi-functional verb forms. More specifically, she claims that children are able to refer to past events without formal marking by tense or temporal adverbs, but rather by permitting past tense reference on non-past tense verb forms.

An analysis of some of Caroline's data (monolingual) and Leo's data (bilingual) shows that Behrens's claim indeed seems to hold. Let's take a look to table 6 and table 7 from Berger-Morales and Salustri (2002).

As we can see from the tables 6 and 7, RI and Bare stem can have a past-tense interpretation (note that in the table "Non-P" means that a verb form is clearly non past tense and "Poss P" means that it can have a possible past tense interpretation).

**Table 6** Past Tense Interpretation of Non-Past Verbs in Caroline's Data

	RIs		Present Tense Finite Verbs		Bare Stems		Bare Participles	
	Non-P	Poss P	Non-P	Poss P	Non-P	Poss P	Non-P	Poss P
1;3	0	0	0	0	0	0	0	0
1;4	0	0	3	0	0	0	0	0
1;6	1	0	5	0	5	0	0	1
1;8	8	1	5	1	3	1	0	1
1;9	39	3	10	1	5	2	0	1
<b>Total</b>	<b>48</b>	<b>4</b> (7,7%)	<b>23</b>	<b>2</b> (8%)	<b>13</b>	<b>3</b> (18,7%)	<b>0</b>	<b>3</b> (100%)

Following Behrens (1993) guidelines on how to determine if a verb could have past tense reference based on linguistic context (*scaffolding*<sup>4</sup> and *free recall*, cf. Behrens (p.57)), it can be determined that roughly 12.5% of all of Caroline's non-past tense verbs could possibly carry a past tense (i.e. completed action) interpretation. This correlation seems to be even stronger in the bilingual child, as table 7 illustrates.

<sup>4</sup> Following Behrens: "The reference point (RT) is often established elsewhere in the linguistic context. It has been assumed that RT is maintained unless there is a clash with the situational context. Often the RT is established in order to ask the child about remote events. This technique is known as scaffolding (Bruner 1983, Peterson 1990 among others)".

**Table 7** Past Tense Interpretation of Non-Past Verbs in Leo's Data

	RIs		Present Tense Finite Verbs		Bare Stems		Bare Participles	
	Non-P	Poss P	Non-P	Poss P	Non-P	Poss P	Non-P	Poss P
2;0	2	0	1	1	0	0	0	0
2;1	14	1	4	1	1	0	0	2
2;2	2	1	1	0	0	0	0	1
2;3	11	2	1	0	1	0	0	0
2;4	16	1	1	0	1	0	0	2
<b>Total</b>	<b>45</b>	<b>5</b> <b>(10%)</b>	<b>8</b>	<b>2</b> <b>(20%)</b>	<b>3</b>	<b>0</b> <b>(0%)</b>	<b>0</b>	<b>5</b> <b>(100%)</b>

About 17.6% of all of Leo's non-past tense verbs could possibly carry past tense interpretation. Hence, German-speaking children appear to employ a kind of default strategy for encoding past tense reference if a true past tense form, such as the participial construction, is not accessible to a high degree in their grammar. We will return to this point in the last chapter.

Following Lasser, however, we can conclude that, even if a past tense interpretation of RIs in child grammar is possible, these cases are not so frequent. Tables 8 and 9 show the interpretation of RIs in the data of Simone, a German-speaking child, as reported by Lasser. As we can see, RIs are mostly used with a declarative /desiderative illocutionary function.

**Tab.8. Illocutionary function of RI\***

Child age	2;1	2;7	2;9	
				<b>average</b>
<b>Declaratives</b>	% (n)	% (n)	% (n)	
Adult	27 (15)	56 (19)	58 (22)	<b>47</b>
Simone	<b>81</b> (91)	<b>69</b> (22)	<b>59</b> (19)	-
Andreas	61 (118)	-	-	-
<b>Imperatives</b>				
Adult	63 (35)	32 (11)	40 (15)	<b>45</b>
Simone	<b>19</b> (21)	<b>25</b> (8)	<b>38</b> (12)	-
Andreas	14 (28)			-
<b>Interrogatives</b>				
Adult	11 (6)	6 (2)	3(1)	<b>7</b>
Simone	0 (0)	0(0)	3(1)	
Andreas	9 (17)	-	-	
<b>Indeterminate</b>				
Adult	0 (0)	6 (2)	0 (0)	<b>3</b>
Simone	1 (1)	6 (2)	0 (0)	-
Andreas	16 (31)	-	-	-

\*Percentage and frequencies of Root Infinitives that were used as declaratives, imperatives and interrogatives.

In Table 8 we can observe that that the majority of Simone's RIs are declarative. In addition, Table 9 indicates that in particular those declarative have a "desiderative/future" interpretation .

**Tab.9** *The interpretation of declarative RI\**

Child age	2;1	2;7	2;9	
				Average
<i>Desiderative future</i>				
Adult	0(0)	11(2)	23(5)	<b>12</b>
Simone	<b>66(60)</b>	<b>45(10)</b>	<b>37(7)</b>	-
Andreas	47(56)	-	-	-
<i>Non-desiderative future</i>				
Adult	60(9)	53(10)	76(16)	<b>63</b>
Simone	<b>5(5)</b>	<b>32(7)</b>	<b>32(6)</b>	-
Andreas	15(18)	-	-	-
<i>Present</i>				
Adult	27(4)	11(2)	0(0)	<b>13</b>
Simone	<b>11(10)</b>	<b>0(0)</b>	<b>16(3)</b>	-
Andreas	15(18)	-	-	-
<i>Pres/future</i>				
Adult	13(2)	21(4)	0(0)	<b>11</b>
Simone	<b>10(9)</b>	<b>9(3)</b>	<b>11(2)</b>	-
Andreas	6(7)	-	-	-
<i>Past</i>				
Adult	0(0)	0(0)	0(0)	<b>0</b>
Simone	<b>8(7)</b>	<b>5(1)</b>	<b>0(0)</b>	-
Andreas	8(9)	-	-	-
<i>Indeterminate</i>				
Adult	0(0)	5(1)	1(5)	<b>3</b>
Simone	<b>0(0)</b>	<b>5(1)</b>	<b>5(1)</b>	-
Andreas	8(10)	-	-	-

\* Percentage and frequencies of desiderative future, non-desiderative future, present and past events.

In sum, based on tables 8 and 9 we can conclude that children use RIs most in declarative-desiderative sentences.

### 2.3. Differences and similarities between adult and child interpretation.

Summing up, RI in German seems to express, both in adult and child grammar, what is commanded, wished, or an action related to the future. However, while in adult German the interpretation of RIs is mostly restricted to imperative forms, in child German these forms seem to have a broader interpretation. To indicate this kind of interpretation we will use from now on the term “irrealis”. This term will encode all the interpretations related with volition and future.

The similarities and differences between children and adults, as reported by Lasser, are summarized in 15) and 16).

#### 15) *Similarities*

- a) Children and adults used RIs in the declaratives, interrogatives and imperative function.
- b) Children and adults used RIs mostly with a future reference.

#### 16) *Differences*

- a) Adults used RIs with lower frequency than children.
- b) Adults used RIs mostly as imperatives.
- c) Children used RIs mostly as declaratives (“desiderative”).
- d) Adult used declarative RIs mostly as non-desideratives.
- e) Adults do not refer to completed events with a RI, children do so rarely.

#### **2.4. RI in early grammar: different explanations.**

The presence of RIs in early Grammar have been the central focus of early acquisition studies in the last decades. In this section we will briefly analyze some of the most influence theories they have been presented in the recent years, in particular Clahsen (1994), Rizzi (1994), Hoekstra & Hyams (1995), Wexler 1998, and finally Hyams (2000) and Rizzi (2002).

### **3. Early Grammar: a reduced structure?**

Radford (1990) and others claims that the RIs phenomenon is due to the absence of functional categories. The idea is that functional categories are subject to maturation and early grammars consist solely in lexical projection. This hypothesis, claimed also by Clahsen (1994), has been undermined by the observation that some phenomena related to the presence of the full structure, like the V2 phenomena in German are also found in early grammars.

### **4. The Null Modal Hypothesis**

The basic idea of the Null Modal Hypothesis is that the structure of RI-utterances contains a non-overt modal verb. Following such an hypothesis children's apparently non-finite utterances are structurally identical to finite adult utterances.

Boser et al. (1992) suggest to account for sentences which lack a finite verb in German by postulating a null auxiliary in the underlying structure. The null auxiliary moves to C, which blocks the raising of the infinitive, thereby explaining the fact that German RIs occur in sentence-final position.

The empirical predictions of the null aux hypothesis are that RIs should behave like finite clauses. Hoekstra & Hyams (1998) however, show that RIs distribute differently with respect to subjects, topic and wh-phrases (but see H & H for a more in deep discussion).

## 5. Truncation Theory

Rizzi (1994) proposes that RIs in child language arise because children have the option of not projecting a full CP structure, i.e. they may truncate the clausal structure of the sentence by cutting off the functional projections located in the higher part of the clause. More specifically, children may truncate the clausal structure below TP. In such a scenario, the verb in languages such as German would not be able to raise to higher functional projections in order to check Tense and Agreement, but instead would have to remain uninflected in its D-structure position. Consequently, the derived sentence would contain a RI.

Under the Truncation Theory, the difference between adult and child grammar in those languages that display child RIs reduces to the unavailability of the truncation mechanism in adult speech. Contrary to the child grammar, the adult grammar must adhere to a principle that restricts the root to being a CP.

In order to account for the extreme rarity of RIs in early Italian and Spanish, Rizzi (1994) refers to the special behavior of infinitives in these languages. Based on Belletti's (1990) observations, he suggests that Italian and Spanish infinitives, in contrast to their German and French counterparts, raise out of their base-generated position to check their features against a functional Agr<sup>0</sup> that is located higher in the functional structure. Hence, the raising of infinitival verbs mirrors that of finite verbs in Italian and Spanish, as it transports the verb beyond the domain of TP.<sup>5</sup> Since such overt verb raising in Italian is triggered by the need to check a strong Agr feature, AgrP must be present in order to ensure proper checking and morphological well-formedness of the verb, be it finite or non-finite. In other words, if the clausal

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<sup>5</sup> Whether or not infinitives raise as high as finite verbs (i.e. to AgrS<sup>0</sup>) or to some other functional agreement head is not of immediate importance in this paper, and thus shall be left unspecified.

structure were truncated below TP (and consequently below any AgrP), the strong Agr feature associated with the non-finite verb would remain unchecked, and the derivation would crash (cf. Rizzi (1994, p.388)). Therefore, the unavailability of truncation below AgrP prevents the occurrence of RIs in early Italian and Spanish.

Rizzi's (1994) Truncation Theory not only straightforwardly accounts for the syntax of RIs, but it also makes strong predictions about which kind of other syntactic phenomena should and should not be able to co-occur with RIs. Assuming a clausal structure that is truncated below TP, one predicts that *wh*-questions and subject clitics are equally lacking. Such predictions are indeed borne out (cf. Crisma (1992), Weissenborn (1992), Pierce (1989)). Furthermore, the Truncation Theory provides an elegant account for the high occurrences of null-subjects during the RI-stage in non-null-subject languages. Null-subjects in these languages can only be licensed if located in the specifier of the root, i.e. out of the *c*-command of a potential clause-internal identifier. Such a configuration is only given in a truncated structure. As a result, null-subjects pattern with RIs <sup>6</sup>.

In sum, the Truncation Theory of RIs is able to differentiate not only between child and adult grammars, but also accounts for crosslinguistic variation with regard to the occurrence of child RIs. Furthermore, it is able to capture other syntactic properties of the verbal domain that occur during the RI stage, and thus unifies a variety of early grammar characteristics under one approach.

Let us next turn to an alternative theory of RIs in child language, which makes different, yet equally strong predictions as the Truncation Theory.

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<sup>6</sup> Null Subject also occur with finite verbs, but with a lower percentage.

## 6. The Underspecification Theory

In contrast to the Truncation Theory, Underspecification Theories of RIs suggest that early child grammars, like adult grammars, contain full CP clausal projections across the board. Hence, RI constructions do not differ structurally from their adult counterparts, as they too contain a full set of functional projections. What differentiates child from adult syntax is the fact that only children have the option of leaving functional features associated with functional heads underspecified. Among the supporters of the Underspecification Theory, there is disagreement with regard to the exact nature of the functional head that may be left underspecified. All of the following types of underspecification have been proposed in the literature: Underspecification of Tense (Wexler (1994)), underspecification of Tense and Agr (or Case) (Schuetze & Wexler (1996)), and underspecification of Number (Hoekstra & Hyams (1995)). In this paper, we will concentrate on the underspecification of Number, since it makes straightforward predictions with regard to parallel processes in the nominal domain.

First, however, let us review the basic assumptions involved in this Underspecification Theory. Hoekstra & Hyams (1995) base their proposal on the idea that verb finiteness is the morphosyntactic expression of a chain linking the verb to a deictic operator in the left periphery of the clause, a process that provides a sentence with its specific temporal interpretation (cf. also Gueron & Hoekstra (1989), 1994)). The specification of the various functional heads intervening between the left periphery and the verb (i.e. Tense, Number, and Person) connects the ends of the chain to one another, i.e. the operator to the verb. Languages differ with respect to the kind of functional head (or heads) that make(s) the chain visible through its (their)

morphosyntactic expression. For instance, it is argued that in languages such as Italian and Spanish finiteness is made visible (minimally) through the specification of Person (and possibly Number as well), while languages such as English and Dutch exclusively express finiteness via the specification of Number.

Based upon such a differentiation between the languages that display RIs in child language and those that do not, Hoekstra & Hyams (1995) propose that RIs are an instantiation of the underspecification of Number. An underspecification of the Number feature results in a failure of chain formation between the operator and the verb, and consequently in a failure to generate finiteness. In languages such as Italian and Spanish, on the other hand, the chain is formed by means of the specification of Person (either exclusively or as a further resort). Hence, the formation of the chain will never be adversely affected by an underspecified Number feature, and finiteness is always guaranteed. Hoekstra & Hyams (1995) note that German represents a potential problem to this kind of analysis. German verbs inflect for Person, and therefore should pattern with languages such as Italian and Spanish with respect to the finiteness chain formation. Yet, early German exhibits RIs. The Underspecification Theory thus has to resort to the idea that German-speaking children initially misanalyze their language as one that is (optionally) specified for Number, thus following the same pattern as the other Germanic languages. Once these children acquire a variety of verbal inflections (specifically the 2<sup>nd</sup> person singular suffix, cf. Hoekstra & Hyams (1995) based on Clahsen et al. (1994)), they reset their “specification parameter” from Number to Person, and RIs cease.

The difference between child and adult grammars in languages that exhibit RIs in the former but not in the latter is attributed to the development of a pragmatic principle as the grammar matures. While the notion of finiteness in the child

grammars of these languages may optionally be established via discourse interpretation, a pragmatic condition (à la Reinhart's (1983) Rule I) requires that finiteness in the adult grammar must be established via binding (i.e. chain formation). Hence, RIs are not an option in the relevant adult grammars.

Importantly, Hoekstra & Hyams' (1995) Underspecification Theory makes some interesting predictions concerning structural deficiency in the nominal domain. Since the nominal domain, i.e. the DP, contains the same functional heads as the verbal domain (i.e. Person, Number, and some Tense and verbal equivalent (=noun)), they propose a parallelism between the two domains with respect to underspecification. In other words, if children leave Number underspecified in the verbal domain, resulting in a lack of finiteness on the verb, the same type of underspecification will result in a lack of functional elements in the nominal domain. More precisely, the Underspecification Theory predicts that whenever children opt for the use of RIs, the DP will lack an overt determiner or an overt noun altogether.

Summing up, we can see that the Truncation Theory and the Underspecification Theory of RIs make different predictions about the remaining clausal structure. While the Truncation Theory unifies properties of RIs within the verbal domain, the Underspecification Theory unifies properties that accompany RIs within the nominal domain. In this paper, we will examine whether or not the corollaries between the verbal and the nominal domain, as claimed to exist under the Underspecification Theory, hold in our data of a German-Italian bilingual child.

## 7. The UCC Model.

Wexler (1998) takes minimalist syntax (Chomsky (1995)) as his starting point in order to describe ways in which child grammar differs from adult grammar. One of his most crucial assumptions is that in child grammar, principles of grammar, i.e. a number of different economy conditions, compare and choose between different possible numerations. He calls this assumptions *Minimize Violations*, as defined in (17).

### (17) **Minimize Violations**<sup>7</sup>:

Given an LF, choose a numeration whose derivation violates as few grammatical properties, i.e. economy conditions, as possible. If multiple numerations are minimal violators, any of these numerations may be chosen by the child.

Let us consider the different grammatical principles (or economy conditions) which are relevant for *Minimize Violations*. It is proposed by Wexler (1998) and Schuetze and Wexler (1996) that children have the option of omitting functional structure, specifically Agreement and Tense projections, from the trees constructed by their grammars. Consequently, a child could conceivably omit the Tense projection from the tree, leaving AgrSP directly connected to VP, rather than intermediately through TP.

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<sup>7</sup> Wexler (1998) remains agnostic with respect to whether such a principle applies to the adult grammar as well.

(18) AgrSP

(TP)

VP

Although children thus have the option to delete functional structure, according to Wexler (1998), doing so violates an economy condition which I will refer to as *Don't Omit Structure*, as in (19).

**(19) Don't Omit Structure:**

Each omission of a functional projection (such as AgrP or TP) incurs 1 violation of this economy condition. Hence, every time the child omits a phrasal projection this economy condition will be violated.

Wexler (1998) furthermore assumes the existence of another economy condition, the Unique Checking Constraint (UCC), which, in essence, punishes excess movement. In minimalism, movement of a DP is triggered by D-features that need to be checked. Chomsky (1995) assumes that a D-feature has a special property when it occurs on a DP, namely that it is interpretable (in contrast to uninterpretable D-features on functional projections such as AgrP or TP), and therefore is not deleted after checking. As a result, a DP can move many times through various functional projections. However, Wexler (1998) proposes that, in the child's grammar, a DP's D-feature is merely optionally interpretable. He assumes that every time a D-feature on a DP is checked and not subsequently deleted, one must incur a violation of the UCC, which is formalized in (20).

**(20) Unique Checking Constraint (UCC)<sup>8</sup>:**

Every checking relation involving the D-feature of a DP should delete the DP's D-feature. Each time the DP's D-feature does not delete, 1 violation of the UCC is assigned.

Equipped with these economy conditions and the overall principle of *Minimize Violations*, let us next turn to the special properties of Italian within this model.

In order to account for the lack of RIs in pro-drop languages like Italian, and for the presence of RIs in non-pro-drop languages like German, Wexler (1998) suggests that AgrSP in Italian has an interpretable (rather than an uninterpretable) D-feature, so that nothing forces movement of a DP into spec, AgrSP.

- *D-feature on Italian AgrSP is [+int]*

Based on the observation that AGR in pro-drop languages is pronominal or nominal in a sense, Italian AGR *is* D in itself, and therefore does not need a D-feature to check it (cf. Wexler 1998:70).

German, on the other hand, due to its status as a non-pro-drop language, has an AgrSP with an uninterpretable D-feature, resulting in an active EPP-requirement for the German AgrSP. Such a difference between the German AgrSP and the Italian AgrSP, giving rise to an asymmetry with respect to domains of D-feature checking, consequently results in an asymmetry of UCC violations between the two languages. While the German-speaking child can choose from two competing numerations, one containing a finite verb (and violating the UCC) and one containing a RI (and

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<sup>8</sup> This is a slight modification of Wexler's (1998) UCC. In his paper, Wexler assumes that the UCC is violated whenever a D-feature of the DP enters into more than one checking relation (i.e. zero violations if the DP's D-feature is checked once, and one violation if it is checked more than once).

violating *Don't Omit Structure*), the Italian-speaking child only has access to one numeration, i.e. a numeration containing a finite verb (not violating any constraint). By this, Wexler (1998: 71-72) is able to account for the asymmetry in the occurrence of RIs in the two languages.

Moreover, in order to account for the optionality of auxiliary omission Italian participial constructions, Wexler (1998) stipulates that AuxP, in which the auxiliary is generated à la Belletti (1990), behaves like a regular functional projection in that it has an uninterpretable D-feature in Italian, as stated in the following:

- *D-feature on Italian AuxP is [-int]*

The EPP drives AuxP, like other functional projections, to have an uninterpretable D-feature.

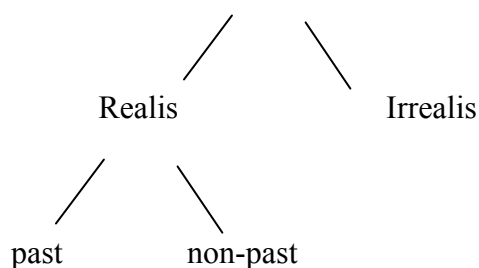
With these assumptions, Wexler (1998: 73-73) shows that the competing numerations that the Italian-speaking child can choose from under *Minimize Violations* include numerations with an overt auxiliary (violating the UCC) as well as numerations containing a null-auxiliary (violating *Don't Omit Structure*). Hence, there exists an optionality with regard to auxiliary deletion in Italian participial constructions .

## 8. Semantic Opposition Hypothesis

Hyams (2001) proposes that children in the early stages of language acquisition map meanings onto morphosyntactic structures according to a semantic hierarchy in which mood represents a primitive opposition as in (21).

(21)

### SEMANTIC OPPOSITION HIERARCHY



”Irrealis” mood express the desire, necessity or futurity of some event/state. Following this hypothesis, RIs and other non-finite structures attested in early grammars are licensed by interface principles that map certain semantic features/categories as mood, tense and aspect onto particular morphosyntactic structures. The TNS/AGR features of the finite verb provide the variable for the realis operator/tense chain, and the infinitival morpheme provides a variable for the modal operator.

## 2.6. RIs in bilingual German Italian Acquisition

Let us turn now to the study of RI in bilingual acquisition. As we have seen, RIs are a developmental phenomenon attested in Germanic languages, like German and Dutch, but not in languages such as Italian or Spanish. Thus, if such a dichotomy concerning RIs can be observed in the speech of bilingual children as well, then we may conclude that the child from the earliest stages of language acquisition is able to separate the different grammars.

In Renzo's data, RI are not attested, probably due to the age of the child. We will analyse the data of a younger bilingual German-Italian child, Leo, who has been recorded once or twice a month from age 2;0 to 2;7.

In our analysis of the German and Italian data, we counted the number of infinitival and finite verb forms in root clauses finite verb forms. The results of such a count are illustrated in Table 10:

**Table 10.** *Root Infinitives in Leo's corpus\**

RI	German		Italian	
	<i>Tokens</i>	<i>%</i>	<i>Tokens</i>	<i>%</i>
2:0-2:4	51/63	<b>81</b>	1/45	<b>2</b>
2:6-2:7	28/46	<b>61</b>	2/29	<b>7</b>

\* (from Berger-Morales & Salustri 2001)

From table 10, it is apparent that the phenomenon of RIs is clearly operative in Leo's German data, as the vast majority of his verbs are non-finite. Compare these results with the distribution of finite verbs in Leo's Italian data. Table 10 shows that

virtually all of Leo's Italian verbs are finite. As predicted, the preceding results show that RIs are attested in German, but are extremely infrequent in Italian.

The same pattern has been noted in monolingual acquisition of the respective languages (cf. Poeppel & Wexler (1993) for German and Guasti (1994) for Italian). Hence, the grammatical system of each language acquired by these bilingual children follows the same developmental path observed in monolingual children.

Finally, note that qualitative properties that have been observed in monolingual German RIs exist in the bilingual data of Leo as well.

Particularly, it has been observed that in monolingual German children the RIs carry prevalently future or modal interpretation (see section 2.3). Based on the SSH hypothesis, the same pattern should be found in Leo's data. This prediction is born out, as illustrated in table 11:

**Table 11.** *Temporal interpretation of Leo's finite and non-finite verbs*

	Ambiguous	Present	Future/Modal	Past	Total
German RIs	0 (0%)	4 (5%)	69 (89%)	5 (78%)	78
German Finite Verbs	0 (0%)	28 (80%)	1 (3%)	6 (17%)	35

Another property that has been associated with RIs is that they are restricted to event-denoting predicates. In contrast, the finite verbs in RI languages include both stative and event denoting predicates. This phenomenon has been reported for Dutch (Wijnen (1996)), French (Ferdinand (1996)) and is illustrated in table 12 for monolingual German.

**Table 12** *Eventive and non-eventive verbs in a monolingual German speaking child (Julia 2;2-2:5) (based on Clahsen 1986).*

	Finite	RIs
Eventive verbs	12/47 (26%)	57/57 (100%)
Stative verbs	35/47 (75%)	0/100 (0%)

As table 12 illustrates, 100% of the RIs in the spontaneous utterances of the German monolingual child are event-denoting verbs, while finite verbs are both stative and eventive. Hoekstra and Hyams refer to this restriction as the Eventivity Constraint :

- The eventivity Constraint

RIs are restricted to eventive predicates.

Turning now the bilingual data, table 13 shows that RIs in Leo's German clearly adhere the Eventivity Constraint, as all of the non-finite verbs are eventive and none of them are stative.

**Table 13.** *Eventive and non-eventive verbs in Leo's German utterances*

	Finite verbs	Non-finite verbs
Eventive German verbs	19/35 (54%)	78/78 (100%)
Stative German verbs	16/35 (46%)	0/78 (0%)

Finally, it has been observed that there exists a connection between RIs and the type of subjects they occur with. More specifically, RIs tend to co-occur with null-subjects more than finite verbs. This is illustrated for monolingual German in table 14.

**Table 14.** *Percentage of null subject with German RIs and finite verbs*

Child	Finite verbs			Non-finite verbs		
	Overt	Null	Total	Overt	Null	Total
Simone (1:8- 4:1) from Beherens 1993	80%	20%	3636	11%	<b>89%</b>	2477
Andreas from Kraemer 1993	92%	8%	220	32%	<b>68%</b>	68

We can see that while null-subjects occur between 68% and 89% of the time in RIs, the frequency of null-subjects is much lower in finite clauses, namely between 8 and 20% of the time.

Our analysis of the bilingual data shows that bilingual children again pattern like monolingual children with respect to subject type in non-finite clauses. Table 15 shows that the majority of Leo's German RIs, namely 63%, contain null-subjects, similar to the 68% reported by Kramer (1993).

**Table 15.** *Percentage of null subjects co-occurring with finite and non-finite verbs in Leo's German utterances .*

	Finite verbs			Non-finite verbs		
	Overt	Null	Total	Overt	Null	Total
Leo's German utterances	21/35 (60%)	14/35 (40%)	35	29/78 (37%)	49/78 <b>(63%)</b>	78

These observations once again support the idea of separate grammatical systems in bilingual first language acquisition. (see Berger-Morales, Salustri and Jillkerson (2003)).

## 2.7. Conclusion

In sum, I have supported the Separate Systems Hypothesis by looking at two different aspects of early language acquisition, parameter setting and RI in the spontaneous speech of two BFLA bilingual German-Italian children, Renzo and Leo. Summing up our results, after looking at parameter setting, we strengthened our hypothesis with the observation that the phenomena of RIs in Leo's data pattern in the same manner as monolingual children in that it is only observed in German but not in Italian.

## CHAPTER III

### IS THERE AN ANALOGUE TO THE RI STAGE IN THE NULL SUBJECT LANGUAGES?

#### 3.1. Introduction

In the previous chapter we showed that German children go through a stage in which they use non-finite forms in finite sentences (RIs), as in (23).

(23) Enzo malen                      (Salustri 2001)

Enzo draw

These forms can have different interpretations and different temporal reference, but mostly RIs are used as declarative desideratives with a future reference, i.e. they express the child's desire, intent, or need with respect to some eventuality, rather than describing an ongoing or past event. As pointed out in the previous chapter, from now on we will use the term 'irrealis' to express this interpretation of RIs. In particular, with 'Irrealis' I will refer to a term which defines not an ongoing situation or present/past tense, but instead volition, direction or intention.

### 3.1.1. Is there an analogue to the RI stage in child Greek?

Greek, like the Balkan languages in general, does not have an infinitival form. Nevertheless Greek children go through a stage in which they use a form which shares many of the property of the Germanic RIs (Varlokosta et al. (1998), Hyams (2002)).

The RI analogue produced by (roughly) two-year-old Greek children is illustrated in (24). Greek has perfective and imperfective stems and the verb is marked for person and number agreement. The child's verb in (24) has a perfective stem and a 3rd person (-i) affix.

(24) a. Pio vavási (child form of *äiavási*) (CHILDES, Stephany 1997)

Spiros read-3rd per. perf.

b. Ego katiti

I sit- 3rd per. perf.

c. Kupisi i kateti

wipe-3rd sing. perf. the mirror

In adult Greek a perfective verb must either be marked as past tense (e.g., *äiavási* (s/he) read-perf. pst.) or it must be preceded by a perfect auxiliary (e.g., *exi äiavási* (s/he) has read.) or modal particle (e.g., *èa/na äiavási* ('fut./subj read.)). It must occur with either tense or modal morphology. In the child's grammar, in contrast, we find the perfective occurring without tense or modal morphology, hence the use of the term "bare" (see Hyams (2001)).

Let us present the properties that the Greek bare perfective (BP) shares with RIs. These are all properties that relate to temporal anchoring (or lack thereof, aspect and mood). These are listed in (25) and elaborated below. The Bare Perfective (like the RI):

(25)

- i. Is (arguably) non-finite, as evidenced by the lack of productive agreement.
- ii. Has a modal or irrealis meaning, that is, it is volitional, directive, or intentional.
- iii. is restricted to eventive predicates.
- iv. co-occurs with finite clauses.

Hence, Greek children present a stage in which they use apparently non finite verbs to express some kind of modal meaning, as do children in RI stage.

Based on this observation, Hyams (2002) suggests the following generalization:

- (26) There is a stage in early development in which modality is expressed through an underspecification of features associated with finiteness.

Recall that Romance pro-drop languages lack the RI stage (Guasti 1994), thus the generalization in (26) leads to the following questions:

- (27) Is the expression of modality in earlier Italian linked to the (non)-finiteness of the verb, as it is in non pro-drop languages and Greek?

In this chapter we will try to answer the question in (27), in particular we will investigate how Italian speaking children express modality and irrealis meaning. Recall that with “Irrealis” I will refer to a term which does not describe an ongoing situation or present/past tense but instead volition, direction or intention. Even if a Root Infinitives stage is not attested in early Italian, we will claim that this language presents a functional equivalent of the RI phenomenon, namely an “overuse” of imperative forms<sup>9</sup>.

### **3.2. How do Italian speaking children express modality and Irrealis meaning?**

In this section we will present some possible “RI analogues” that have been suggested in the acquisition literature. Furthermore, we will analyze whether there is a difference in the use of modals in early Italian and early German. A different use of these verbal forms, in fact, could explain the different distribution of RIs, which have predominantly a modal interpretation.

#### **3.2.1. Modality is expressed in early Italian through a participial form**

Various hypotheses have been suggested in the literature about what kind of verbal form can be analyzed as a “functional analogue” of the RI. In particular, it has been observed that children acquiring null subject languages do produce non-finite forms as well, namely bare participles (i.e. participles unsupported by an auxiliary), as in (28a). The adult target is given in (28b).

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<sup>9</sup> Even if in this thesis I will restrict my attention to Italian, the overuse of imperative forms is also attested in other null subject languages, such as Spanish and Hungarian (see Grinstead for Spanish (to appear) and Zsuzsa Londe (2003) for Hungarian).

- (28) a. *Presa Checco campana* (child utterance)  
       taken Checco bell
- b. *Francesco ha preso la campana* (adult target)  
       ‘Francesco has taken the bell’

These verbal forms constitute a developmental phenomenon as well, as they decrease with age and finally disappear around the age of three.

Thus, the first hypothesis we will consider is that even in early Italian modality is expressed through a non-finite form.

**H1:** Modality is expressed in early Italian by a bare participial form

Clearly, RIs and bare participles are structurally and semantically distinct, just as infinitives and participles are distinct in adult grammar.

Consider for example the following sentences:

- (29) *Disegno cascato* (Leo, 2:3)  
       Picture fallen  
       “the picture has fallen”

In child grammar, as well as in adult grammar, past participle expresses complete, past meaning and they cannot be used to express irrealis meaning<sup>10</sup>. Hence, the hypothesis that bare past participle can be considered as RI analogue doesn’t seem to be born out.

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<sup>10</sup> Note that all the past participles forms attested in Leo’s data have a complete, past interpretation as in (29) (see Salustri and Berger Morales 2001)

## **1.2. Modality is expressed in Italian through a “default” form, namely the third person singular**

From the very onset of language acquisition children acquiring non-pro-drop languages use the correct verbal forms of agreement, i.e. verbal forms correctly show Tense and Agreement forms (Guasti 1994). However, some authors (Torrence, p.c.) have suggested that some of those verbal forms, even though they have the right morphology, are actually used with different interpretation. That could suggest that some forms might be used as default forms, and hence express a different meaning than the one that morphology suggests.

In particular some authors have suggested that the third person singular verb form in Italian could be a “default form” (cf. Grinstead (1998)). Most of the agreement mistakes in early Italian, in fact, is attested with the third person singular.

### **H2: Modality is expressed in Italian through a “default” form, namely the third person singular**

Following this hypothesis we should find a high number of agreement errors. As the third person of the first conjugation would be used as a default form, we should expect this form to be used also with the first and second person singular and plural. In addition, these forms should be used also to refer to past tense or modal interpretation. However, these types of agreement mistakes are barely attested in Diana, Martina and Francesco's data. The average number of agreement errors in Italian is extremely low (under 10% in Diana and Martina), therefore this phenomenon is not comparable with the RI stage, which is present in higher percentages. In addition, the forms which present an agreement mistake don't have a modal interpretation, but they always indicate a present tense, declarative sentence (see Salustri 2001).

### **3.2.2. Do Italian children start to use modals before German children?**

As we saw in chapter II, RIs mostly have a modal interpretation. Hence, a difference in the use of modal verbs, and in the onset of use of these verbal forms, would suggest a possible motivation for the use of RIs in German. In fact, if German speaking children start to use modals later than Italian speaking children, they would need a “suppletive” form to express modality. Following this hypothesis, Italian speaking children, would not need such a form.

#### **H3: Italian children start to use modals before German children**

Before considering the data of the Italian children, let’s take a look at the proportion of modals in adult Italian. In table 16 and 17 we can see the frequency of modals in adult spontaneous conversations.

**Table 16.** *Frequency of Modals in adult Italian: analysis of a “ A Tavola” (Agosto 1977) transcribed by A. Duranti.*

<b>Italian monolingual speakers</b>	<b>All verbs</b>	<b>Modals*</b>
<b>A</b>	77	7 (9 %)
<b>B</b>	70	6 (8 %)
<b>C</b>	10	1 (10 %)
<b>D</b>	111	13 (11,7 %)
	<b>268 total</b>	<b>27 (10%) mean</b>

Table 15 shows that the percentage of modals seems to be constant across the different speakers A, B, C, D. In particular, the percentage of modals is about 10% in each speaker.

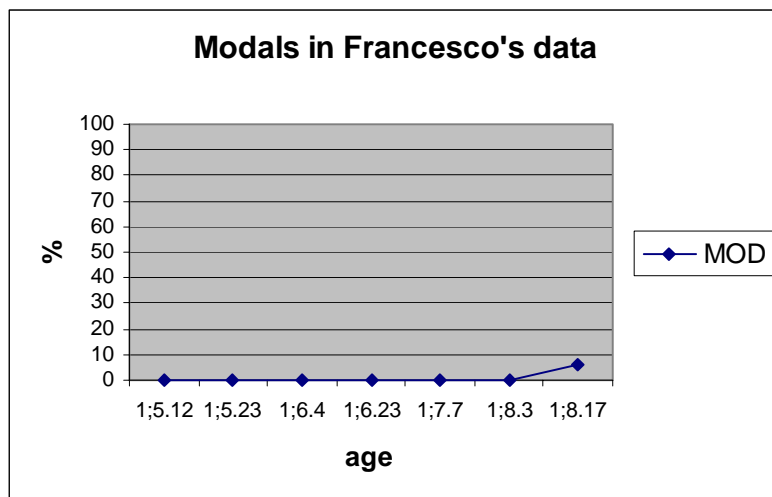
**Table 17.** *Frequency of Modals in adult Italian in 4 discourse situation.*

<b>Discourse situations</b>	<b>All verbs</b>	<b>Modals</b>
<i>(1) Seminario sul parlato</i>	241	26 (11%)
<i>(2) Un amico I</i>	332	71 (21%)
<i>(3) Un amico II</i>	109	4 (3%)
<i>(4) A Tavola</i>	268	27 (10%)
	<b>950 total</b>	<b>128 (13,4 %)</b> <b>mean</b>

As we can see from table 16 and 17 the percentage of modals in adult spontaneous speech is around 10%.

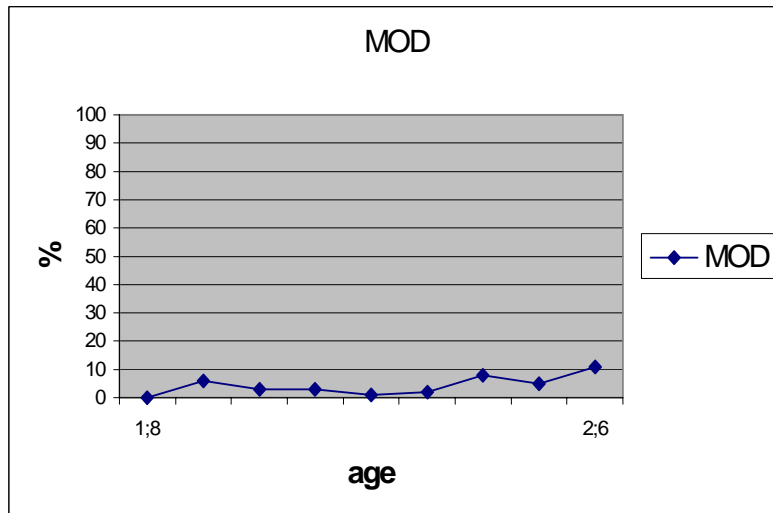
Let's now turn to the children data. In order to test our hypothesis we analyzed the data of three Italian children from CHILDES, Diana, Martina and Francesco.

Let us consider first the data of the younger child, Francesco. As we can see in Figure 4, at very onset of language acquisition modals are not attested in early Italian.

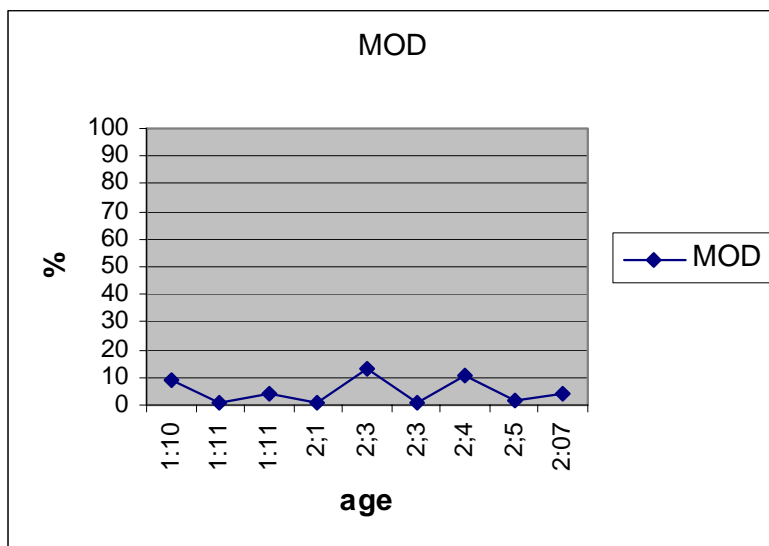


**Figure 4.** Frequency of Modals in monolingual Italian. Francesco ( 1.5-1.8)

Looking at the data of older children, Diana and Martina, we can notice, in Figure 5 and Figure 6 that around the age of two modals begin to increase, but they still are in lower proportions than in the adult input.



**Figure 5.** Frequency of Modals in monolingual Italian. Diana (1;8-2:6)



**Figure 6.** Frequency of Modals in monolingual Italian .Martina (1;10-2:7)

I sum, we saw in tables 11 and 12 that the proportion of modals in adult grammar is around 13, 4%, whereas in early Italian the percentage remain lower than 10% until around the age of two.

### **3.2.3. Frequency of modals in monolingual German children**

Recall that our hypothesis suggested a difference between early German and early Italian regarding the use of modal verbs. In the previous section we showed that in early Italian modals are not attested at the onset of acquisition, and they start to be used at around the age of two.

The same results are reported in Behrens for German speaking children. Modals are not used from the very onset of language acquisition in German, and initially are very rare. Behrens reported that in Julia modals verbs appear only after the age of 2;2. Simone, on the other hand, uses some modals but in a low percentage ( lower than 10%) at the same age.

### **3.2.4. Frequency of modals in a bilingual German-Italian child**

In order to test our results we will also analyze the data of a bilingual German-Italian child. In this way, we will be able to confront the use of modals in these two different languages using the data of the same child, ruling out irrelevant factors. As we can see from table 18, modals are barely used in German until the age of 2; 4. In Italian, on the other hand, they are not attested at all.

**Table 18.** *Modals/verbs in Leo (2;0-2;4)*

Age	Modals/verbs	
	German	Italian
2;0	0/4	0/9
2;1	1/23	
2;2	0/5	0/3
2;3	0/14	0/44
2;4	1/25	0/4
Total	2/71 (2,8 %)	0/60 (0%)

In sum, looking first at Italian monolingual data we have shown that modals are not used at the onset of language acquisition and children only start to use them at around the age of two. German speaking children present the same scenario: modals are not attested until the age of two. Furthermore, we can conclude that there is no difference in early German and early Italian with respect to modal use. The data of the bilingual child confirm these results.

### **3.3. Imperatives in early Italian: a developmental phenomenon?**

In this section we will propose that in early Italian, children express irrealis meaning through imperative forms.

**H4:** Italian children use Imperative forms to express modality and irrealis meaning

This hypothesis makes the following predictions:

Prediction 1: Italian children present a higher percentage of imperative forms than in early German.

Prediction 2: Italian children present a higher percentage of imperative than Italian adult.

First, we will motivate our proposal arguing that there is a close relation between imperatives and infinitival forms, as Han 2001 observed. Secondly we will present how Imperatives forms are realized in adult Italian and early Italian. Finally, after summarizing some properties of RI and Bare Perfective, we will present the Imperative Analogue Hypothesis. In the last part of the section we will support our proposal showing the data from three Italian monolingual children and one bilingual German-Italian.

**3.3.1. Relation between imperatives and infinitival forms (Han 2001).**

In many languages, like Italian, Greek and Spanish, imperatives cannot be negated. Instead, negative commands are expressed with negative subjunctive and/or infinitival forms. Refer, for example, to the data in (30).

(30)

Modern Greek

a. \* Mi grapse to!

Neg write-2sg.Imp it

Don't write it!

b. (Na) mi to grapsis!

NA Neg it write-2sg.Subj

Don't write it!

Spanish

a. \* No lee lo!

Neg read-2sg Imp it

Don't read it!

- b. No lo leas!  
Neg it read-2sg.Subj.  
Don't read it!

Italian

- a. \*Non telefonale!  
Neg call-2sg.Imp-her  
Don't call her!
  
- b. non le telefonare!  
Neg her call-Inf  
Don't call her!

On the other hand, in other languages, like French and German, imperatives are compatible with negation. Please refer to the examples in (31).

(31)

French

- a. Ne chante pas  
NE sing-2sg.Imp Neg  
Don't sing!

## German

- a. Schreib nicht!  
Write-2sg.Imp Neg  
Don't write!

Based on the data in (30) we can observed the following Generalization:

Languages which do not allow negative imperatives choose infinitives or subjunctive as suppletive forms.

Han (2001) provides an account of the close relation between imperative, infinitive and subjunctive form in adult grammar arguing that all these verbal forms share [irrealis] features. In addition, imperatives also have [directive] features.

Han argues that when the imperative operator is ruled out for some reason in a particular language, the language selects an operator whose feature content is as close as possible to the imperative operator. Han refers to subjunctive and infinitives in such a manner as to make them the only option. By defining the relation of imperatives, subjunctive and infinitive in this way, Han is able to capture the close relation that exist in many languages between these three types of sentences

### 3.3.2. Imperatives in Italian

Imperatives forms in Italian differ depending on the conjugation:

mangi-**are** (to eat)

prend-**ere** (to take)

dorm-**ire** (to sleep)

**Table 19.** Imperative forms in the first conjugation (-are)

Mangi-are (to eat)	Indicative	Imperative
1ps	mangio	
2ps	mangi	<b>mangia!</b>
3ps	<b>mangia</b>	
1pl	<b>mangiamo</b>	<b>mangiamo!</b>
2pl	mangiate	<b>Mangiate!</b>
3pl	mangiano	

**Table 20.** Imperative forms in the second conjugation (-ere)

Prend-ere	Indicative	Imperative
1ps	Prendo	
2ps	<b>Prendi</b>	<b>Prendi !</b>
3ps	Prende	
1pl	<b>Prendiamo</b>	<b>Prendiamo!</b>
2pl	Prendete	<b>Prendete!</b>
3pl	Prendono	

**Table 21.** Imperative forms in the second conjugation (-ire)

Dorm-ire (to sleep)	Indicative	Imperative
1ps	dormo	
2ps	<b>dormi</b>	<b>dormi!</b>
3ps	dorme	
1pl	<b>dormiamo</b>	<b>dormiamo!</b>
2pl	dormite	<b>dormite !</b>
3pl	dormono	

Although imperatives have the same morphological forms as indicatives, they do not have the same syntax. Consider, for instance, the position of the clitics. In Italian, clitics immediately precede finite verbs in indicative, as in (32).

- (32)     **la** prendi  
           it<sub>cl</sub>-take  
           “you take it”

On the contrary, as we can see in (33) affirmative imperatives take enclitics forms.

- (33)     Prendi-**la**!  
           take-it<sub>cl</sub>  
           “take it !”

As we noticed in (30) in Italian imperatives in the 2nd person singular cannot be negated, though imperatives in the 2nd person plural can be. The prohibition in the 2<sup>nd</sup> person singular is expressed through the use of suppletive infinitives, namely a infinitival form, as in (34b,c)

- (34)
- (a) \* non telefona **le** !  
       neg call her<sub>cl</sub>  
       don't call her

(b) non **le** telefonare!

neg her<sub>cl</sub> call

don't call her

(c) non telefonar-**le**!

Neg call her<sub>cl</sub>

don't call her

As we can see in (34b) and (34c) negative imperative allow both the enclitic and proclitic option.<sup>11</sup>

### 3.3.4 Imperatives forms in early Italian.

Imperatives are attested from the very onset of language acquisition in children acquiring Romance languages such as Italian and Spanish (see Leonini 2002, Grinstead 2002) and they are used in the correct way by children.

The first argument we will present to show the right use of Imperatives in early Italian regards clitics position. As we observed in the previous section, in Italian the

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<sup>11</sup> Infinitives forms can also be used as affirmative Imperatives. In this case, clitics can only appear on the left

(4) lavarsi!  
\* si lavare!

clitic position changes depending on the verbal form. In particular, whereas the indicative, subjunctive and conditional the clitic immediately precedes the verb, affirmative imperatives take enclitics forms.

The data in (35) show that Italian speaking children at a very early stage of language acquisition are able to distinguish imperative forms from indicative forms and put the clitics in the right position.

(35)

(a) **dam-mi!** (Diana 1;8)

give me<sub>cl</sub>

give me!

(b) **metti-lo !** (Diana 2;1)

put that<sub>cl</sub>

put that!

(c) **da-mmelo!** (Diana 2;5)

give it<sub>cl</sub> me<sub>cl</sub>

give it to me!

(d) **porta-melo!** (Diana 2;6)

bring it<sub>cl</sub> to me<sub>cl</sub>

bring it to me!

(e) **ti** metto le cappe (Diana 2;6)

(I) to you<sub>cl</sub> put the shoes

I put the shoes to you

(f) che io **ti** chiudo la bocca (Diana 2;6)

that I to you<sub>cl</sub> close the mouth

that I will close your mouth

(g) io **li** lavo i capelli (Diana 2;6)

I to her<sub>cl</sub> wash the hair

I wash her hair

In particular, Table 22 shows that quantitatively, children do not make mistakes with respect to clitic positions.

**Table 22.** *Enclitics and Proclitics in Diana\* (1;08-2;05)<sup>12</sup>*

	<b>Enclitics</b>	<b>Proclitics</b>
<b>Imperatives</b>	27	1
<b>Indicatives</b>	0	28

\* Imperative and Indicative forms are determined from context and morphological form.

<sup>12</sup> Note that Diana doesn't present mistake in the sentences with "ecco": "eccolo!" (Diana 2;05)

Secondly, in Table 23 we will show that the imperatives occur in the three conjugation ( *-are, -ere, -ire* ) in the Italian data of Diana. This undermines the hypothesis that the high percentage of imperatives is due to an overuse of the third person of the first conjugation, which has been proposed a default form in Romance languages ( see section xxx)

**Table 23.** *Distribution of imperative forms in the three Italian conjugation.*<sup>13</sup>

Imperatives				
Age	1th con. ( <i>mangiare</i> ) <i>mangia!</i>	2th con. ( <i>mettere</i> ) <i>metti!</i>	3th con. ( <i>dormire</i> ) <i>dormi!</i>	Total
1;8-2;6	114 ( <b>66%</b> )	43 ( <b>25%</b> )	14 ( <b>8%</b> )	172

Based on this data we will assume that Italian speaking children at this stage are able to use Imperative in a adult-like manner, as in (36),

(36)

(a) *metti tutto li!* (Diana 1;11)

put all there

<sup>13</sup> Note that the higher use of verbs in the first conjugation is reflected in the indicative forms as well. As the most frequent construction in child language is the copula construction ( 21% of finite verbs ), we excluded this forms in counting the distribution of the three indicative conjugations . In particular, the following table reports the frequency of the copula constructions in Diana.

**Table 1.** *Copula Constructions in Diana's Italian data*

Age	Copula constructions	Finite verbs +RI+RP	% of copula constructions / Finite verbs+RI+RP
1;8-2;6	251	1161	<b>21%</b>

(b) api! (Francesco 1;5)

open

(c) corri! (Martina 1;11)

run

(d) dammela ! (Martina 1;11)

give it to me

### 3.3.5. Root Infinitives (RI) and Bare perfectives (BP)

Before presenting the Imperative Analogue Hypothesis, let me briefly identify 3 important temporal properties of RIs:

- (i) RIs are tenseness verbs in root contexts;
- (ii) (ii) RIs typically have a modal or irrealis meaning expressing volition, intention, or direction with respect to some eventuality (cf. (1));
- (iii) (iii) RIs are typically eventive.

Following Hoekstra & Hyams (H&H) (1998), we refer to property (ii) as the Modal Reference Effect (MRE) and property (iii) as the Eventivity Constraint (EC).<sup>14</sup> H&H (1998) argue that the EC is derived from the MRE (cf. also Ferdinand 1996) and that the modality of the infinitive is associated with the infinitival morpheme. It is therefore significant that similar effects show up in Greek, a language that has no infinitival form.

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<sup>14</sup> The MRE and EC have been noted in several languages, e.g. Dutch (Wijnen 1996), German (Becker and Hyams 1999), Swedish: Plunkett and Strömquist 1990), French (Ferdinand 1996). (See H&H 1998 for additional references).

Greek 2-year olds use a "bare perfective" (BP) form - a perfective verb that is not supported by either tense or modal morphology, which is ungrammatical in the adult language, as in (37).

(37) Ego katiti (Spiros 1;9)

I sit-PERF- 3rd sing.

'I am going to/want to sit'

Interestingly, the BP shares the temporal properties of RIs outlined above (cf. Varlokosta et al 1998; Hyams 2002, 2003): (i) The BP (-i form) is a non-finite, non-agreeing form;<sup>15</sup> (ii) the BP expresses the same irrealis meanings as the root infinitive; and (iii) the BP is typically eventive. A final observation is that RIs decrease over time as modals increase (cf. Wijnen 1994; Blom 2002) and the same trade-off occurs with the Greek bare perfective (cf. Hyams 2002). The Dutch and Greek data are summarized in Tables 24 and 25. Table 24 shows the MRE in both languages and Table 25, the eventivity effect.<sup>16</sup>

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<sup>15</sup> The rate of correct SVagreement with the BP is about 60%, compared to the 87% agreement rate for 1st and 2nd person verbs. (Cf. Hyams 2002 )

<sup>16</sup> The figures in Table 24 and Table 25 are adapted from Hyams 2002; based on Wijnen 1986; Stephany 1985 p.c.

**Table 24.** Proportion of RI/finite verbs (Dutch) and perfective/imperfective verbs (Greek) showing modal reference

<i>Modal Reference Effect (MRE)</i>			
<i>Dutch (1;9-32)</i>		<i>Greek (1;9-2;5)</i>	
Ris	Finite	Perfective	Imperfective
<b>86%</b> (1625/1883)	3% (21/694)	<b>78%</b> (212/274)	4% (5/127)

**Table 25.** Proportion of RI/finite verbs (Dutch) and perfective/imperfective verbs (Greek) that are eventive

<i>EC( Eventivity Constraint)</i>			
<i>Dutch (1;9-32)</i>		<i>Greek (1;9-2;5)</i>	
Ris	Finite	Perfective	Imperfective
<b>95%</b> (1790/1883)	50% (350/699)	<b>100%</b> (224/224)	60% (127/210)

The robustness of the RI and BP stages, and the strength of effects such as the MRE and the EC, suggest that there is some universal basis for the phenomenon. It thus behoves us to see if an RI analogue can also be found in the Romance languages that do not show an RI stage.

### **3.4. The imperative analogue hypothesis (IAH)**

We suggest that this analogue is the imperative. *Prima facie*, the imperative is a plausible candidate because it shares the essential RI properties: Imperatives are irrealis, that is, they express a direction to bring about a state of affairs that is unrealized at speech time; they are restricted to eventive predicates; and they are tenseless.

In what follows we first present some quantitative results that support this hypothesis. We then provide an account of the modal meaning (and eventivity) associated with the RI and its analogues as well as its morphological properties, especially the lack of finiteness. Finally, we explain the cross-linguistic differences, viz. why the RI languages choose an infinitive while the null subject languages choose the imperative. We will see that despite different non-finite forms, they have similar structural and licensing properties.

We adopt Han's (2001) description of the imperative as a form that is marked with an 'irrealis' feature that contributes an unrealized mood interpretation and a 'directive' feature encoding directive illocutionary force.

In contrast to RIs and BPs, imperatives are fully grammatical in adult language and so the simple appearance of imperatives in the child's language is not remarkable. If, however, the imperative in child null subject languages represents an RI analogue, we can expect it to have some distinguishing properties. Two possibilities suggest themselves, as in (38).

#### (38) Predictions of the imperative analogue hypothesis (IAH)

- (i) In null subject languages imperatives will occur significantly more often in child language than in adult language.

- (ii) In child language imperatives will occur significantly more often in null subject languages than in the RI languages.

The logic behind (38i) is that over time some imperatives will be replaced by modals, just as RIs and BPs trade off with modals in Dutch and Greek, respectively. A similar reasoning gives rise to (38ii): if RIs and imperatives both express irrealis mood, then RIs might bleed imperatives in the RI languages.

We also examined adult data from two sources: naturally occurring adult-directed language from several Italian adults engaged in informal discourse (transcripts provided by Sandro Duranti), as well as child-directed adult language taken from the adult tiers of two of the CHILDES transcripts we examined (diana5, diana1) and from Leo's data. Imperatives in the child and adult data were identified by the context of use, their morphology (where distinguishable) and syntax, in particular the position of clitics when they occurred.

### **3.4.1. Results**

Turning now to our results. Our first prediction is that imperatives occur less frequently in adult language than in child language. Table 26 shows the rate of imperatives for adults in both adult-directed and child-directed language.<sup>17</sup>

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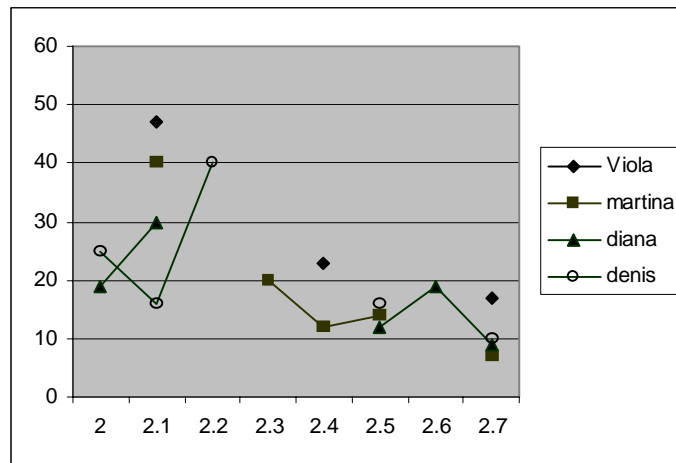
<sup>17</sup> This and subsequent frequencies are calculated the proportion of imperatives (or RIs) out of all verbal utterances.

**Table 26.** *Frequency of imperatives in adult Italian (all forms)*

Discourse context	Imperatives		Total verbs
	Tokens	%	
Adult-directed	36	<b>5.6</b>	950
Child-directed	82	<b>14.9</b>	550

As we might expect, imperatives are more frequent in child-directed language (15%) than in adult-directed language (5%). We use the higher child-directed rate as our adult norm.

Turning to the Italian child data, imperatives are used very early. Indeed, they are among the first verbal forms used. For example, from age 1;5 to 1;8 40% of Francesco's verbs are imperative. Similarly, Denis (1;5-1;8) produced 78% imperatives. However, there are few utterances overall at this stage and it is likely that many of the imperatives are rote forms, like *guarda!* (look). In Figure 1 we present the data of the older children (Viola, Martina, Diana, and Denis at a later stage). The proportion of imperative is still quite high as compared to 15% adult norm. The child rates peak at about 40% somewhere between the ages of 2;0 and 2;4 and then drop to adult-like levels by about age 2;6 or 2;7. Thus, as predicted, the rate of imperatives is considerably higher for children than for adults, even in child-directed language. Notice as an aside that despite the salience of imperatives in the input (e.g. special prosody, first position) (Newport, Gleitman & Gleitman 1972), the child frequencies do not at all mirror the adult frequencies, as would be predicted by statistical learning models. This will be clear in the German data as well.



**Figure 7.** Proportion of imperatives in 4 Italian children (ages 2;0 to 2;7)

The proportion of imperatives should be compared to the very low rate of RIs in the Italian children's data, as shown in table 27.

**Table 27.** Frequency of imperatives and RIs in early Italian

Child	Age	%RI (mean)	% Imp (mean)	Total verbs
Denis	2;0-2;7	2.8	31.1	318
Martina	2;1-2;7	0	17.5	513
Diana	2;0-2;7	0	16.4	863
Viola	2;1-2;7	0.2	30	198

We note, finally, that the "overuse" of imperatives happens at the same age as the RI stage in the RI languages (roughly between the ages of 2 and 2;6).



children (Caroline, Kerstin and Simone). For the purposes of this analysis we counted as imperative, verbs (i.e. stems) that had clearly raised, as in (40).

- (40) a. Mach auf!      b. Beiss mal      c. Trink Milch!  
       Open *prefix*      Bite *particle*      Drink (the) milk

In (16a) the verb has raised across the prefix *auf*; in (16b) the verb across the particle *mal*; and in (16c) across the object. We did not count as imperative, stems that clearly had not raised to a higher position such as those in (41).

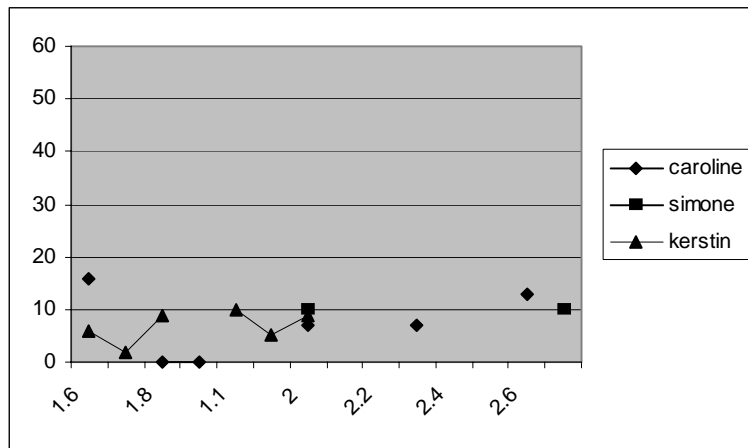
- (41) a. Aufmach      b. Mal beiss      c. Milch trink

Single word utterances were counted when it was clear from context that they were imperative.<sup>18</sup>

Figure 2 shows the frequency of imperatives for the German children between the ages of 1;6 and 2;7. We note first that as predicted, overall rate of imperatives is quite low as compared to German adults and as compared to Italian children. Also, the frequency of imperatives remains fairly constant at around 10% across all data points. We do not find the same peak during the first half of the 3rd year as we do for the Italian children.

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<sup>18</sup> German has more potential for indeterminacy than Italian because the bare stem in one word utterances can be an infinitive lacking *-en*, an imperative, or a 1st person singular. Only one child shows a relatively high percentage of indeterminate forms. See Salustri & Hyams (forthcoming) for discussion.



**Figure 8.** *Proportion of imperatives in 3 German children (ages 1;6-2;7)*

Thus, both the predictions in (5) are confirmed by the monolingual acquisition data, consistent with the hypothesis that the imperative is the RI analogue in languages such as Italian.

### 3.4.2. Bilingual Italian-German

We also examined the frequency of imperatives and RIs in a bilingual German-Italian child, Leo. The bilingual child is the perfect controlled experiment. As shown in table 8, there are very few imperatives in Leo's German during the relevant period while between 34% and 56% of the verbs in his Italian corpus are imperative.

**Table 29.** *Proportion of imperatives (bilingual child)*

<i>Imperatives</i>	German		Italian	
	<i>Tokens</i>	<i>%</i>	<i>Tokens</i>	<i>%</i>
2:0-2:4	1/63	<b>1.5</b>	25/45	<b>55.5</b>
2:6-2:7	3/46	<b>6.5</b>	10/29	<b>34.4</b>

Figure 9 illustrates that Leo is also like the monolingual Italian-speaking children in showing a peak in imperatives at around age 2;3.<sup>19</sup>

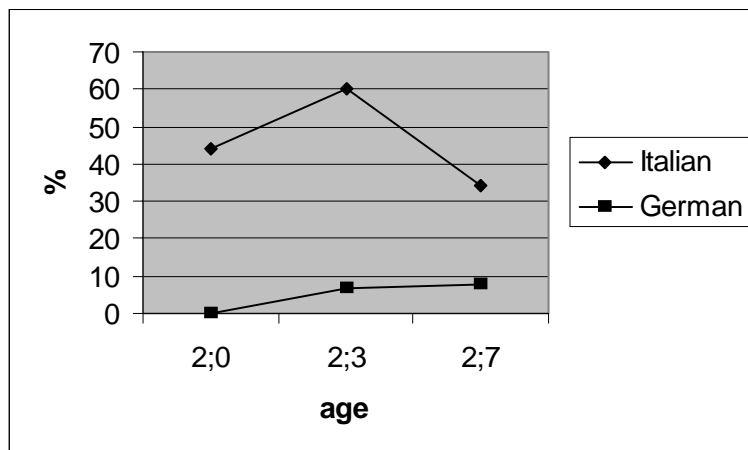
**Figure 9.** *Imperatives in Bilingual data*

Table 30 shows that Leo only uses RIs in German and the frequency is comparable to monolingual German speaking children.

<sup>19</sup> For this analysis we did not include the files in which the total number of verbs is less than 10

**Table 30.** *Proportion of Root Infinitives (bilingual child)*

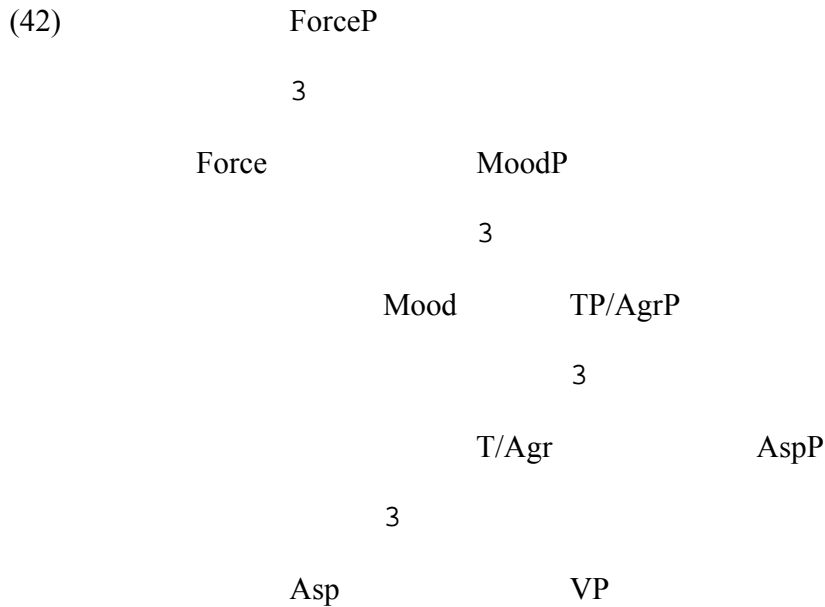
<i>RI</i>	German		Italian	
	<i>Tokens</i>	%	<i>Tokens</i>	%
2:0-2:4	51/63	<b>81</b>	1/45	<b>2</b>
2:6-2:7	28/46	<b>61</b>	2/29	<b>7</b>

Thus, Leo perfectly mirrors the cross-linguistic differences that we observe in the monolinguals. His data also clearly support the hypothesis that bilingual children develop separate grammars for each language (Meisel 1990).

The data presented thus far are consistent with our hypothesis that the imperative is an RI analogue in the null subject languages. In child Italian imperatives express irrealis Mood and RIs do not occur. Why do we find this cross-linguistic difference? In what follows we outline a structural account of this variation that also captures the universal properties of the semantics-morphosyntax mapping. (See Salustri & Hyams, forthcoming for a more detailed exposition.)

### 3.5. The structure of irrealis clauses in child language

We assume along with many others that the temporal, aspectual and modal interpretation of an event is determined by the functional structure of the clause. With respect to the RI/RI analogues, we assume that irrealis meaning is structurally represented by MoodP in a hierarchical arrangement as in (42)



We further assume that functional heads have features that have to be checked, either through Merge or Attract (Chomsky 1995). Under Merge, a lexical element with appropriate features is inserted into the head position, for example a modal in Mood. Under Attract the functional head -- in this case Mood -- attracts an appropriate feature in the verb that percolates to VP. Attract requires that the functional category be in a local relation with the verb. The locality condition that we adopt is given in (43) (cf. Bobaljik and Thrainsson 1998).

- (43) Features are checked in all and only local relations to a head, viz. head-spec, head-complement, head-head (adjoined head).

In this analysis we focus on the head-complement relation. Hyams (2003) proposes that in RI languages Mood is checked against an irrealis feature in the infinitival verb. It follows from the locality condition in (10) that there can be no head intervening between

Mood and the verb. This is accomplished though the underspecification (by which we mean elimination) of the intermediate I projections.<sup>20</sup> The relevant structure is given in (44).

- (44) C/MoodP  
       3  
       Mood -*checking*- VP  
       6  
       V

According to our analysis, the non-finiteness of RIs (and the BP, cf note 8) follows as a direct structural consequence of the licensing of Mood, and we thus derive the MRE, that is, the association between non-finiteness and modality that we find in the early grammar.<sup>21</sup>

Returning now to the contrast between Italian and German, we have two complementary questions: First, why does the imperative, but not the RI license (irrealis)

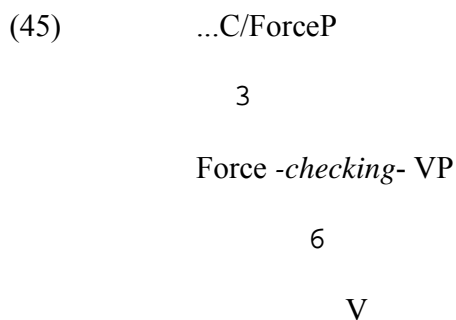
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<sup>20</sup> In the case of the Greek BP it is the perfective feature in the verb that licenses Mood and hence in this case as well, locality requires that TP/AgrP and AspP be eliminated. Hyams argues that perfectivity and deontic modality both involve a polar transition (cf. Barbiers 1996). The 'transition' feature in the perfective verb thus matches and licenses the (deontic) Mood projection. See Hyams (2003) for justification and further details.

<sup>21</sup> The eventivity constraint (EC) (cf. section 2) also follows: Since deontic modality (like perfectivity) involves a polar transition, it is essentially incompatible with stative predicates. The most natural reading of *Mary must know the truth is epistemic* (viz. in light of the available evidence it must be the case that Mary knows the truth) or an inchoative, i.e. eventive, reading (viz. it is necessary that Mary be told/come to know the truth), while the most natural reading of *Mary must read this book* is deontic (viz. it is required/necessary that Mary read the book). See Barbiers 1996; Hoekstra & Hyams 1998; for further discussion of this issue.

Mood in Italian, or more to the point, why is there no RI stage in Italian? And conversely, why does the infinitive, rather than the true imperative show up in irrealis contexts in German?

Following ideas of Guasti (1992) and Rizzi (1994) (based on Belletti 1990), we propose that RIs are blocked in Italian because Italian infinitives have Agr features that must be checked. AgrP/TP cannot therefore be eliminated in Italian, no local relation between Mood and the verb is established, and hence no RI stage. The imperative, by contrast, has an irrealis feature (Cf. Han 2001), but no temporal (tense, aspect) features. Moreover, Italian children use only 2nd person singular imperatives (cf. note 4), and thus early imperatives are arguably unspecified for agreement as well. Intermediate heads may be eliminated and the irrealis feature in the imperative verb checks Mood. Subsequent movement of the verb to Mood allows the 'directive' feature to be in a local checking relation with Force, as schematized in (45).



In contrast to Italian, German infinitives do not have Agr features to be checked. AgrP/TP (and AspP) can be eliminated, bringing the infinitive into a local licensing relation with Mood (cf. 11). RIs are therefore possible. Adult German does have a true imperative (cf. (6) and table 7). So, why do young German children eschew the

imperative in favor of the infinitive? To answer this question we appeal to economy considerations. We make the standard assumption that movement occurs solely for the purposes of feature checking and only as a last resort. Since locality can be satisfied by underspecification, that is the more economical option. Thus all else being equal, RIs will win out over imperatives as an expression of irrealis Mood.<sup>22</sup>

#### **4. Conclusion**

In sum, after presenting the RI phenomenon in German and the use of the Bare Perfective in Greek, we consider various hypotheses of what could be the analogue to RI in Null Subject Languages. Considering in particular Italian, we showed that neither of the previously proposed hypotheses seems to be born out in our data. Furthermore, we propose the Imperative Analogue Hypothesis. Based on the data of three monolingual Italian children, we show that at around the age of 2 Italian speaking children use a higher percentage of imperative than German speaking children, and higher than adult speakers of Italian. Interestingly, this pattern is also attested in the bilingual data of Leo. Hence, we propose that the RI's analogue in Italian is the imperative. *Prima facie*, the imperative is a possible candidate because it shares the essential RI properties: Imperatives are irrealis, that is, they express a direction to bring about a state of affairs that is unrealized at speech time: they are restricted to eventive predicates: and they are tenseless.

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<sup>22</sup> Of course in Italian all else is not equal since infinitives must check AGR features. Thus, economy principles operate within the constraints of grammar.

This hypothesis seems to be born out in other Null Subject languages, such as Spanish and Hungarian. The comparison of the Spanish and Hungarian data to our findings in Italian we leave open for future research.

## CHAPTER IV

### PARTICIPIAL CONSTRUCTION IN CHILD GERMAN AND ITALIAN

#### 4.1. Introduction

The purpose of this chapter is threefold. First, we compare the development of participial constructions, specifically the present perfect construction, in early German and Italian. We provide evidence from four German monolingual children (age range 1;6-2;6) and three Italian monolingual children (age range 1;8-2;7) that there exists a difference with regard to the frequency and the types of participial constructions that are used in these two languages. Secondly, we examine whether this difference also holds in the language of a German-Italian bilingual child, Leo (2;0-2;7). Our findings have important implications for the validity of the Separate Systems Hypothesis (SSH) of Bilingual First Language Acquisition. Finally, we will propose a formal analysis that will account for the observed type asymmetries in participial constructions of child German and Italian.

#### 4.2. Participial Constructions in German and Italian

Before we turn to participial constructions in the child grammars of German and Italian, more specifically to the present perfect construction, let us first consider how this construction functions in the respective adult grammars. In the adult grammars of both German and Italian, the present perfect is formed by a combination of the auxiliaries *have* or *be*, inflected for present tense, plus the past participle. Examples of the construction in both languages are given in (46).

(46) a. *Ich habe geschlafen.*

*Io ho dormito.*

I have slept

‘I have slept.’

b. *Ich bin gegangen.*

*Io sono andato.*

I am left

‘I have left.’

Although a non-periphrastic imperfect form exists in both languages as well, the present perfect is the most frequently used past tense form in both spoken German and Italian. It specifies a temporal relation in which the point of the event precedes the point of speech, i.e. it refers to actions that have been completed in the past. Hence it appears as though the present perfect has similar syntactic and semantic functions in the adult grammar of German and Italian.

Since the child participial constructions that we will investigate in this paper not only involve the full-fledged present perfect form as in (46) but also bare past participles, let us briefly examine the status of bare participles in adult German and Italian. Bare past participles, i.e. participles occurring without an overt auxiliary, can be used on a rather limited basis in adult German and Italian. For the most part, they appear to be restricted to a number of fixed expressions, such as the ones in (47).

- (47) a. Schon gehoert? (German)  
 ‘Already heard?’
- b. Gut gemacht!  
 ‘Well done!’
- c. Già sentito? (Italian)  
 ‘Already heard?’
- d. Ben fatto!  
 ‘Well done!’

Moreover, Italian allows for bare participles in so-called “absolute small clauses” as in (48) (cf. Belletti (2000)).

- (48) Arrivata Maria, Gianni tirò un sospiro di sollievo.  
 ‘Arrived Maria, Gianni was relieved.’

However, such examples as in (48) are unlikely to occur in spoken Italian, and are therefore irrelevant for the purpose of this study. Thus, overall it seems that spoken Italian and German not only bear a similarity with respect to the syntactic and semantic function of the present perfect form, but also with respect to bare participles, in that the latter occur only marginally in both languages.

### 4.3. Frequency of Participial Constructions

Despite the apparent syntactic and semantic similarity of the participial construction in the adult grammars of German and Italian, the respective child grammars show significant differences with regard to the frequency with which the

participial construction is used in the two languages.<sup>23</sup> Let us first turn to the monolingual data.

### 4.3.1 Monolingual Data

A quantitative analysis of the data from monolingual German- and Italian-speaking children shows a notable difference in the frequency of participial constructions as a proportion of all verbs in the two languages.<sup>24</sup> Consider Table 31, which displays the proportion of participial constructions, i.e. full-fledged present perfect forms and bare participles, among the total number of verbal utterances in Italian monolinguals.

**Table 31** *Proportion of Participial Constructions out of all Verbal*

*Utterances in Monolingual Italian*

Child	Participiali constructions / all verb forms
Diana (1;8-2;6)	12.5 % (130/1042)
Martina (1;11-2;7)	7.3% (54/740)
Viola (2;0)	20 % (6/23)
<i>Mean</i>	<b>10.5%</b>
<i>Range</i>	<b>7.3 – 20%</b>

<sup>23</sup> Throughout the chapter, the term *participial construction* encompasses both the present perfect form (*have eaten*) as well as the bare participle (*eaten*).

<sup>24</sup> In our analysis of the participial data for both the monolingual children and the bilingual child, past participles that can have an adjectival function were excluded from the counts. This decision was primarily based on the high frequency occurrence of the participial adjective *rotto* ‘broken’ in the Italian data. Since this Italian participial adjective does not have a participial equivalent in German, i.e. German *kaputt* ‘broken’ can only function as an adjective, but never as a participle, the analysis would have been skewed if such examples were considered.

Table 31 shows that in monolingual Italian-speaking children between the ages of 1;8 and 2;7 on average 10.5% of all verbal utterances are participial, i.e. include either a present perfect form or a bare participle. When taking into account the existing variation among the Italian children, we can see that the proportion of participial constructions can range as high as 20%, and does not fall below 7.3%. Compare this to the frequency with which monolingual German-speaking children of comparable age make use of the same kinds of participial constructions, as illustrated in Table 32.

**Table 32** *Proportion of Participial Constructions out of all Verbal Utterances in Monolingual German*

Child	Participial constructions / all verb forms
Caroline (1;3-2;3)	7.6 % (71/937)
Kerstin (1;6-2;6)	2.9% (45/1558)
Julia (1;11-2;5)	1.4% (3/218)
Simone (1;9-2;6)	3.9% (236/6138)
<i>Mean</i>	<b>4.0%</b>
<i>Range</i>	<b>1.4 – 7.6%</b>

In contrast to the Italian monolinguals, for monolingual German-speaking children only an average of 4% of all verbal utterances are made up of participial constructions, i.e. a present perfect form or a bare participle. Importantly, the range of variation among the German children is markedly different from that of the Italian children. In the German children, the proportion of participial constructions ranges from as low as 1.4% to as high as 7.6%, thus never exceeding the lower limit of the

Italian children. Therefore, although we believe that these numbers could be strengthened by additional data from different children, Tables 4 and 5 show that participial constructions constitute a notably higher proportion among the total number of verbal utterances in the data of Italian monolingual children than in the data of German monolingual children.

### 4.3.2. Bilingual Data

Given such an asymmetry between monolingual German and Italian, the SSH predicts that the same difference should also be detectable in the bilingual German-Italian child. Table 33 shows the proportion of participial constructions out of all verbal utterances in the bilingual child Leo to be roughly the same as the monolingual children.

**Table 33** *Proportion of Participial Constructions out of all Verbal Utterances in Bilingual German-Italian*

	Italian	German
Leo (2;0-2;7)	27,6 % (21/76)	8,1% (10/123)

We can see in Leo's data that, even though the overall percentages are slightly elevated if compared to the monolingual percentages, the same proportional difference that we observed in the monolingual data is also reflected here. With 27% of his Italian verbs and only 7% of his German verbs being participial constructions, Leo clearly employs the participial construction more frequently in his Italian than in

his German. Such a similarity in trends between the monolingual and the bilingual data supports the claims of the SSH.

#### 4.4.Types of Participial Constructions

It is not only that German- and Italian-speaking children display a difference in terms of the *frequency* with which participial constructions are used in the child grammars of the two languages, but they furthermore differ with respect to what *types* of participial constructions they use. Recall that the participial construction under investigation encompasses both the full-fledged present perfect form as well as the bare participle. Examples from Leo's data of these two types of participial constructions are given in (49).

- (49) a. Mamma se n' è andata. (Italian)  
 Mom refl. cl. is gone  
 "Mom has gone."
- b. Disegno cascato.  
 picture fallen  
 "The picture has fallen."
- c. Schale mitgebracht. (German)  
 peel with-brought  
 "I've brought the peel with me."

Concentrating on the question which type of participial construction is made use of, let us turn to the monolingual data.

#### 4.4.1 Monolingual Data

Table 28 illustrates the breakdown of participial constructions into present perfect forms and bare participles in monolingual Italian-speaking children during the relevant stage in acquisition.

**Table 34** *Types of Participial Constructions in Monolingual Italian*

Child	Aux+ Past Participle	Bare Past Participle
Diana	87.7% (114/130)	12.3% (16/130)
Martina	53% (27/51)	47% (24/51)
Viola	67% (4/6)	33% (2/6)
<i>Mean</i>	<b>77.5%</b>	<b>22.5%</b>

It is clear that both types of participial constructions surface in the language of Italian monolinguals, about 78% present perfect forms and 22% bare participles. Compare such a trend to the types of participial constructions utilized by the monolingual German-speaking children around the same age, as shown in Table 35.

**Table 35** *Types of Participial Constructions in Monolingual German*

<b>Child</b>	<b>Aux + Past Participle</b>	<b>Bare Past Participle</b>
Caroline	0.4 % (1/71)	99.6 % (70/71)
Kerstin	10% (3/30)	90% (27/30)
Julia	0% (0/3)	100% (3/3)
Simone	45% (105/236)	55% (131/236)
<i>Mean</i>	32%	68%
<i>mean</i>	<i>(w/o</i> <b>3.8%</b>	<b>96.2%</b>
<i>Simone)</i>		

In the German monolinguals one can detect a preference for bare participle constructions, which constitute on average 68% of participial constructions. In fact, when taking data from even more monolingual German children into account, such as the data of Daniel and Mathias from Behrens (1993), who first start using the present perfect form at age 3;0 and 2;11 respectively, i.e. well beyond the age span that this study concentrates on, Simone seems to be rather exceptional with respect to her high frequency use of the full-fledged present perfect construction (i.e. 45% by the age of 2;6). It is likely that she already occupies an advanced stage in the development of German, in which bare participles decrease and the full-fledged present perfect form becomes more prominent<sup>25</sup>. Therefore, it seems reasonable to exclude Simone from the count, and to concentrate on the mean that excludes Simone's data in Table 8. We believe that doing so provides a more accurate picture of the use of participial constructions during this stage of German monolingual development. Excluding

<sup>25</sup> Simone's overall advanced status finds independent support in the quantitative analyses conducted by Clahsen, Eisenbeiss & Penke (1996).

Simone from the analysis and including Daniel and Mathias into the data raises the proportion of bare participles in participial constructions to almost 100%. This constitutes a strong difference with respect to the types of participial constructions used in monolingual Italian and German, with the former including both present perfect forms and bare participles, and the latter showing almost exclusively bare participles.

Such an asymmetry between the types of participial constructions used in the child grammars of German and Italian implies an asymmetry with respect to the frequency of auxiliary omission in the two languages. As we have seen in the monolingual children's data, the German data display a much higher auxiliary omission rate than the Italian data. This is summarized in Table 36.

**Table 36** *Rate of Aux Omission in Monolingual German and Italian*

	<b>Aux Omission</b>
Italian	22.5%
German	96.2

#### 4.4.2. Bilingual Data

According to the SSH, this difference with regard to the types of participial constructions in monolingual German and Italian should repeat itself in the respective grammars of the bilingual child. Consider Table 37, which displays the types of participial constructions used in Leo's data.

**Table 37** *Types of Participial Constructions in Bilingual Ger-It*

	<b>Aux + Past Participle</b>	<b>Bare Past Participle</b>
Italian	42% (9/21)	58% (12/21)
German	0% (0/10)	100% (10/10)

Leo's German data are exactly what we would expect given the predictions of the SSH. In his German, we find bare participles 100% of the time, exactly mirroring the German monolinguals. His Italian data are not only significantly different from his German data, but they also display a high frequency of full-fledged present perfect forms, which we have seen to be typical of the Italian monolingual data. However, Leo's Italian data show a higher percentage of bare participles than we would expect from an Italian monolingual, namely 58%. This increased amount of bare participles in Leo's Italian might be the result of some degree of transfer between the two grammars, but it will not concern us at this point. Importantly, Table 38 shows that Leo virtually mirrors the auxiliary omission rate of the German monolingual children, and employs auxiliary drop in his Italian at a significantly lower rate than in this German.

**Table 38** *Rate of Auxiliary Omission in Bilingual Ger-It*

	<b>Aux Omission</b>
Italian	58%
German	100%

We take this marked difference between Leo's German and Italian grammars to be ample evidence for the SSH.

Summing up, the monolingual German- and Italian-speaking children exhibit strong tendencies with regard to the proportions and types of participial constructions they use. These tendencies are also clearly detectable in the German-Italian bilingual child, which is expected given the claims of the SSH. Thus, participial construction data in German and Italian provide a novel kind of evidence for the SSH.

#### **4.5. Analysis of the Type Asymmetries**

In this section, we will propose a formal analysis of the observed type asymmetries in the participial constructions of child German and Italian. Summarizing so far, we have detected an asymmetry of apparently optional auxiliary omission in the participial constructions of child Italian, and obligatory auxiliary omission in the participial constructions of child German. This is illustrated in Table 39, which shows the Italian auxiliary omission rate to be at around 23% and the German auxiliary omission rate at 96%.

**Table 39** *Rate of Auxiliary Omission in Monolingual German and Italian*

	<b>Auxiliary Omission Rate</b>
<b>Italian</b>	22.5%
<b>German</b>	96.2%

We have seen that the same tendencies, i.e. optional auxiliary omission in Italian and obligatory auxiliary omission in German, are evidenced in the German and Italian data of the bilingual child, which is summarized in Table 40.

**Table 40** *Rate of Auxiliary Omission in Bilingual German-Italian*

	<b>Auxiliary Omission Rate</b>
<b>Italian</b>	58%
<b>German</b>	100%

Hence, we have not only shown that both German- and Italian-speaking children show a tendency for auxiliary omission in participial constructions, but also that this tendency is higher in the German-speaking children than in the Italian-speaking children. The following analysis will account both for the general phenomenon of auxiliary omission in the participial construction, as well as for its obligatory nature in the grammar of child German.

#### **4.5.1. Verb Movement Properties in Italian and German**

In part, the asymmetry between German and Italian participial constructions follows from the different properties that these two languages possess with respect to

verb movement. As stated in (50), Italian finite verbs are thought to undergo V-I movement, whereas German finite verbs are generally considered to undergo V-I-C movement, where the additional step in the movement is triggered by the Verb Second requirement of German.

- (50) Italian finite verbs: **V-I movement**  
 German finite verbs: **V-I-C movement**

Moreover, if we consider participial constructions in these two languages, we can see that Italian allows for two different kinds of verb movement. Consider the examples in (51).

- (51) a. Gianni ha già mangiato. **aux movement**  
 ‘John has already eaten.’
- b. Gianni ha mangiato già. **aux+participle movement**  
 ‘John has eaten already.’

First, the auxiliary may raise by itself and strand the participle, as shown by the position of the pre-verbal adverb in (51a). Secondly, the auxiliary can pied-pipe the participle along, resulting in auxiliary+participle movement, as illustrated in (51b). German participial constructions, on the other hand, allow for only one type of movement.

- (52) a. Hans hat schon gegessen. **aux movement**  
 ‘John has already eaten.’
- b. \*Hans hat gegessen schon. **\*aux+participle movement**  
 ‘John has eaten already.’

The examples in (52) show that only the first kind of movement, i.e. movement of the auxiliary alone, which strands the participle, is permitted in German. Auxiliary+participle movement is not an option.

Finally, German and Italian also differ with respect to the movement of non-finite verbs.

- (53) Italian non-finite verbs: **V-T-AGR**  
 German non-finite verbs: **no raising**<sup>26</sup>

As noted earlier, based on Belletti (1990), it is generally assumed that Italian infinitives raise to an AGR projection in the same manner as finite verbs do. Such a claim is also based on the position of preverbal adverbs as the examples in (54) show.

- (54) a. \**Gianni ha deciso di non più/mai/ancora tornare.*  
 John has decided to not anymore/ever/again come-back  
 ‘John has decided not to come back anymore/ever/again.’
- b. *Gianni ha deciso di non tornare più/mai/ancora.*  
 John has decided to not come-back anymore/ever/again.  
 ‘John has decided not to come back anymore/ever/again.’

---

4. Alternatively, if one considers German non-finite verbs to raise, then they importantly do not raise as high as TP.

In contrast, German infinitives are generally not thought to undergo such raising.

#### 4.5.2. Root Infinitive Properties in Italian and German

As discussed earlier, some researchers (Rizzi 1994, Guasti 1992) take such differences with regard to movement of non-finite verbs have in language acquisition, such as Rizzi (1994) and Guasti (1993), been taken as a basis for explaining the lack of Root Infinitives (RIs) in the child grammars of pro-drop languages such as Italian. In the analysis that we are going to develop, we will assume that verb raising is optional in German. Together with the principle that we will specify shortly, such an assumption will be able to derive the optionality of RIs in the German child grammar. In turn, verb raising is not optional but obligatory in Italian, presumably due to AGR features on the verb that require to be checked (as proposed by Belletti (1990)).

- |      |                         |                                       |
|------|-------------------------|---------------------------------------|
| (55) | Optional RIs in German: | due to <b>optional verb raising</b>   |
|      | Lack of RIs in Italian: | due to <b>obligatory verb raising</b> |

Such an assumption is in line with Guasti (1993) and Rizzi (1994), who relate the special properties of Italian AGR to the lack of Root Infinitives in pro-drop languages such as Italian.

As a final observation, we draw attention to the well-known fact that auxiliary verbs, like copula verbs, never occur in their infinitival forms in the child grammars of RI languages. We adopt the idea that auxiliary verbs, as is generally assumed for the copula, are semantically vacuous, and obtain semantic content only through Tense

and Agreement specification. Hence, we will assume the following idea in order to explain the lack of non-finite auxiliaries in child grammar:

- (56) Auxiliary verbs must always raise to TP and AgrP, and therefore never surface in their non-finite form in child grammar.

#### 4.5.3 The Analysis: Tense Deletion up to Recoverability (TDUR)

With these differences concerning verb movement in German and Italian in mind, let us turn to our analysis of auxiliary omission in German and Italian participial constructions. The basic idea underlying the analysis is a commonly adopted one concerning the defunct nature of TP. For instance, optional Tense omission in child grammar has frequently been employed in order to account for the co-occurrence of finite and non-finite verb forms during the RI stage in language acquisition (cf. Wexler (1994), Rizzi (1994)). We make use of this idea of Tense omission, but extend the idea by proposing that children omit tense *obligatorily up to recoverability*. This principle is spelled out in (57).

- (57) **Tense Deletion Up to Recoverability (TDUR):**

Tense (i.e. *every element under T*) is obligatorily omitted in the child's grammar up to recoverability (i.e. *as long as part of the meaning of the verbal complex is preserved*).

Note that under such a definition of recoverability the deletion of the auxiliary in participial constructions is forced, as long as the preservation of the participle is guaranteed, since the latter would provide recoverability of the verbal meaning.

The TDUR Principle in (57) thus predicts the following scenarios for participial constructions in Italian.

**Table 41 Scenarios for Italian Participial Constructions under TDUR**

	TP	VP	Comments
	aux–	[ t participle]	Aux movement to T, followed by T-deletion under TDUR, results in a bare participle.
	[aux participle]	t	Aux+participle movement to T, followed by prohibition of T-deletion under TDUR, results in a full-fledged present perfect form (including overt auxiliary).
	* ∅	[aux participle]	Not a possible scenario in the child grammar due to obligatory raising of infinitives in Italian
	* aux	[ t participle]	Not a possible scenario in the child grammar due to TDUR.

The first row, i.e. scenario (a), shows the auxiliary having moved to TP, stranding behind the participle. Tense deletion under TDUR takes place, as the stranded participle is able to preserve part of the meaning of the verbal complex. This results in a bare participle. In scenario (b), the auxiliary pied-pipes the participle along as it moves to TP, which we have seen to be a possibility in the Italian grammar (cf. (54)). Consequently, Tense deletion cannot apply under TDUR, because deletion of the

elements under T, i.e. the auxiliary *and* the participle, would render the meaning of the verbal complex unrecoverable. Therefore, a full-fledged present perfect construction, i.e. an overt auxiliary and participle, surfaces in this case. Scenarios (c) and (d), the shaded sections in Table 41, are not possible in the Italian child grammar. Scenario (c) is eliminated because Italian infinitives always raise (cf. 55). Scenario (d) is not an option because Tense deletion under TDUR is *obligatory*, as long as it satisfies partial recoverability. Thus, with scenarios (a) and (b) as the only options, an analysis driven by TDUR correctly derives optional auxiliary omission in Italian participial constructions.

Let us next turn to those scenarios that TDUR derives for participial constructions in German. Consider Table 42.

**Table 42 Scenarios for German Participial Constructions under TDUR**

	CP	TP	VP	Comments
	∅	<del>aux</del>	[ t participle]	Aux movement to T-C, but T-deletion under TDUR as soon as aux reaches T, results in a bare participle.
	* aux	t	[ t participle]	Not a possible scenario in the child grammar due to obligatoriness of TDUR.
	* ∅	∅	[aux participle]	Not a possible scenario in the child grammar due to obligatory raising of aux (cf. (11)).
	*[aux participle]	t	t	Not a possible scenario due to the impossibility of participle pied-piping (cf. (7)).

The first row, i.e. scenario (a), we have also seen to apply in Italian. The auxiliary has moved to TP, stranding behind the participle. Tense deletion under TDUR takes place, as the stranded participle is able to provide recoverability. The result is a bare

participle. Importantly, this is the only possible scenario in the German child grammar. Scenarios (b), (c), and (d), indicated through the shaded areas, can never occur. Auxiliary movement to CP, as in scenario (b), cannot take place due to the obligatoriness of Tense deletion imposed by TDUR. Scenario (c) is ruled out, because auxiliaries must always raise and therefore never occur in their non-finite form in the child grammar (cf. (56)). Finally, scenario (d) is impossible because German does not allow for pied-piping of the participle (cf. (54)). Therefore, in addition to optional auxiliary omission in Italian participial constructions, an analysis driven by TDUR is able to account for obligatory auxiliary omission in German participial constructions as well.

#### **4.6. Extending TDUR to Other Complex Verb Forms**

In this section we will examine a more general prediction that the TDUR Principle makes. Recall that TDUR predicts that Tense deletion will always take place if at least part of the meaning of a verbal complex is preserved. Thus, we expect some process similar to auxiliary omission in participial constructions to apply in other complex verb constructions as well. Let us therefore consider particle verbs, a construction that we find in German and Dutch. Consider the German example in (58).

- (58) Imke schliesst die Tuere ab.  
 Imke closes the door part  
 ‘Imke closes the door.’

Two observations have been made with respect to the acquisition of this construction, which are relevant to our analysis. First, it has been observed that particle verbs tend to occur in their non-finite forms much more often than plain, non-particle verbs do. This is illustrated in Tables 8 and 9, for German and Dutch respectively.

**Table 343** *Proportions of Non-Finite Forms for Plain and Particle Verbs in Monolingual German (from Broihier et al. 1993)*

Child	Age	Non-finite plain verbs	Non-finite particle verbs
Andreas	2;1	10%	<b>81%</b>
Simone	2;2	29%	<b>80%</b>

**Table 44** *Proportions of Non-Finite Forms for Plain and Particle Verbs in Monolingual Dutch (from Broihier et al. 1993)*

Child	Age	Non-finite plain verbs	Non-finite particle verbs
Laura	1;9- 3;0	51%	<b>82%</b>
Niek	2;7- 3;1	48%	<b>79%</b>

If a particle verb occurs in its non-finite form, i.e. as a RI, the infinitival verb does not separate via raising from the particle, and hence surfaces adjacent to the particle, as in (59).

(59) Muetze aufsetzen.

hat on-put

‘(I want to) put on the hat.’

Second, it has been observed that children frequently make use of bare particles, i.e. particle constructions in which the verbal part of the particle verb complex has been omitted (cf. Bennis et al. (1995)). An example of such is given in (60).

(60) Teddy mit.

teddy with(-come)

‘(I want) the teddy bear to come with.’

Let us examine whether an analysis under TDUR is able to account for these two observations concerning particle verb constructions, i.e. the occurrence of predominantly non-finite particle verbs as well as bare particles. The following scenarios for particle verb constructions in Table 10 can be derived.

**Table 45** *Scenarios for German and Dutch Particle Verb Constructions**under TDUR*

	CP	TP	VP	Comments
	∅	∅	[particle verb]	No verb movement resulting in a RI, T-deletion under TDUR does not affect the verb
	∅	<del>verb</del>	[particle t ]	Verb movement to T-C, but T-deletion under TDUR as soon as verb reaches T, results in a bare particle.
	* verb	t	[particle t]	Not a possible scenario in the child grammar due to obligatoriness of TDUR.
	*[particle verb]	t	t	Not a possible scenario due to impossibility of pied-piping (cf. footnote 4).

Scenario (a) is a possible one, where no verb movement takes place, and Tense deletion under TDUR does not affect the verb that has remained under VP. Consequently, the particle verb surfaces as a RI. Scenario (b) is also possible. Here the verb undergoes raising, but gets deleted by Tense deletion as soon as it arrives in TP. Crucially, one must assume that the particle is able to partially preserve the meaning of the verbal complex. As a result, a bare particle surfaces. The remaining scenarios in (c) and (d) are eliminated, since Tense deletion is obligatory under TDUR (thus (c) is not possible), and because the particle cannot be pied-piped along with the raising verb (thus (d) is not possible).<sup>27</sup> Thus, the only possible scenarios permitted under TDUR are those in (a) and (b), which result in a particle verb RI and a bare particle respectively. This precisely captures the observations that have been made about particle verbs in the acquisition literature. These initial results therefore appear

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5. Particle+verb movement of the pied-piping kind, similar to aux+participle movement, is not possible in German.

to be promising for our endeavor to extend the applicability of TDUR to a variety of different complex verb constructions.

#### **4.7. Analysis of Frequency Asymmetries**

The previous analysis, while it is able to account for the asymmetries with respect to types of participial constructions used, is not equipped to account for the asymmetry with respect to the frequency of participial constructions, which we have seen to exist in child German and Italian. Recall that the data in section 3.1 show that Italian-speaking children employ participial constructions at a higher rate than German-speaking children. Furthermore, we have argued that both the present perfect form and bare participles fulfill similar syntactic and semantic criteria in both spoken German and Italian. Thus, it is unlikely that input-related factors contribute to the asymmetry in the frequency of participial constructions in the child grammars.

Moreover, it has been observed that the present perfect is the first verbal form encoding past reference that children use, as opposed to the imperfect, which is not used at this point in the development (cf. Behrens 1993). This holds for both child German and Italian. Naturally, the question arises as to how German-speaking children encode past reference, if they do not do so by means of the participial construction, which seems to be the only available medium given the lack of imperfect verb forms. Do they simply speak less about past tense events than Italian-speaking children do? Especially given the size of the examined corpus (i.e. four Italian-speaking children and 7 German-speaking children), such a hypothesis seems unlikely.

Instead, Behrens (1993) shows that German-speaking children are able to encode temporal reference before they start using temporal morphology, namely by means of so-called “multifunctional verb forms”, which are able to carry more than one tense interpretation. More specifically, she suggests that the child is able to refer to past events by permitting past reference on non-past verbal forms. A quantitative analysis of a monolingual German child, Caroline, in Table 47, and of the bilingual child Leo in Table 14 shows that Behrens’ (1993) claim seems to be confirmed in our data

**Table 46** *Past Tense Interpretation of Multifunctional Verbs in Caroline’s Data*

Age	RIs		Bare Stems	
	<i>Non-Past</i>	<i>Possible Past</i>	<i>Non-Past</i>	<i>Possible Past</i>
1;3	0	0	0	0
1;4	0	0	0	0
1;6	1	0	5	0
1;8	8	1	3	1
1;9	39	3	5	2
Total	48/52	4/52	13/16	3/16
	(86.3%)	<b>(7,7%)</b>	(81.3%)	<b>(18,7%)</b>

A contextual analysis of Caroline’s verbs illustrates that roughly 8% of her RIs and 19% of her bare stems can possibly carry past tense (i.e. completed action) interpretation. A similar trend can be observed in the bilingual child Leo.

**Table 47** *Past Tense Interpretation of Multifunctional Verbs in Leo's Data*

Age	RIs		Bare Stems	
	<i>Non-Past</i>	<i>Possible Past</i>	<i>Non-Past</i>	<i>Possible Past</i>
2;0	2	0	0	0
2;1	14	1	1	0
2;2	2	1	0	0
2;3	11	2	1	0
2;4	16	1	1	0
Total	45/50	5/50	3/3	0/3
	(90%)	(10%)	(100%)	(0%)

While his data do not contain significant numbers of bare stems, his RIs had a past tense interpretation 10% of the time. Hence, German-speaking children appear to encode past reference in default, “multifunctional” verb forms, i.e. RIs and bare stems. As a result, true past tense forms, in this case the participial construction, occur with a lower frequency. Importantly, Italian-speaking children do not have the option of encoding past reference in this manner, since none of these “multifunctional” verb forms, neither RIs nor bare stems, are available in their grammar. Consequently, their only choice is to use the true past tense form, i.e. the participial construction, which thus occurs with a higher frequency.

Summarizing, the frequency asymmetry in participial constructions that has been observed between child German and Italian may be related to the fact that German-speaking children have the option of encoding past tense reference in RIs and bare stems, which are not part of the Italian child grammar.

## **4.8 Conclusion**

In sum, we have uncovered three insights concerning the acquisition of participial constructions in German and Italian. First, based on our analysis of the data of monolingual German- and Italian-speaking children, we have pointed out a previously unobserved cross-linguistic difference with respect to the types of participial constructions, i.e. full-fledged present perfect forms or bare participles that are used on the two languages. Second, by investigating this finding in the data of a German-Italian bilingual child and showing that the asymmetry also holds in the respective grammars of this child, we have provided novel evidence for the SSH of Bilingual First Language Acquisition. Finally, we have proposed a formal analysis, TDUR, which is able to not only account for the observed auxiliary omission asymmetry in the participial construction, but also appears to be able to extend to similar phenomena in other complex verb constructions.

## Appendix

### *Analysis of Participial Construction Data (based on Wexler 1998)*

In this section, we sketch out a possible formal analysis of the participial construction data presented thus far based on Wexler 1998. The first part of the analysis is designed to account for the observed differences with regard to the types of participial constructions used in child German and Italian, i.e. the apparently obligatory auxiliary omission in child German and the optional auxiliary omission in child Italian. The analysis will be based upon Wexler's (1998) Unique Checking Constraint Model. First, we will briefly outline the basic principles employed in Wexler's (1998) model. Then, we will point out what Wexler (1998) assumes the special properties of Italian are within such a model. Finally, we will extend the model by proposing some relevant properties of German within this framework, by which we will be able to account for the asymmetries observed in the previous section.

### *Wexler's (1998) Model*

Wexler (1998) takes minimalist syntax (Chomsky 1995) as his starting point in order to describe ways in which child grammar differs from adult grammar. One of his most crucial assumptions is that in child grammar, principles of grammar, which

might be regarded as a number of different economy conditions, compare and choose between different possible numerations. He calls this assumption *Minimize Violations*, as defined in (1).

(1) *Minimize Violations:*<sup>i</sup>

Given an LF, choose a numeration whose derivation violates *as few* grammatical properties (or economy conditions) as possible. If multiple numerations are minimal violators, any of these numerations may be chosen by the child.

Next, let us consider the different grammatical principles (or economy conditions) which are relevant for *Minimize Violations*. It is proposed by Wexler (1998) and Schuetze & Wexler (1996) that children have the option of omitting functional structure, specifically Agreement and Tense projections, from the trees constructed by their grammars. Consequently, a child could conceivably omit the Tense projection from the tree, leaving AgrSP directly connected to VP, rather than intermediately through TP. Although children thus have the option to delete functional structure, according to Wexler (1998), doing so violates a condition which we will refer to as *Don't Omit Structure*, as in (2).

(2) *Don't Omit Structure:*

Each omission of a functional projection incurs one violation of this economy condition.

Hence, every time the child omits a phrasal projection, this economy condition will be violated.

Wexler (1998) furthermore assumes the existence of another economy condition, the Unique Checking Constraint (UCC), which, in essence, punishes excess movement. In minimalism, movement of a DP is triggered by D-features that need to be checked. Chomsky (1995) assumes that a D-feature has a special property when it occurs on a DP, namely that it is interpretable (in contrast to uninterpretable D-features on functional projections such as AgrP or TP), and is therefore not deleted by checking. As a result, a DP can move many times through various functional projections. However, Wexler (1998) proposes that in the child's grammar a DP's D-feature is merely optionally interpretable. He assumes that every time a D-feature on a DP is checked and not subsequently deleted, one must incur a violation of the UCC, which is formalized in (3).

(3) *Unique Checking Constraint (UCC):*<sup>ii</sup>

Every checking relation involving the D-feature of a DP should delete the DP's D-feature. Each time the DP's D-feature does not delete after checking, one violation of the UCC is assigned.

Equipped with these economy conditions and the overall principle of *Minimize Violations*, let us next turn to the special properties of Italian within this model.

### ***Properties of Italian***

In order to account for the lack of RIs in pro-drop languages like Italian, and for the presence of RIs in non-pro-drop languages like German, Wexler (1998)

suggests that AgrSP in Italian has an interpretable (rather than an uninterpretable) D-feature, so that nothing forces movement of a DP into spec, AgrSP. This is stated in (4).

(4) *D-feature on Italian AgrSP is [+int]*

Based on the observation that AGR in pro-drop languages is pronominal or nominal in a sense, Italian AGR is D in itself, and therefore does not need a D-feature to check it (cf. Wexler 1998:70).

German, on the other hand, due to its status as a non-pro-drop language, has an AgrSP with an uninterpretable D-feature, resulting in an active EPP-requirement for the German AgrSP. Such a difference between the German AgrSP and the Italian AgrSP, giving rise to an asymmetry with respect to domains of D-feature checking, consequently results in an asymmetry of UCC violations between the two languages. While the German-speaking child can choose from two competing numerations, one containing a finite verb (and violating the UCC) and one containing a RI (and violating *Don't Omit Structure*), the Italian-speaking child only has access to one numeration, i.e. a numeration containing a finite verb (not violating any constraint). By this, Wexler (1998: 71-72) is able to account for the asymmetry in the occurrence of RIs in the two languages.

Moreover, in order to account for the optionality of auxiliary omission Italian participial constructions, Wexler (1998) stipulates that AuxP, in which the auxiliary is generated à la Belletti (1990), behaves like a regular functional projection in that it has an uninterpretable D-feature in Italian, as stated in (5).

(5) *D-feature on Italian AuxP is [-int]*

The EPP drives AuxP, like other functional projections, to have an uninterpretable D-feature.

With these assumptions, Wexler (1998: 73-73) shows that the competing numerations that the Italian-speaking child can choose from under *Minimize Violations* include numerations with an overt auxiliary (violating the UCC) as well as numerations containing a null-auxiliary (violating *Don't Omit Structure*). Hence, there exists an optionality with regard to auxiliary deletion in Italian participial constructions.

### ***Properties of German***

Let us now expand Wexler's (1998) existing model in such a way that it is able to account for the obligatory auxiliary omission in German participial constructions. It is a well-known fact that German is a V2 language, i.e. the finite verb in German main clauses must always occur as the second constituent. Furthermore, it has been shown that the V2 parameter, which is responsible for correctly placing the verb in second position in main clauses, is already set at the stage in language acquisition that is under investigation (cf. Berger-Morales & Salustri 2002). This leads us to posit a V2 condition for German, which is violated whenever a finite verb does not occur in second position in a main clause.

#### *(6) V2 Condition.<sup>iii</sup>*

Whenever a sentence contains a finite verb, this verb must occur in second position.<sup>iv</sup>

The traditional analysis of V2 will be assumed here, in which the finite verb moves to  $C^0$  and some phrase moves to spec, CP. Thus, the V2 condition is violated whenever there is a finite verb in C, but nothing in spec, CP.

Secondly, let us assume that the German CP has a D-feature that is optionally interpretable or uninterpretable.

(7) *D-feature on German CP is [+/- int]*

Based on the asymmetric requirement of a D-feature posed by main and subordinate clauses in German, the D-feature on CP is optionally [+/- interpretable].

This assumption is motivated by the observation that, according to the traditional analysis of V2, German main clauses require a constituent in spec, CP, whereas German subordinate clauses disallow one. This is illustrated in (8).

- (8) a. [CP Julia [C liest [das Buch.]]  
       Julia reads the book  
       “Julia is reading the book.”
- b. Julia sagt, [CP [C dass [sie das Buch liest.]]]  
       Julia says that she the book reads  
       “Julia says that she is reading the book.”
- d. \*Julia sagt [CP sie [C dass [das Buch liest.]]]  
       Julia says she that the book reads  
       “Julia says that she is reading the book.”

Therefore, in the adult grammar the CP domain of main clauses introduces an additional level of D-feature checking, which the CP of subordinate clauses does not.<sup>v</sup>

With these properties of German at hand, it is possible to show that the only competing numerations that the German-speaking child can choose from in forming a participial construction are those in which the auxiliary is omitted. Consider Table I.

**Table I** *Deriving the Competing Numerations in German Participial Constructions\**

Possible Numerations				Economy Conditions			Total Violations
<i>CP has</i>	<i>contains</i>	<i>contains</i>	<i>contains</i>	<i>V2</i>	<i>Don't</i>	<i>UCC</i>	
<i>[-int]</i>	<i>D-</i>	<i>AgrP</i>	<i>TP</i>	<i>AuxP</i>	<i>omit!</i>		
<i>feature</i>							
yes	yes	yes	yes	0	0	3	3
yes	yes	yes	no	0	1	2	3
yes	yes	no	yes	0	1	2	3
yes	yes	no	no	0	2	1	3
yes	no	yes	yes	0	1	2	3
yes	no	yes	no	0	2	1	3
yes	no	no	yes	0	2	1	3
yes	no	no	no	0	3	0	3
No	yes	yes	yes	1	0	2	3
<b>no</b>	<b>yes</b>	<b>yes</b>	<b>no</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>
<b>no</b>	<b>yes</b>	<b>no</b>	<b>yes</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>
<b>no</b>	<b>yes</b>	<b>no</b>	<b>no</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>
<b>no</b>	<b>no</b>	<b>yes</b>	<b>yes</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>2</b>
<b>no</b>	<b>no</b>	<b>yes</b>	<b>no</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>
<b>no</b>	<b>no</b>	<b>no</b>	<b>yes</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>2</b>
no	no	no	no	0	3	0	3

The leftmost column, *Possible Numerations*, provides a list of the types of syntactic representations of participial constructions that the German-speaking child can choose from. Following Schuetze and Wexler (1996) and Wexler (1998), functional projections (AgrP, TP, AuxP) may be omitted from the tree. Furthermore, we have proposed that the D-feature on CP may be either interpretable or uninterpretable. The middle column, labeled *Economy Conditions*, shows which grammatical principles, i.e. V2, *Don't Omit Structure*, or UCC, are violated by each of these numerations. The rightmost column illustrates the total number of violations that each numeration bears. It therefore allows us to determine which of the listed numerations are competing numerations under *Minimize Violations*. In Table 12, the competing numerations are those which display 2 violations, the minimal number of violations we find here. Importantly, notice that all of the competing numerations are lacking functional structure, and therefore cannot contain an overt auxiliary.<sup>vi</sup> Hence, the child can only choose from numerations which contain an omitted auxiliary. Such a scenario correctly predicts the obligatoriness of auxiliary omission in German participial constructions, which we have seen to apply in both the monolingual German data and in the German data of the bilingual child Leo.

In sum, Wexler's (1998) UCC model, coupled with a number of additional assumptions that are rooted in the German V2 requirement, appears to be able to account for the observation that Italian child grammar allows for optional auxiliary deletion in participial constructions, whereas German child grammar requires obligatory auxiliary deletion in such a context.

## Conclusion

The data presented in this thesis strongly suggest that bilingual children are able to separate the two distinct grammars of the languages acquired from the very onset of language acquisition.

Considering first parameter setting and then the RI phenomenon, we have shown that bilingual German-Italian children exhibit the same patterns as monolingual children in acquiring the respective languages.

In the last two chapters, we presented two previously unobserved cross-linguistic differences in the acquisition of monolingual Italian and German. First, we observed that Italian children produce a higher percentage of Imperatives, while RIs are barely attested. The opposite is observed in German, where the use of RIs is massive, in comparison with the rare use of Imperatives. Second, Italian and German monolingual children show a difference with regard to participial constructions, i.e. full-fledged present perfect forms or bare participles, that are used in the two languages. After noticing that Italian-speaking children employ participial constructions at a higher rate than German-speaking children, we detected an asymmetry of apparently optional auxiliary omission in the participial constructions of child Italian, and obligatory auxiliary omission in the participial constructions of child German. This is illustrated in Table 36, which shows the Italian auxiliary omission rate to be at around 23% and the German auxiliary omission rate at 96%.

This dichotomy was also attested in the bilingual data. In particular, if a dichotomy is attested, it was always stronger in bilingual children than in monolingual children. This observation leads to several questions the answer to which I leave to further research.

In the third chapter we accounted for the difference in Imperative and RI frequencies and we proposed the imperative analogue hypothesis (IAH). We suggested that the RI analogue in languages that don't show an RI stage is the imperative. *Prima facie*, the imperative is a plausible candidate because it shares the essential RI properties: Imperatives are irrealis, that is, they express a direction to bring about a state of affairs that is unrealized at time of speech; they are restricted to eventive predicates; and they are tenseless.

Finally, in the last chapter, we proposed a formal analysis, TDUR, which is able to account not only for the observed auxiliary omission asymmetry in the participial construction, but can also be extended to similar phenomena in other complex verb constructions.

In conclusion, the data regarding the frequencies of Imperatives and Participial constructions led us to interesting observations regarding the onset of language acquisition. These data seem to show that child language acquisition is driven by the systematic mapping of particular semantic meanings into morphological forms. This semantic "mapping" is constrained by the properties of the target grammar. In this way, particular languages will choose different morphological forms to express universal semantic meanings such as past tense or irrealis. In fact, as we have seen, German children can initially encode past tense interpretation in bare stem and RIs, while Italian children only encode past tense in morphological past tense forms. This difference may lead to a high use of participial construction in Italian.

In the same way, the differences in the use of Imperatives and RIs in German and Italian seems to be the result of a different morphological mapping to express irrealis meaning, in accordance with the syntactic properties of the two languages.

These observations suggest a stronger role of semantics in the first stage of language acquisition. However, more research needs to be done to understand the interaction of syntax, semantics and morphology in language acquisition. This is an exciting direction which I hope will yield insight into the fields of grammar and acquisition.

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<sup>i</sup> Wexler (1998) remains agnostic with respect to whether such a principle applies to the adult grammar as well.

<sup>ii</sup> This is a slight modification of Wexler's (1998) UCC. In his paper, Wexler (1998) assumes that the UCC is violated whenever a D-feature of the DP enters into more than one checking relation (i.e. zero violations if the DP's D-feature is checked once, and one violation if it is checked more than once). In our version of the UCC, each additional checking results in an additional violation.

<sup>iii</sup> V2 here is understood as an abbreviation for whatever processes, derivational or otherwise, conspire to making German a V2 language.

<sup>iv</sup> Note that the V2 condition will thus not be violated if there is no overt verb in the sentence, as in the case of an omitted auxiliary.

<sup>v</sup> By allowing a main clause CP to be optionally [+/-interpretable] in the child grammar, we must either claim that the child has not figured out yet how to differentiate between main and subordinate clauses, or we may argue that such an option is given in the adult grammar as well. The latter option is plausible, if one makes the assumption that *Minimize Violations* is active in the adult grammar as well. Suppose that the German-speaking adult has access to two different numerations, one with a main clause CP containing a [+int] D-feature, and one containing a [-int] D-feature. These two numerations are never competing under *Minimize Violations*, since the numeration containing a [+int] D-feature would always be eliminated as a choice given the fact that it bears a V2 condition violation.

<sup>vi</sup> According to Wexler (1998), whenever functional projections are omitted from the structure, principles of Distributed Morphology determine that the only morpheme consistent with the feature representation of the (deficient) functional structure is the infinitival default morpheme. Along with Wexler (1998), we must return to the idea that auxiliary verbs, as is generally assumed for copula verbs, are semantically null, and gain semantic content only by Agreement and Tense specification. Consequently, an auxiliary that is underspecified in these respects remains semantically null and will never surface.

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