Investigating the fundamental difference between L1 and L2 acquisition based on syntax: A fresh look at the development of German L1 and L2

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Karoline Wirbatz, 2013
Für meine Mutter Bärbe Wirbatz
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## Abbreviations

<table>
<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADJ</td>
<td>Adjunct</td>
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<tr>
<td>ADV</td>
<td>Adverb</td>
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<td>AUX</td>
<td>Auxiliary</td>
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<tr>
<td>DF</td>
<td>Discourse Function</td>
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<tr>
<td>FLA</td>
<td>First Language Acquisition</td>
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<tr>
<td>FOC</td>
<td>Focus</td>
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<tr>
<td>GF</td>
<td>Grammatical Function</td>
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<tr>
<td>INV</td>
<td>Inversion</td>
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<tr>
<td>L1</td>
<td>First Language</td>
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<td>L2</td>
<td>Second Language</td>
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<tr>
<td>LFG</td>
<td>Lexical Functional Grammar</td>
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<tr>
<td>NP</td>
<td>Noun Phrase</td>
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<td>OBJ</td>
<td>Object</td>
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<td>OBL</td>
<td>Oblique</td>
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<tr>
<td>PL</td>
<td>Plural</td>
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<tr>
<td>SEP</td>
<td>Verb Separation</td>
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<tr>
<td>SG</td>
<td>Singular</td>
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<tr>
<td>SLA</td>
<td>Second Language Acquisition</td>
</tr>
<tr>
<td>SUBJ</td>
<td>Subject</td>
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<td>TOP</td>
<td>Topic</td>
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V-2   Verb-second
V-end Verb-end
VP    Verb Phrase
Y/N   Yes/No
Abstract

This thesis investigates the developmental path of German first language (L1) children focusing on the order of elements in speech and what is signaled by the ordering of constituents. It attempts to contribute to the ongoing debate about the differences and similarities between L1 and second language (L2) acquisition. Proposals about the existence of a fundamental difference between L1 and L2 acquisition were raised more than twenty years ago (Bley-Vroman 1988 & 1990) with Clahsen and Muysken (1986) specifically claiming that differences in L1 and L2 development may be a reflection of the different initial hypothesis of syntax adopted by L1/L2 learners supporting their claim with reference to patterns of syntactic development in German first language acquisition. After two decades of research and discussion the fundamental difference hypothesis remains current in the agenda of acquisitional linguists (see, for instance, Slabakova 2009; Meisel 2011), which lends motivation to the present investigation.

Bloom (1991, p.1) points out that the period from 2 to 3 years is the time “when children acquire their basic knowledge of semantics, syntax, morphology, and discourse” and, even more importantly, in which their linguistic development goes through rapid changes. In regard to syntax, the first few months of this time period are particularly marked by substantial changes, as utterances start to contain more than two words hence the ordering of constituents becomes a key factor in the distribution of information. Yet, while there have been numerous studies of first language development in German and other languages none has focused intensively on this developmentally crucial period of time. This study aims to address this gap by looking at the syntactic and morphological development of German L1 children between the age of 2;1 to 2;4 years, that point in development when the child becomes able to produce strings of two words or more focusing on the development of word order, including canonical order and cases in which it may be altered (e.g. topicalizations).

As an additional contribution, this study also attempts to capture the development of question formation, another area of interest in terms of constituent order, as well as morphological development, specifically the emergence and deployment of SV-agreement, to look at the sort of syntactic development such long-distance agreement
aligns with. This allows further exploration of potential areas of fundamental differences between L1 and L2 acquisition.

The study is carried out within the theoretical framework of Processability Theory (PT) (Pienemann 1998a; Pienemann, Di Biase & Kawaguchi 2005), which offers a typologically and psychologically plausible transitional framework based on universal speech processing mechanisms that aims to explain the developmental sequences involved in syntactic and morphological development. Despite the hypothesised fundamental differences PT proposes that both L1 and L2 developmental sequences are explainable in terms of the universal nature of human information processing, which is subject to constraints such as limited capacity of working memory and speed of lexical access (Levelt 1989; Bock & Levelt 1994).

To address such issues this study gathered three separate data pools. The first and main pool comprises three concurrent longitudinal data sets collected specifically for the current dissertation in Germany from oral production of two German L1 children and one German/Polish L1 bilingual child attending the same kindergarten. They were recorded over a period of four months at weekly intervals. The second data pool consists of five longitudinal data sets of German L1 children available from the CHILDES data base (Wagner n.d.; Clahsen 1982; and Rigol 1991-1999), while the third pool comprises three longitudinal data sets from German L2 adult learners of Italian L1 background collected as part of the ZISA project (Meisel, Clahsen and Pienemann 1981).

Overall results from the current study reveal that, at least in terms of the development of word order, there is no fundamental difference between L1 and L2 acquisitional paths. Contrary to what has been suggested (Clahsen and Muysken 1986; Pienemann 1998b), the findings are consistent with the proposition that German L1 children follow a developmental path similar to L2 learners in their acquisition of German word order. This calls into question the claim that the hypothesised fundamental difference is based on children’s different initial hypotheses as against adult L2 acquirers (Clahsen and Muysken 1986).
Chapter 1
Introduction

The fundamental differences between first language acquisition (FLA) and second language acquisition (SLA) have led to countless debates among linguists over the past two decades, yet, the issue has not been resolved to date. While most studies nowadays have shifted their focus away from language specific processing mechanisms involved in FLA and SLA towards general processing mechanisms, proponents of the Fundamental Differences Hypothesis (FDH) (e.g. Clahsen & Muysken 1986; Bley-Vroman 1988 & 1990; and Clahsen & Felser 2006a&b) still base their claim on the same assumption made 20 years ago. That is, they still assume that the interlanguage grammar of L2 learners is fundamentally different from that of L1 learners, although this claim has been strongly criticized and refuted by other linguists (see, for instance, DuPlessis, Solin, Travis & White 1987; Tomaselli & Schwartz 1990) even back then.

The current study hopes to contribute to the resolution of the issue by demonstrating that the interlanguage grammars of L2 learners and L1 learners are in fact not fundamentally different from each other. Its objective is to investigate the developmental path of German first language (L1) children in regard to the order of elements in speech and explore why the constituents are aligned in a specific way. The German language requires a strict verb-second placement in main clauses and word order plays a key role in the placements of topics and adjuncts as well as question formation. Thus, it presents a great opportunity for a thorough investigation of how German L1 children learn to link word to those organisational rules and meanings. The study also aims to contribute to the ongoing debate about the differences and similarities between L1 and second language (L2) acquisition. In order to achieve these aims, three separate data pools are analysed and examined.
The first and main data pool contains three concurrent longitudinal data sets of two German L1 children and one German/Polish L1 bilingual child. The data were collected specifically for this study and the children were recorded between the ages of 2;1 and 2;4 years at weekly intervals. The second and third data pools are comprised of previously published data sets. The second data pool contains five longitudinal data sets of German L1 children obtained from the CHILDES database (Wagner n.d.; Clahsen 1982; and Rigol 1991-1999) and its main purpose is to serve as a control for the first data pool. That is, it is used as a cross-reference to make sure that certain phenomena are not exceptions that are restricted to the linguistic development of the three children specifically recorded for this study, but can be found in the data of other German L1 children as well. The third pool comprises three longitudinal data sets of German L2 adult learners of Italian L1 background collected as part of the ZISA project (e.g. Meisel, Clahsen and Pienemann 1981). Its main purpose is to serve as a contrast to the data obtained from the German L1 learners in order to be able to examine the differences and similarities in FLA and SLA.

The study adopts Processability Theory (Pienemann 1998a; Pienemann, Di Biase & Kawaguchi 2005; Di Biase & Bettoni in press) as its theoretical framework of language acquisition by employing a universal hierarchy of syntactic and morphological development.

The acquisition of German is well documented in the studies and literature concerned with L1 acquisition and has been subject to study for more than a hundred years now. Stern & Stern (1924), for instance, conducted a diary-study with their two German L1 children and were the first to observe that children go through stages in their language development. More than half a century later, Clahsen (1982) proposed four-stages as a developmental sequence for the acquisition of German word order by L1 learners which, among other things, was utilized by Clahsen and Muysken (1986) to explain the fundamental differences in L1 and L2 acquisition. Pienemann (1998a&b, 2005) also used it as a basis for the developmental stages in German L1 acquisition proposed by Processability Theory. Nevertheless, there are still certain areas in German L1 acquisition that, in spite of previous research, call for further investigation. Clahsen (1986, pp. 12-13) himself, for instance, admits that his stages for the acquisition of German L1 syntax are only an assumption and therefore require
further analysis, which in turn might lead to a revision of the developmental sequence. Tracy (2008) confirmed Clahsen’s own suspicions, as her findings suggest that German L1 children go through additional more subtle stages in their syntactic development. That is, she lists the acquisition of interrogative structures and negation as separate stages. Additionally, Tracy (2008), as well as other studies (see, for instance, Penner 1990 & 1994, Gawlitzek-Maiwald, Tracy & Fritzenschaft 1992, Müller 1992) also revealed that at least Stage 4 of Clahsen’s (1982) proposed stages is actually an “idealization” since not all German L1 children acquire subordinate clauses without making any mistakes in the placement of the verb. However, none of those studies focused explicitly on the very early stages of the children’s syntactic development, that is the age between 2 to 3 years, although this is generally considered a time in which the children’s linguistic development goes through rapid changes. Or, as Bloom (1991, p.1) points out, it is the time ‘when children acquire their basic knowledge of semantics, syntax, morphology, and discourse’. Children’s syntactic development is marked by key momentous changes throughout the first few months of said time period, especially as utterances start to contain more than two words and the ordering of constituents becomes a key factor. Yet, the majority of earlier studies have neglected to specifically focus on this developmentally crucial period of time since they were designed either as longitudinal studies lasting a year or longer, or cross-sectional studies. The disadvantage of cross-sectional studies, on the one hand, is that they are not developmental, as they only provide insight into one particular moment in the linguistic development of children. They are usually conducted with a great number of children and therefore can only be used to ‘confirm’ a particular assumption about the children’s linguistic development, rather than address describing the overall syntactic development. On the other hand, longitudinal studies conducted over one or two years have the disadvantage that they are not able to capture small but perhaps critical details of the children’s language development, as it is usually not feasible to collect data more than once or twice a month due to the sheer amount of time that has to be invested into the collection, transcription and analysis of said data. Although the first issues and proposals about the ‘fundamental differences’ were raised over two decades ago (e.g. Clahsen & Muysken 1986; Bley-Vroman 1988 & 1990), the debate evolving around the differences and similarities between L1 and L2 acquisition still leads to controversy between linguists. More than twenty years later,
there are areas that remain controversial (see, for instance, Slabakova 2009; Meisel 2011), which is partially due to the aforementioned shortcomings of FLA research. Consequently, this study intends to bridge this gap in the research concerned with German L1 acquisition, at the same time aiming to make a constructive contribution to the debate centred on the fundamental differences between L1 and L2 acquisition. In order to achieve these goals, the study will thoroughly examine the syntactic and morphological development of German L1 children at the time period between the ages of 2;1 and 2;4 years, as this is generally considered the point in time when they start to produce utterances that contain more than two words. The study will particularly focus on word order and will therefore concentrate on said time period in the children’s linguistic development, as it is difficult to examine how children realise the alignment of constituents until they are able to produce utterances containing at least three words. Additionally, it will attempt to capture the development of questions and explore one specific aspect of the children’s morphological development; namely SV-agreement, in order to investigate potential areas of ‘fundamental differences’ between L1 and L2 acquisition.

This thesis consists of eight chapters and is organized as follows. The introduction in Chapter 1 states the objective and rationale of the thesis. Chapter 2 comprises the literature review for the present study providing first a brief linguistic description of German focusing on the linguistic aspects relevant to the present study. Second, it presents a summarised overview of previous L1 acquisition research with the main focus on German L1 acquisition followed by a summary of previous studies concerned with the differences and similarities between L1 and L2 acquisition. Chapter 3 presents the theoretical framework, as well as the research questions that guide this study. It provides an outline of PT (Pienemann 1998a; Pienemann et al. 2005; Bettoni & Di Biase 2012) including a brief sketch of its two feeder theories; namely the speech generation model (Level 1989) and further developments (Bock & Levelt 1994), and LFG (e.g., Bresnan 2001). It also includes the research questions and hypotheses formulated for this study. Chapter 4 presents the methodological design of the present study. It describes the method of data collection, including type of data, the informants, data elicitation, data collection and recording sessions, transcription and coding, and data size. It also
contains a summary of the method of data analysis, including acquisition criteria, distributional analysis, and implicational scaling and scoring procedures.

Chapter 5 presents the results of the analysis of the three data sets that were specifically collected for this study. That is, it contains the findings obtained from the data sets of the two German L1 monolingual children (Mia and Emma) and the German/Polish bilingual child (Karl).

Chapter 6 contains the results of a focused re-analysis of the two other data pools examined for this study. First, it presents the findings of the data sets obtained from the CHILDES database. Second, it presents a description of the adult German L2 learners’ data sets.

Chapter 7 discusses the key findings from Chapter 5 and Chapter 6 in light of the research questions formulated in Chapter 3 and in relation to previous research studies.

Chapter 8 concludes the thesis with a summary of the major findings of the present study and a discussion of its implications for the field of German L1 acquisition, as well as its contribution to the debate centred around the differences and similarities of L1 and L2 acquisition. Finally, it discusses the limitations of the study and gives suggestions for further research.
Chapter 2

Literature Review

2.0 Introduction

This chapter provides the necessary theoretical background for the present study centered on German L1 children’s syntactic development and the fundamental difference between FLA and SLA. The reviews in this chapter will help to identify the gaps left by previous research in order to show that it is still worthwhile to conduct a study in this already well-researched area.

The chapter is structured as follows. Section 2.1 includes a summary of previous studies evolving around the differences and similarities in L1 and L2 acquisition with emphasis on studies that have impinged on the current study. Section 2.2 presents a summary of the history of FLA research and also provides a general overview of L1 acquisition from before birth up until the age of two years, as until then children follow a more or less universal path in their linguistic development. Section 2.3 focuses specifically on the acquisition of German as an L1. It gives an overview of the general linguistic development of German L1 children, before providing a more detailed insight into the acquisition of declarative and interrogative structures. Section 2.4 concludes this chapter.

2.1 Fundamental difference between L1 and L2 acquisition

This section presents a summary of previous studies concerned with the fundamental difference between L1 and L2 acquisition. It summarises the Fundamental Difference Hypothesis (FDH) formulated by Bley-Vroman (1988, 1989, and 1990) over 20 years ago, before giving an overview of research studies evolving around the fundamental difference between FLA and SLA.
2.1.1 The Fundamental Difference Hypothesis

According to Chomsky (1988) and the innatists’ position, children are equipped with an innate endowment that enables them to learn their L1 rapidly (that is, by four to five years of age) and effortlessly. Moreover, all children acquire their L1 in a uniform way regardless of the language and without requiring any instruction or corrective feedback. This innate language device is known as Universal Grammar (UG). Based on the idea of UG, Bley-Vroman (1988, 1989) put forward the FDH in the late 1980s, which, in its most radical version, states that “first language development is controlled by an innate language acquisition system that no longer operates in adults. Adult language learning resembles general adult learning” (Bley-Vroman, 1989, p. 55). According to the FDH, internal, linguistic and qualitative factors are responsible for the differences in child and adult language acquisition. First, the internal cognitive states of children and adults vastly differ from one another. That is, the fundamental difference is caused by internal factors, rather than external factors, such as insufficient input. Second, changes in the language faculty are responsible for the differences in child and adult language acquisition, rather than changes in learning ability. Last, unlike children, adult learners do not have any access to the domain-specific acquisition system. Thus, the differences are not merely quantitative, but also qualitative. (Bley-Vroman, 1989, p. 50)

Bley-Vroman (1990) proposes ten fundamental characteristics that support his claim that adult language learning is more similar to general adult learning and therefore differs vastly from the way children learn their first language. Those ten fundamental characteristics are briefly summarised below.

Lack of success

In contrast to children learning a first language, adult learners usually do not succeed in attaining perfect mastery of a second language.

General Failure

Adult learners hardly ever, or maybe never, completely succeed in their goal to acquire a second language. This claim is supported by the fact that most adult learners have a ‘foreign accent’.
Variation in success, course, and strategy
Even when variables such as age, exposure and instruction are held constant, the degree of success in second language acquisition varies from learner to learner. Adult learners also develop different learning strategies and follow different paths in their language acquisition, whereas those variations cannot be found in child L1 acquisition.

Variation in goals
There is also a variation in the goals of different L2 learners. For instance, some L2 learners might be able to hold an everyday conversation, but are not capable of reading a book in the L2. Others might have good pronunciation, but can only use simple grammatical structures. Yet, children somehow usually succeed in all language specific domains.

Correlation in age and proficiency
There is a correlation between the age of acquisition and the degree of ultimate proficiency. Children and teenagers, on the one hand, seem to be able to achieve native-like competence in a second language, whereas adult learners, on the other hand, generally do not attain ultimate proficiency.

Fossilisation
Some L2 learners stagnate at a stage in their development without ever reaching ultimate attainment. This phenomenon is known as ‘fossilisation’ and it stands in stark contrast to L1 learners who always achieve native competence and become native speakers of the language.

Indeterminate intuitions
Even the most advanced L2 learners seem to lack clear grammaticality judgments which suggests that their underlying knowledge differs from that of L1 learners.

Importance of instruction
The majority of adult learners relies on formal instruction at some stage of their L2 acquisition, whereas children learn their L1 without it.
**Negative evidence**

Most L2 teachers and learners concur that negative evidence is at least partly useful in L2 learning, whereas L1 learning does not rely on negative evidence at all. Yet, children still succeed in acquiring their L1 without it.

**Role of affective factors**

Affective factors, such as personality, socialisation, motivation and attitude have a significant effect on the way adults learn a second language, whereas they do not appear to affect children acquiring their first language.

In partial agreement with Bley-Vroman’s (1990) fundamental different characteristics, Meisel (2007 & 2008) outlines five uncontroversial differences between L1 and L2 acquisition. First, the initial states of L1 and L2 acquisition are different, as L2 utterances are longer and possibly more complex than early L1 utterances. Second, both learner groups follow an invariant developmental sequence in their language acquisition, although those paths are not identical. Third, there is a difference in the rate of acquisition. That is, the rate of acquisition of an L1 is relatively fast, whereas L2 acquisition takes place over a much longer period of time. Fourth, there is greater variation in L2 acquisition than in L1 acquisition that manifests itself cross-linguistically, as well as across learners and within learners themselves. That is, L2 learners differ in their language acquisition not only from L1 learners, but there are also remarkable differences between the L2 learners themselves. Fifth, very few or no L2 learners reach native competence in their acquisition of a second language.

Schachter (1990) also believes that adult learners are no longer able to access UG when learning a second language. According to the Incompleteness Hypothesis, UG is only partially available for adult L2 learners, which results in their acquired grammars being incomplete. If L2 learners had complete access to UG, their learning “outcome would be more uniform and they would generally be more proficient (Schachter, 1990, p. 96).

In a special issue of *Studies in Second Language Acquisition* (Slabakova 2009) dedicated to the FDH twenty years later, Bley-Vroman (2009) presented an updated version of the FDH due to changes in generative linguistic theory that had occurred over the past two decades. He concedes that insights gained from the findings of
recent research studies call for a “less radical view of the fundamental difference hypothesis” (Bley-Vroman, 2009, p. 17), although the two most important differences still hold true. That is, adult SLA is, on the one hand, ‘unreliable’ since adult L2 learners rarely succeed in reaching a native-like attainment of a L2 and, on the other hand, it is ‘non-convergent’ since they do not reach a uniform level of language proficiency. All the other aspects of the so-called ‘fundamental difference’ still give rise to debates among linguists as has been the case for the past twenty years, as the following shows.

2.1.2 Summary of research studies concerned with the fundamental difference in L1 and L2 acquisition.

Over the past two decades, many of the studies investigating the fundamental difference between FLA and SLA have focused on the role of Universal Grammar (UG) and Principles and Parameters settings in adult SLA; that is, whether UG is still accessible to adult L2 learners or not. There are three major hypotheses about the accessibility of UG in adult SLA:

1. No-Access hypothesis
2. Partial-Access hypothesis
3. Full-Access hypothesis

According to the No-Access hypothesis, on the one hand, UG is no longer available in SLA and L2 learners therefore have to rely on non-language specific learning strategies. The Partial-Access hypothesis, on the other hand, holds the view that L2 learners have access to UG only via their respective L1; that is, they can only access those principles and parameter-values that are already available in their L1. Lastly, the Full-Access hypothesis suggests that UG is directly accessible to L2 learners and that the L1 and L2 learners operate independently from each other. All three hypotheses have had their supporters and opponents over the years and have been thoroughly debated in the literature. (Sharwood Smith 1994)

Clahsen and Muysken (1986), for instance, investigated the availability of UG to adult L2 learners and child L1 learners by looking at the acquisition of German word order. Based on the results of Clahsen’s (1982) study and those of the ZISA project (Meisel et al. 1981; Clahsen et al. 1983), they came to the conclusion that L1 learners
have access to Universal Grammar (UG), whereas L2 learners do not have access to UG, but develop their second language on the basis of general language processing strategies. According to Clahsen and Muysken (1986), the initial hypothesis of L1 learners for German word order is SOV, which coincides with the underlying word order of German and therefore supports their claim that L1 learners have access to UG. In addition, L1 learners do not make any mistake with the position of the verb in subordinate clauses, which also provides positive evidence for the validity of their assumption. The grammatical systems of L2 learners’ interlanguage, on the other hand, are not ‘possible grammars’ according to Clahsen and Muysken (1986). Their initial hypothesis for German word order is SVO and the rules that are necessary to obtain the proposed sequence for L2 acquisition are not ‘possible’ in terms of UG. Clahsen & Muysken (1986, p. 116), therefore, conclude that L2 adult learners “are not only creating a rule system which is far more complicated than the native system, but also one which is not definable in linguistic theory”.

Clahsen and Muysken’s study (1986) gave rise to a series of studies in which their claim that UG is no longer available in adult L2 acquisition was criticised. DuPlessis, Solin, Travis & White (1987), for instance, argue that UG is still accessible to adult L2 learners. They reanalysed Clahsen & Muysken’s (1986) data in terms of three parameters, namely the Headedness parameter, the Proper Government parameter and the Adjunction parameter. The results of their study showed that the errors the adult learners make can be explained by means of inappropriate parameter-settings for German, which, however, are ‘possible’ within the constraints of UG for other languages. They conclude that the grammar of L2 adult learners falls within the range of options permitted by UG, even though some parameter settings might be different in a language other than German and therefore the L2 learners have to fix those parameter settings appropriate to German.

In addition, Tomaselli & Schwartz (1990) found further supportive evidence that UG is still available to L2 learners in a study where they analysed the acquisition stages of negation in L2 German. In their study, they showed that an UG-based analysis is not only ‘possible’, but actually “provides independent support for UG-based analyses of the developmental sequence found in L1 Romance, L1 German Verb placement” (Tomaselli & Schwartz, 1990, p. 1). Yet, Pienemann (1998a, p. 19-20) points out that

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1 Note that Mills (1985) and Penner (1994) already disproved this claim and showed that it is more of an ‘idealization’, rather than the norm (see also Section 2.3.2 in this chapter).
while Du Plessis et al. (1987) and Tomaselli & Schwartz (1990) “do indeed provide one possible account of the origin of the linguistic knowledge developed in the described sequence, they do not contain a theoretical motivation for the order in which the parameters are set”. Finally, it should also be taken into account that in a later study, Clahsen partly distances himself from the claims made in Clahsen and Muysken (1986). In his comparative study of L1 and L2 acquisition development in German, Clahsen (1990) points out that L2 learners still have partial access to UG. Only the parameterised UG is inaccessible to L2 learners, whereas they can still access fixed UG principles through their L1 as well as the parametric choices they made in their L1. (Clahsen, 1990)

Jordens (1988) investigated the acquisition of syntax in German and Dutch as L1 and L2. Contrary to all the other studies reviewed so far, he claims that neither L1 nor L2 learners need to have access to UG, as they both “should be able to analyse linguistic input in terms of categories and patterns which they relate to each other through processes of abstraction” (Jordens, 1988, p. 42). Contrary to Clahsen and Muysken’s (1986) claim that children’s initial word order is SOV, Jordens (1988) argues that children initially acquire SOV and SVO with different sets of verbs, that is, they use both word orders at the beginning.

Clahsen and Muysken’s (1986) assumption that SOV is the underlying word order of German is by itself rather debatable since it is not a generally accepted idea among linguists. The World Atlas of Language Structures Online (WALS) (Dryer & Haspelmath 2011), for instance, says that German has a variety of word orders that depends on a number of things, such as the clause type. Children learn those different word orders gradually and it would be rather strange for them to learn the word order for subordinate clauses first, when they cannot yet produce them. According to WALS, the order of subject and verb is SV, while there is no dominant order with verb and object.

Most recent research studies have readjusted their focus away from solely looking at the accessibility of UG in SLA. Instead, they have started to consider the role of principles that are not exclusive to the faculty of language and how L2 language

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2 Please refer to Appendix A for a detailed description of the key linguistic aspects of German that are relevant to this study. It includes an explanation of the basic properties of German word order in declarative and interrogative sentences, followed by a brief description of relevant morphological features of the German language.
processing differs from L1 processing. As Bley-Vroman (2009, pp. 184-185) points out “it is no longer possible to make a clear distinction between processes (especially data-processing acquisition processes) used by the language faculty and those used more generally”, although the FDH relied on this distinction. He refers to one of Chomsky’s (2005) more recent works in which he discusses the possibility that a lot of the processes associated with the faculty of language thought to be exclusive to language are actually not, but are in fact more general learning principles. Other researchers (see, for instance, Ullman 2001; Clahsen & Felser 2006) also started to look into the ways that L2 language processing differs from L1 processing. Ullman (2001) proposed the Declarative/Procedural Model, which argues that in FLA the processing lexicon and grammar rely on two distinctive brain memory systems, whereas SLA mainly depends upon one (see also Paradis 1994 & 2004). In FLA, lexical memory is associated with declarative memory, whereas aspects of grammar are associated with the procedural memory. In SLA, however, processing and representation both heavily rely on the declarative memory system, as grammatical computation also depends upon declarative memory instead of procedural memory. That is, linguistic forms “may be either memorized or constructed by explicit rules learned in declarative memory” (Ullman, 2001, p. 105).

Clahsen and Felser (2006a&b) criticized Ullman’s (2001) Declarative/Procedural Model for being too vague and put forward the Shallow Structure Hypothesis (SSH) instead. The SSH states that grammatical processing in SLA is fundamentally different from grammatical processing in FLA, “as the syntactic representations adult L2 learners compute during comprehension are shallower and less detailed than those of native speakers” (Clahsen & Felser, 2006a, p. 32).

Yet, the assumption of those research studies focusing on the processing mechanisms involved in FLA and SLA, rather than the accessibility of UG, is that they still assume that the interlanguage grammar from L2 learners is fundamentally different from that of L1 learners. Dekydtspotter, Schwartz and Sprouse (2006) point out that Clahsen and Felser (2006a&b) still rely on assumptions made by Clahsen and Muysken (1986 & 1989) over twenty years ago, although even back then they were strongly criticized and refuted by other linguists (see discussion above). It seems that even twenty years onwards, the same issues still lead to disagreement among linguists in the debate about the fundamental differences between FLA and SLA. Although the current study does by no means claim to resolve the dispute once and for all, it aims to make a
constructive and valuable contribution to the on-going discussion by proving/demonstrating that the interlanguage grammars from L2 learners and L1 learners are actually not fundamentally different from each other, although this has been claimed by previous research. More specifically, it hopes to show that the syntactic development path of adult German L2 learners does not fundamentally differ from that of German L1 children. The current study examines three different data sets including a partial re-analysis of the data used by Clahsen and Muysken (1986), which will facilitate a direct comparison of the results of the two studies.

2.2 First language acquisition

The following section is divided into two parts. The first part gives an overview of the history of FLA research, whereas the second part describes the general development of children’s linguistic abilities from before birth up to the age two years, as up until then children follow a more or less universal path which is not yet language specific.

2.2.1 History of first language research

The development of children’s linguistic abilities has been the subject of investigation for more than a hundred years. The first studies concerned with L1 acquisition date back to the late 19th century, although those studies did not focus exclusively on language acquisition, but were rather part of an overall interest in the development of children (see, for instance, Brandenburg 1915, Bateman 1916, and Stern & Stern 1924). Stern & Stern (1924) were the first to observe that children go through various developmental stages in the acquisition of their L1 and most researchers nowadays still support this estimation. (Ingram, 1989, p. 7) From the early 1970s onwards, the understanding of the processes involved in L1 acquisition increased dramatically. (Bochner & Jones, 2003) In 1973, Brown proposed five stages of grammatical development in L1 acquisition that still serve as a basis for current research, see Figure 2.1.
Stage 1: one-word stage  
Stage 2: acquisition of syntactic principles  
Stage 3: on-set of the acquisition of grammatical features  
Stage 4: acquisition of specific grammatical features  
Stage 5: complex sentences

**Figure 2.1 Brown’s five stages of grammatical development in L1 acquisition (1973)**

Although the field of child language studies “has gone through several changes over the years in both the methods and the theoretical orientation used” (Ingram, 1989, p. 7), new theories are still derived from Brown’s (1973) original proposal.

Nevertheless, although there is a general agreement that language acquisition can be divided into various developmental stages, there is still disagreement on how exactly children acquire their L1 and which factors are responsible for it. As Elliot (1981, p. 37) points out “a child learning language is developing on all fronts, not just the linguistic one, and is trying to make sense of his social environment and the world of objects around him as well as of his linguistic input”. Consequently, there are various theories aiming to explain language development, which can be divided into four broad descriptive categories; that is Behaviourism, Nativism, Cognitive Theory and Interactionist Theory. (Bochner & Jones, 2003, p. 5) Those theories mainly differ from each other by “the extent to which they assign innate structure” (Ingram, 1989, p. 69) to be responsible for language acquisition. Yet, although those theories clearly disagree on the actual role internal and external factors play in L1 acquisition, they ultimately have the same four goals, which can be summed up as follows:

1. The confirmation of general linguistic principles;
2. The discovery of principles of the development of language;
3. The clarification of the relationship between language development and cognitive, social, or other forms of development;
4. The more or less atheoretical (if possible) description of the language of children.

(Bennett-Kastor, 1988, p.12)

An overview of the four main theories is given below.

**Behaviourism**

Behaviourists believe that internal factors are not responsible for language acquisition. According to behaviourism, language acquisition, as all behaviour, can be
solely explained with reference to external factors in the environment. Children imitate and repeat the language they hear and positive reinforcement leads to habit formation; that is learning. Imitation and practice are the primary processes in language development. (Skinner, 1957)

Nativism

Proponents of the nativist or innate theory, in contrast, claim that language development is biologically programmed in children; that is, language develops in the child in just the same way that other biological functions develop. They believe that internal factors are responsible for language acquisition and that humans are equipped with a system of principles, conditions and rules that are common to all languages. The linguist, as well as nativist, Noam Chomsky, first named this innate system of principles Language Acquisition Device (LAD), but later on replaced it with the term Universal Grammar (UG). According to the nativist’s position small samples of language are sufficient to activate UG, which makes it possible for the child to learn the structures of the particular language he is exposed to by matching information from the UG with the structure of this language. (Chomsky, 1965)

Cognitive Theory

Cognitive theory of language acquisition is mainly interested in the relationship between cognition and language. It tries to solve the question of whether the concept of an object is acquired by the child before its name or vice versa. Cognitive theorists believe that the child acquires linguistic knowledge gradually through heredity and maturation. Yet, in contrast to the nativists’ explanation, the cognitive explanation does not solely hold innate factors responsible for language acquisition, but rather claims that the child himself plays an active role in language acquisition. The child’s interaction with objects and people in his immediate environment leads to simultaneous cognitive development and language acquisition. (Piaget 1959)

Interactionist Theory

The interactionists’ position, in contrast, claims that children acquire a language by interacting with the people who take care of them. According to this theory, internal as well as external factors play a role in language acquisition. Besides the child’s innate capacity of language development, social interaction is also crucial in order to
acquire a language, as the development of language is mainly influenced by the linguistic interaction between the child and the person to whom he relates most closely. (Bruner 1983, Kaye 1984)

2.2.2 The early stages of children’s language development (before birth to two years)

Children’s perceptive linguistic abilities start to develop even before they are born. Boysson-Bardies (1999, pp. 22-23) points out that ‘the auditory system of the foetus is functional from the twenty-fifth week of gestation, and its level of hearing toward the thirty-fifth week approaches that of an adult’. Several studies have shown that children are already able to recognize change of sounds and show preference for their mother’s voice although they are still inside their mother’s womb (see, for instance, DeCasper & Spence, 1986 and Lecanuet & Granier-Deffere, 1993). In the first month after birth, children are able to distinguish their mother’s voice from others and display a clear preference for it. They are also able to differentiate between their L1 and other languages while favouring the former. Between the age of one month to five months, children start to perceive changes in intonation patterns and are able to identify syllables in different utterances. They also develop the ability to classify speech sounds even with varying intonation patterns. From five to seven months, children display a clear preference for ‘motherese’. Motherese describes “the modulations of the prosody and voice of mothers (or other adults) speaking to babies” and should not be confused with ‘baby talk’ which refers to “the simplification of vocabulary, syntax and the form of the words of the language addressed to a slightly older child, without, however, neglecting the modes of intonation that are associated with it” (Boysson-Bardies, 1999, p. 82). During the same time period, children also start to recognize prosodic cues of clauses in different languages and are capable of classifying vowels according to their L1. Between the ages of eight to ten months, children start to perceive phrase boundaries and start to understand words in context. Further, they still show a preference for words that follow the stress and prosodical patterns of their L1. From ten months onwards, they start to recognize word boundaries and are able to identify known words regardless of the context they occur in. On average, children are capable of understanding around thirty words between the ages of ten to twelve months. Between the ages of twelve to sixteen months,
children are capable of comprehending 100 to 150 different words, as well as understanding the notion of sentences and simple sentences. During the ages of sixteen to twenty months, children’s perceptive vocabulary will reach up to 200 on average and children learn to differentiate word categories. From twenty to twenty-four months, children gain an understanding of relations and are able to comprehend the syntactic order of words in sentences that are consistent in context, semantics and prosody. Children’s productive speech ability starts with the first cry after birth. Following that, it manifests itself in cries, wails, as well as sounds of comfort and discomfort for the first month after birth. The first articulation of laughter, as well as the production of various glottal and vowel sounds can be observed between the age of one to five months. By the age of five months, most children are able to control phonation and are capable of playing around with, as well as imitating, various sounds. Around seven months, the beginning of babbling occurs. At first, the babbling will be made up of repetitive, rhythmic vowel and consonant constructions, but over the following months its intonation patterns will be more and more influenced by the children’s L1. Most children utter their first word around the age of ten to twelve months, although babbling mimicking sentence-like intonation will continue up until the age of sixteen months. Initially, the acquisition of words is rather slow, as only a few words get added to their productive vocabulary each month. At sixteen months the productive vocabulary of the average child is only made up of around fifty words that are mainly nouns. However, once the productive lexicon has reached 50-100 words, most children display a rapid burst in their vocabulary growth and an enhanced production of verbs and expressions can be observed. (Dapretto & Bjork, 2000) This sudden spurt in vocabulary growth is commonly referred to as vocabulary spurt or vocabulary burst (see, for instance, Bloom, 1973; Nelson, 1973; and Bates et. al, 1988; Qi, Di Biase & Campbell, 200; and Qi, 20011) and usually takes place somewhere between the ages of 20 to 24 months. As a consequence, the productive vocabulary of the average child is made up of around 300 words at the age of 24 months. At the same time, children also start to utter their first two- and three-words sentences. (Fenson, Dale, Reznick, Bates & Thal 1994; Boysson-Bardies 1999)
2.3 **German L1 development**

The acquisition of German is well documented in the studies and literature concerned with L1 acquisition and has been studied for more than a hundred years now. Stern & Stern (1924), for instance, conducted a diary-study with their two German L1 children and were the first to observe that children go through stages in their language development. More than half a century later, Clahsen (1982) proposed four stages as a developmental sequence for the acquisition of German word order by L1 learners, which still serve as a reference for many other research studies. This section first provides a general overview of German L1 development. Next, it discusses the findings of research concerned with the acquisition of declarative structures in more detail, as they impinge on the current study. Last, it takes a look at the acquisition of interrogative structures by German L1 children. This area of children’s syntactic development is of particular interest for the study, as the formation of questions requires some flexibility in the canonical word order, as it involves the placement of a constituent other than the subject in sentence-first position, that is the focus-position.

### 2.3.1 General German L1 development

Similar to the acquisition of any other L1, the acquisition of German can be divided into several stages through which children have to go in their linguistic development. Clahsen (1991, p. 38) points out that:

> each phase has a number of linguistic features. These feature-sets are said to describe the invariant aspects of each phase of acquisition. The developmental sequence’s five stages cover the area of child language learning to the age of about 3.5 years; that is, from one-word utterances to subordinate clauses in phase V. Within this period of time the children learn the most important syntactic rules and some aspects of German morphology.

Following Brown (1973), Clahsen (1986) put forward a developmental sequence of five stages for the acquisition of the most important morphosyntactic features of the German language and a rough estimation for the average MLU value at each stage, see Table 2.1. Each stage is described in more detail below, although it should be noted that the description is limited to those aspects relevant to this study.
Table 2.1  *Clahsen's (1986) five stages of German L1 acquisition and their average MLU values*

<table>
<thead>
<tr>
<th>Stage</th>
<th>MLU</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>one-word</td>
<td>Mostly one-word utterances</td>
</tr>
<tr>
<td></td>
<td>stage</td>
<td>≈ 1.0</td>
</tr>
<tr>
<td>Stage 2</td>
<td>1.0-2.0</td>
<td>Two-word utterances ≈ one-word and multiple-word utterances</td>
</tr>
<tr>
<td>Stage 3</td>
<td>2.0-3.0</td>
<td>Mostly multiple-word utterances</td>
</tr>
<tr>
<td>Stage 4</td>
<td>3.0-4.0</td>
<td>Mostly multiple-word utterances</td>
</tr>
<tr>
<td>Stage 5</td>
<td>&gt; 4.0</td>
<td>Mostly multiple-word utterances</td>
</tr>
</tbody>
</table>

*(after Clahsen, 1986, p.74)*

**Stage 1**
Children generally utter their first one-word utterances between the age of 1;0 years and 1;8 years. The utterances at this stage usually “refer to an object, action, appearance/existence/demonstrative, negation, and position”, but utterances that refer to an “agent, benefactor, possession, and disappearance: also occur although less frequently” (Mills, 1985, p. 153). The grammatical category predominately used is nouns, followed by verbal particles and the two deictic elements *da* (‘there’) and *hier* (‘here’). At this stage, the noun lacks specifiers and determiners. They are usually produced in the unmarked singular, unless they are commonly used in plural, for example, *Schuh-e* (‘shoes’). Verbal particles are common and often replace the full verb, for instance, *auf* (‘open’) for *aufmachen* (‘make open’). However, if a full verb is used, it usually occurs in the infinitive form; that is with the ending *–en*.

**Stage 2**
Stage 2 marks the beginning of the production of two-word utterances, although one-word utterances still make up a large part of children’s speech production. Children usually start to produce their first two-word utterances between the age of 1;6 years to 2;0 years. The main characteristic of children’s speech at this stage is its ‘telegraphic’ style, as most utterances only contain ‘content words’ (nouns, verbs, adverbs, adjectives), while lacking ‘function words’ (articles, auxiliaries, copulas, prepositions) at the same time. (Collings, 1990, p. 26) Utterances do not follow German word order yet, but rather “a set of universal semantic-syntactic modes of
constructions” which consists of “seven specific structures based on semantics and syntax” (Collings, 1990, p. 26), see (18).

(18) a. nomination
Rudi das
‘Rudi this’
(=This is Rudi.)

b. actor action
Schinken aufessen
‘ham eaten’
(=The dogs have eaten the ham.)

c. object location
hier Tisch
‘here table’
(=Here is a table.)

d. action location
in Schrank stellen
‘in cupboard put’
(=D. is putting the train into the cupboard.)

e. attribution
putt Schaukel
‘broken swing’
(=The swing is broken.)

f. possession
Titti Fell
‘teddy bear fur’
(=The teddy bear’s fur is soft.)

g. request
Wasser haben
‘water have’
(=D. wants water.)

(after Collings, 1990, p. 27)

At this stage, the verb is usually placed behind the other element present in an utterance and, according to some researchers (e.g. Clahsen 1991; Mills 1985) that indicates that the dominant word order during the two-word stage is V-final word
order if a verb is present. Clahsen (1991) points out that this shows that German L1 children already have a conscious idea about the underlying word order of German (i.e. SOV) at this early stage. However, this claim is debatable; as in a two-word utterance the sentence-second and sentence-final position refer to the same place. Thus, it is not possible to say whether a child, consciously or not, places the verb into sentence-second or sentence-final position at this stage.

Nouns are still mostly used in the unmarked singular, although the use of some plural forms also occurs. Yet, Mills (1985, p. 154) points out that these plural forms “appear to be examples of rote learning, [...] rather than a production by rule”. Verbs are still used in their infinitive form most of the time. However, the first development of subject-verb agreement can also be observed, as children infrequently apply the third person singular ending –t to the verb, if the agent is expressed beforehand. They also start to produce past participles, which are placed correctly into sentence-final position. However, those are frequently incomplete and more often than not it is unclear whether they refer to past time. Verbal particles are still regularly used at this stage, while auxiliaries and modal verbs start to appear, but they are used very infrequently.

Stage 3
Most children go through Stage 3 between the age of 2;0 years and 2;6 years. There appears to be a major increase in MLU at this stage, as children produce a greater amount of three- and multi-word utterances that exceeds the number of one- and two-word utterances combined and according to Collings (1990), it is a transitional stage in which no significant grammatical changes occur. Yet, the findings of the current study strongly disagree with the claim that nothing happens at said stage, as this is the time where word order starts to play a more significant role than before.

With regard to word order, Collings (1990, p. 30) points out “that adverbs at this stage can still not be placed sentence-internally but appear either in first or second position”. Nevertheless, children now restrict themselves to those syntactic constructions that are ‘possible’ in the German language, as they start to pay attention to the syntactic restrictions in the linguistic input they receive. In other words, at Stage 3 their language becomes ‘input orientated’. (Clahsen 1986, Collings 1990) Yet, children do not simply copy the structures provided in the input, but rather modify them to their own level of syntactic development. Thus, while they restrict
themselves to the ‘possible’ syntactic structures of German, they do not necessarily apply them in the correct syntactic context. That is, on some occasions, the finite verb is still placed into sentence-final position in the main clause, as in (19).

(19) da männlein fehlt
    ‘there little man miss’

    (A little man is missing there.)

    (after Collings, 1990, p. 31)

Although German allows for the finite verb to be placed in either second- or final-position, the example above still violates German word order rules. It is only ‘possible’ for the verb to occur in sentence-final position in embedded clauses, but not in the main clause.

In regard to verbs, children start to use the first person singular ending –e, which they also tend to oversupply in contexts that do not require it. Further, they still overgeneralise the use of verb inflections, though they mostly cease to use the infinitive form –n in a third person singular context.

**Stage 4**

Children reach Stage 4 around the age of 2;6 years to 3;0 years which Collings (1990, p. 33) considers to be “the turning-point that enables the child to fulfil all of the requirements concerning word order in standard German main clauses”. The use of subjects is now obligatory and almost all finite-verbs are placed correctly in sentence-second position. Mills (1985, p. 156) points out “with the placing of the verb in second position after the first element in the sentence, the marking of person becomes common and is usually correct. Up until now, children generally have acquired all verb endings (-0, -e, -t and –n), except that for second person singular (-st) which, however, is acquired at this stage at last. Auxiliaries and modals also start to emerge and are usually placed in second position, while the main verb is placed correctly in final position.” (Mills, 1985) Moreover, children regularly overgeneralise irregular parts of the verb at this stage. For example, “in the past participle the regular ‘weak’ form is overgeneralized to the irregular ‘strong’ verbs to produce errors such as *gegeht instead of ge-gang-en from geh-en ‘to go’” (Mills, 1985, p. 156).
Stage 5

Around the age of 4, children start to produce utterances that consist of more than a single clause. Subordinate and coordinate conjunctions appear around the same time and therefore it is not possible to determine the order of their acquisition. (Collings, 1990) Yet, at this stage, according to Collings (1990), children only express a fixed set of four different types of accessible notions (namely, additive, adversative, causal and temporal.

At this stage, children also still have difficulties with all the irregular parts of the language. In regards to nouns, they still make mistakes in the plural marking, as they usually overgeneralise the regular plural form –en. In regards to verbs, they still make frequent mistakes in supplying the past tense of irregular verbs and also tend to overgeneralise the use of the auxiliary haben with verbs that require the use of the auxiliary sein. (Mills, 1985)

2.3.2 The acquisition of declarative structures by German L1 children

In the early 1980s, Clahsen (1982) conducted a longitudinal study with three German L1 siblings, the twins Mathias and Daniel (age: 1;6 to 3;7 years) and their younger sister Julia (age: 1;2 to 2;5 years). Based on the findings of this study, Clahsen (1982) proposed a four-stage developmental sequence that all German L1 children supposedly go through after they start to produce multi-word-utterances. This developmental sequence is summarised in Figure 2.2 and described in more detail below.

<table>
<thead>
<tr>
<th>Stage 1: variable word order</th>
<th>Stage 2: SOV</th>
<th>Stage 3: V-2nd and SV-agreement marking</th>
<th>Stage 4: subordinate clauses (without any mistakes in the positioning of the verb)</th>
</tr>
</thead>
</table>

Table 2.2 Clahsen’s (1986) developmental sequence for the acquisition of German word order by L1 children

Stage 1: variable word order

At Stage 1, children use a variable word order, as they do not organize the various constituents of a sentence in any particular order. However, all verbal elements are either placed in sentence-second or sentence-final position, but not at the front of the sentence, see examples (21) and (22).
Stage 2: SOV
During the second stage, the sentence-final position is now regularly occupied with verbal elements that contain non-finite parts such as particles. Finite verbs are still placed into either sentence-second or sentence-final position, although children still tend to favour sentence-final, see examples (23) and (24).

(23) Deckel drauf tun
    ‘cover on put’
    put a cover on

(24) Purzel Pierkorb rausräumen
    ‘Purzel paper basket remove’
    Purzel removes the paper basket

Stage 3: V-2nd and SV-agreement marking
At Stage 3, all finite verbs occupy the sentence-second position. Furthermore, children are now able to separate finite and non-finite parts of verbal elements from each other, as they appear now in discontinuous word order, see examples (25) and (26).

(25) ein Schiff muss du erst jetzt bauen
    ‘a ship must you firstly now build’
    you must build a ship just now

(26) die Schere hat Julia
    ‘the scissors has Julia’
    Julia has the scissors
Stage 4: subordinate clauses (without any mistakes in the positioning of the verb)

Children always place finite verbs correctly into sentence-final position, as soon as subordinate clauses emerge in their language production, see example (27).

(27) ich will mal sehen ob das schwarz ist
‘I want see whether this black is’

I want to see, if this is black

(examples after Clahsen & Muysken, 1986, pp. 98-99)

Clahsen’s developmental sequence for German L1 syntax is widely accepted among linguists. Among other things, it was utilized by Clahsen and Muysken (1986) to explain the fundamental difference in L1 and L2 acquisition, which has already been discussed in more detail in Section 2.1.2. It was also used as a basis for the developmental stages in German L1 in Processability Theory (Pienemann, 1998a&b, Pienemann et al 2005), which will be introduced in Chapter 3. Yet, Clahsen (1986, pp. 12-13) himself points out that this developmental sequence is only an assumption since all stages still require further investigation and, thus, a possible revision:

Above all, a representative cross-sectional study is missing in which all the assumed developmental stages can be tested with a great number of children. I think that the attempt of a “descriptive synthesis” is possible by means of the mentioned investigations, although there are some gaps in the available material. Yet, the generalisations we gain have to be verified through additional control investigations. [...] It is possible, that some of the developmental stages have to be revised, as soon as some more extensive results of language acquisition research are available.3 (Clahsen, 1986, pp. 12-13)

Moreover, the findings of other researchers also suggest that at least a partial revision of Clahsen’s (1982) developmental sequence of the acquisition of German L1 word order is necessary. First, according to Clahsen (1982 & 1986) and Collings (1990), children do not make any mistakes in the positioning of the verb in embedded clauses. Collings (1990, p. 38) states that “as soon as embedded clauses emerge, finite verbal elements, whether simple or discontinuous, are placed correctly in sentence-final

---

position.” Yet, other researchers (e.g. Mills 1985; Penner 1994) consider this claim to be an ‘idealization’, rather than the norm. Mills (1985, p. 166) observed that although “there are generally few word-order errors reported in subordinate clauses, older children still make errors in subordinate clauses where two or three verbal elements have to be ordered”. Penner (1994, p. 38) goes even further, as he calls Clahsen’s (1982) claim that children acquire the word order of subordinate clauses without making any mistakes in the placement of the verb an ‘idealization’. Penner (1994, p. 38) points out that “while most of the children ‘correctly’ place the inflected verb in the final position in subordinate clauses, some children systematically invert in the same environment”. This claim is backed up by findings of Penner’s (1990) own studies, as well as by findings of other studies, see, for instance, Gawlitzek-Maiwald, Tracy & Fritzenschaft (1992) and Müller (1992). Second, in a more recent study, Tracy (2008) suggests that in between the four major syntactic stages, most children also go through smaller intermediate stages. Besides negation, Tracy (2008) also lists the acquisition of interrogative structures as an additional stage, which will be looked at in more detail in the following section. Last, Collings (1995, p. 31) points out that during Stage 3 of the five stages of the grammatical development of German L1, children occasionally use the structure XP+SV, a structure that does not conform to the rules of German grammar, but is a defining stage in German L2, but not L1 acquisition. Wirbatz (2008) re-analysed parts of the same data set analysed by Clahsen (1982) and showed that at least one of the children at the age of 2;3.21 years went through a phase in which she nearly exclusively applied this structure to multi-word utterances. The structure was also found in the data of the two other children, although to a lesser extent, as they were already 2;9 years old at the beginning of the analysis. Yet, Clahsen (1982) does not mention the use of the structure XP+SV in his developmental sequence of the acquisition of German L1 word order. Studies from other languages focusing on the acquisitional path of L1 children from other V2-languages, such as Swedish and Dutch, have also reported the occurrence of the structure XP+SV in the children’s data, yet, it usually has not been dealt with more specifically or it was dismissed as an aberration. Håkansson’s (2005) study of the development of Swedish word order in L1 (normal and impaired) and L2 learners, for instance, serves as a good comparison to the current study, as it also analysed the interlanguage of the L1 and L2 learners on the basis of processability. Similarly to German L1 children, Swedish L1 children also start out with variable word order, but
as soon as finite verbs are used, they are placed correctly in sentence-second position. Håkansson (2005, p. 189) points out that “the three structures, (i) dissociation between verb morphology and verb placement, (ii) problems with separating particle and verb, and (iii) use of non-inversion after an initial element” have been found in L2 acquisition, but that there has been no evidence for them in L1 data. Only one single occurrence of non-inversion after an initial adverb by one out of the five Swedish L1 children was found in the data, but it was dismissed as an aberration in the data. Yet, it should be noted that the child was aged 3;0 when the structure XP+SV was used. However, according to the data analysed in Wirbatz (2008), the German child was mostly using XP+SV during the very early stages of her linguistic development; that is roughly around the age of 2;3 to 2;4 years, while it was replaced later on in her development with XP+VS. The data of the Swedish L1 children date around the time when the youngest was about 2;7 years and the oldest 3;1 years and therefore the Swedish children’s data may have been collected a little late to compare them with the data from Wirbatz (2008) and the current study.

Another study that looks into the acquisition of word order in another V2-language is Wijnen and Verrips’ (1998) study of the syntactic development of Dutch L1 children. Wijnen and Verrips (1998, p. 11) conclude that the acquisition of Dutch verb placement can be divided ‘by and large’ into three phases at a descriptive level, whilst also pointing out that “the onset of the second phase is marked by the appearance and subsequent numerical increase of finite verb forms in ‘V2’ (i.e., first or second)”. A ‘subsequent numerical increase of finite verb forms in V2’, however, does not necessarily mean that the finite verb is correctly placed in sentence-second position from the beginning. Indeed, it may rather imply the contrary. Therefore, Wijnen & Verrips’ (1998) findings according to their current description cannot be counted as evidence to rule out the possibility that children acquiring a V2-language other than German also favour the structure XP+SV over XP+VS at least in the early stages of their linguistic development.

2.3.3 The acquisition of interrogative structures by German L1 children

The acquisition of interrogative structures by German L1 children has also been the focus of numerous research studies, although to a lesser extent than the acquisition of declaratives.
Tracy (1994) observed the following developmental sequence for constituent-questions of a German L1 child aged 1;11 years to 2;4 years: From the ages of 1;11 years to 2;0 years, all the constituent questions the child produces appear in gap format, that is, the wh-word is missing. There are only three occasions where the child places a wh-word in sentence-first position followed by the verb in sentence-second position. Yet, in two of these three occurrences, the child reverts right away to a gap format, see example (28).

(28)  Wo is noch ein wagen...wagen is
      where is another car...car is

      (after Tracy, 1994, p. 17)

Tracy (1994, p. 17) concludes that those findings strengthen the assumption that at this stage it is not a matter of the position of the verb at all, as the child is still uncertain about the correct verb placement in German constituent questions. From the age of 2;0 years to 2;2 years, the child almost exclusively places the verb into sentence-final position in questions, with only one occurrence of V2. Tracy (1994, p. 13) points out that “there are a number of expressions which function as constituent questions in that they reliably elicit answers even though they lack a wh-operator” and follow the pattern SV, as inversion does not take place. It seems that wh-operators are optional at this stage, as the child produces questions that both contain and lack question-words.

At the age of 2;3 years, the child relies on V2 and V-final in constituent questions after placing the wh-operator in sentence-first position. The majority of the constituent questions follow the V2nd pattern; that is fourteen in total, whereas there are only six questions with the verb in sentence-final position. (Tracy, 1994)

At the age of 2;4 years, there is only one occurrence where the child still places the verb in sentence-final position in a constituent question. In all other questions the verb is always correctly placed into sentence-second position. Tracy (1994) also refers to the findings of other longitudinal and cross-sectional studies (Grimm 1973; Wode 1976) that showed that children place the verb in sentence-final position after a wh-operator in focus-position, when they start to produce constituent questions.

Tracy (2008) adds that children place the verb into sentence-final position, as they
orientate themselves to the word order of indirect questions in German, see example (29).

(29) du willst wissen, was die Mama einkauft?
    ‘you want know what the mummy buys?’
    *you want to know what mummy buys?*

(after Tracy, 2008, p. 95)

This, however, is a rather premature explanation since children at this age “do not have a truly general understanding of SVO order” (Akhtar & Tomasello, 1997). Thus, it is rather unlikely that they can distinguish between direct and indirect questions or are moreover able to make a conscious decision about which word order to use.

_Felix (1980)_

Felix (1980) observed a similar pattern to Tracy (1994) in the acquisition of the sentence structure in constituent questions. Felix (1980) investigated the speech development of a German boy aged 2;7 years over a period of four months who seemed to have already acquired the inversion rule for Y/N-questions, but was still at the beginning of the acquisition of constituent-questions. The first constituent-questions produced by the child show that he correctly inverts subject and verb without, however, fronting a wh-pronoun. The production of wh-questions without wh-words was also observed by Wode (1976) who defines this type of question as Stage 2, following the use of one-word questions with a rising intonation at Stage 1. Wode (1976) points out that at Stage 2 questions were still solely marked by a rise in intonation, as the children did not apply subject-verb inversion at that time. Yet, the child in Felix’s (1980) study does invert subject and verb, which suggests that he has already acquired the inversion rule at this stage. Shortly after, the child begins to produce the first constituent questions containing a wh-word that are fronted by _wo_ (‘where’) or _was_ (‘what’), although those two wh-pronouns are used “only holophrastically or in copular structures” (Felix, 1980, p. 104). At this stage, questions without a wh-pronoun still occur. Further on, the child also starts to use wh-pronouns in main verb wh-questions, see example (30).

(30) wo du gehst?
    (where you are going?)

(example after Felix, 1980, p. 105)
Interestingly enough, at this stage the child is able to correctly front a wh-pronoun, but has to retreat back to declarative word order, that is subject and verb are not inverted. That is, the boy does not learn subject-verb inversion after the placement of a wh-pronoun into sentence-first position until later on.

Bellugi (1971) reported something similar for the acquisition of questions in English L1. According to her, English L1 children go through a stage in which they correctly invert subject and verb in Y/N questions, but fail to do so in constituent questions. Bellugi (1971) argues that the formation of constituent questions is harder to process for children since it involves two steps since a wh-word needs to be moved to sentence-first position and an auxiliary has to be placed before the subject in sentence-second position. The formation of Y/N questions, on the other hand, only involves one step regarding the auxiliary verb; that is, an auxiliary has to be moved into sentence-first position followed by the subject in sentence-second. It also appears that the inversion of subject and verb in constituent questions occurs gradually for specific wh-words. Kuczaj & Brannick (1979, p. 43) add that it appears “that children learn to apply this rule [Subject-Aux Inversion, DI] to questions beginning with one or two wh words, then to questions beginning with another wh word, and so on, rather than to all relevant question types simultaneously, indicating that the acquisition of this syntactic rule is initially relatively specific”.

Clahsen (1982)

Clahsen (1982, p. 78) does not give a detailed account of the acquisition of interrogative structures, as the children did not produce enough questions during the time of his study in order to allow a detailed analysis. Despite the small amount of evidence, Clahsen (1982, p.79) proposes three stages for the acquisition of German interrogative structures that are related to those formulated by Wode (1976). During Stage 1, questions consist of one-word utterances with a rise in intonation. At Stage 2, children start to produce Y/N and constituent questions, even though they omit the wh-word and only invert subject and verb occasionally. Questions are still mainly marked by a rise in intonation. Finally, at Stage 3, children place a wh-word in sentence-first position, while simultaneously inverting subject and verb. Clahsen (1982, p. 81) concludes that there is no independent developmental sequence for the inversion in Y/N- and constituent questions. That is, children do not acquire inversion
in questions as separate syntactic phenomena that differ from the acquisition of verb placement in other sentence types.

Collings (1995)

Collings’ (1995) view of the acquisition of question structures is closely modelled on Clahsen’s (1982). Yet, Collings points out that as soon as children learn to place the finite verb correctly into sentence-second position, they are able to apply this rule to any relevant context that includes interrogative utterances. Collings argues that children do not go through any additional stages in their acquisition of interrogative structures that differ from the stages of their overall syntactic development. Or, as he puts it, “why should four rules be learned if all of them deal with the same thing, namely the verb taking sentence-second position, i.e. one rule each for verb-second placement in subject-verb utterances, utterances having a topicalised complement, alternative questions, and interrogative utterances opened by a question word” (Collings, 1995, pp. 34-35).

Yet, based on the findings of other studies accessed in this literature review (see, for instance, Felix 1980; Penner 1994; and Tracy 1994 & 2008), it might be more reasonable to ask a question that follows Collings (1995) train of thought, but addresses the overall syntactic development of German L1 children, rather than only the acquisition of interrogative structures. It seems plausible that German L1 children acquire the word order of interrogatives not separately but on the basis of the structure of declarative sentences, especially from those including a constituent other than the subject in sentence-topic position. Thus, the question that should be asked should focus on the overall syntactic development of German L1 children; that is, can the developmental stages proposed for question acquisition (cf. Felix 1980, Penner 1994, Tracy 1994 & 2008) also be found in the general syntactic development of German children?

Based on the discussions above that looked at previous German FLA research concerned with the acquisition of declarative and interrogative structures, it is apparent that there are still some gaps that require further investigation. Thus, the current study intends to bridge one of the remaining gaps by explicitly focusing on the period of time in children’s syntactic development in which word order starts to play a crucial role. That is, the period of time when they transition from two-word
utterances to three-word or more utterances, which usually takes place between the ages of 2;1 to 2;4 years.

2.4 Summary

This chapter provided the necessary theoretical background for the present study that focuses on German L1 children’s syntactic development and the fundamental differences between FLA and SLA. The following chapter introduces the theoretical framework employed for this study and presents the research questions and hypotheses.
Chapter 3
Theoretical framework

3.0 Introduction

The previous chapter provided a brief description of relevant characteristics of German, as well as an overview of previous research concerned with German L1 acquisition and a summary of the discussion regarding the fundamental differences in L1 and L2 acquisition. This section includes an overview of the theoretical framework employed for this study. At the end of this chapter, the research questions are presented which are derived from the research gaps identified from the review of literature and theoretical framework. Also, hypotheses are presented. Section 3.1 presents an outline of PT (Pienemann 1998a; Pienemann et al. 2005; Bettoni & Di Biase 2012) including a brief sketch of its two feeder theories; that is Levelt’s (1989) model of speech production and LFG (e.g., Bresnan 2001). Section 3.2 contains an application of PT to German L1 and L2 acquisition. Section 3.3 presents the research questions and hypotheses formulated for this study and Section 3.4 concludes the chapter.

PT (Pienemann 1998a; Pienemann et al. 2005; Bettoni & Di Biase 2012) was chosen as the theoretical framework for this study for various reasons. Firstly, PT is a universal framework that aims to determine and explain the developmental sequences involved in language acquisition. This study’s main focus is on the syntactic development of L1 German children, but it also looks at one aspect of their morphological development, namely SV-agreement. Thus, PT was chosen as the theoretical framework, as it explains the developmental stages of language acquisition with regard to syntax, as well as morphology. Secondly, PT interprets the relation between language processing and language acquisition, rather than focusing on language-specific structures. That is, it can be applied to any language. This claim is supported by strong empirical evidence, as PT has been tested and applied to the
acquisition of various typologically different second languages, such as German L2 (Pienemann, 1998a&b), English L2 (Pienemann, Johnston & Brindley, 1988), Swedish L2 (Håkansson & Pienemann, 2002), Italian L2 (Di Biase 2002, Di Biase & Kawaguchi 2002), Japanese L2 (Kawaguchi, 2002, 2010), Arabic L2 (Mansouri, 2005), Chinese (Zhang, 2002) and Serbian L2 (Medojević, 2009). Additionally, PT has also been tested and applied to the acquisition of German as a L1 (Pienemann, 1998a&b) and Swedish as a L1 (Håkansson, 2005). Thirdly, as reviewed in the previous chapter, one of Clahsen’s aims in his 1982 study was to establish a developmental sequence for the acquisition of German L1 similar to the developmental stages for the acquisition of German L2 word order proposed by the Multidimensional Model (MDM) (Meisel et al. 1981; Clahsen et al. 1983), which is a direct predecessor of PT. Lastly, PT presents an ideal framework for this study since Pienemann (1998a&b) also based his developmental sequence for German L1 word order on the stages proposed by Clahsen (1982), which therefore allows for an easy comparison.

3.1 Processability Theory

Processability Theory (PT) is a psycholinguistic theory of language development based on language processing, which has been developed from former related approaches, which are summarised in Table 3.1. For the purpose of this study, the information provided in the table should suffice, although the interested reader is encouraged to consult Pienemann (1998a & 2005) for a more detailed description of PT’s predecessors and relatives.
Table 3.1  *PT and its predecessors and relatives (Pienemann, 2005, p.72)*

<table>
<thead>
<tr>
<th>Model</th>
<th>Key references</th>
<th>Key concept</th>
<th>Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multidimensional Model</td>
<td>Meisel, Clahsen &amp; Pienemann, 1981; Pienemann, Johnston &amp; Meisel, 1993</td>
<td>- implicational scaling, - probabilistic rules, - emergence criterion, - two dimensions in L2 dynamics: (1) development (2) variation</td>
<td><em>descriptive framework for dynamic processes in L2 development</em></td>
</tr>
<tr>
<td>Strategies Approach</td>
<td>Clahsen, 1984</td>
<td>development of L2 German word order determined by shedding of processing constraints</td>
<td>explanation of German L2 word order development</td>
</tr>
<tr>
<td>Teachability Hypothesis</td>
<td>Pienemann, 1984, 1989</td>
<td>stages of acquisition cannot be skipped through instruction, variation can be altered, speed can be accelerated</td>
<td>explains constraints on teachability, originally German L2 word order development, based on strategies, universal since based on PT</td>
</tr>
<tr>
<td>Predictive Framework</td>
<td>Pienemann &amp; Johnston, 1987</td>
<td>development of ESL morpho-syntax determined by incremental development of processing resources</td>
<td>explains developmental patterns in ESL and GSL morpho-syntax</td>
</tr>
<tr>
<td>Processability Theory</td>
<td>Pienemann, 1998, 2003</td>
<td>- processability hierarchy modelled in linguistic theory (LFG), - hypothesis space constrains development and variation (testable), - factorisation and other refined descriptive methods, - partial transfer hypothesis (DMT), - task variation: steadiness hypothesis, - stabilisation: bad choice hypothesis, - L1-L2 differences, - basis for L2 profiling</td>
<td>universally explains L2 development in syntax and morphology</td>
</tr>
</tbody>
</table>

Note that this is a hypothesis within MDM, but not a theory/approach by itself, although Pienemann (2005) listed it separately.
PT started out as a theoretical framework that explained second language (L2) acquisition, but Pienemann (1998a&b) and Håkansson (2005) showed later on that it could also interpret the developmental sequence of L1 acquisition. PT posits that language acquisition is a hierarchical process and that every procedure in the lower stage in the hierarchy is a prerequisite for the next stage and language learners will be able to produce a certain structure only if their language processor can handle it at that stage. Further, PT assumes that there are four primary psychological factors in language processing for fluent speech. These four premises are summarised below after Pienemann (2005, pp. 3ff).

1. **Processing components are relatively autonomous specialists which operate largely automatically.**

The first premise accounts for the speed of speech. Processing components need to work automatically in order to achieve the speed of fluent speech, which, according to Levelt (1989, p. 70), is around 2 to 3 words per second in a normal conversation. They also need to work autonomously on highly specific tasks, such as information exchange within a VP, in order to enhance the processing speed necessary for fluent speech.

2. **Processing is incremental.**

This premise states that the conceptualizer can start processing new information before previous information has been processed completely, since the processing components work simultaneously alongside each other. The parallel working of the language processors is called ‘incremental processing’ (Kempen and Hoenkamp 1987) and it accounts for the speed of fluent speech. Moreover, based on this incremental nature, each processing component can only see a small part of the whole language-processing event, rather than the whole process.

3. **The output of the processor is linear although it may not be mapped onto the underlying meaning in a linear way**

The third premise explains the interrelation between non-linearity and memory. Levelt (1989) points out that the order of clauses does not necessarily match the actual order of events, as in the example shown in (1).
Before Nina went to the beach, she called Agnes.

In the example above, the first clause described an event that happened after the one in the second clause. Thus, in order to produce this type of sentence, the speaker needs to store propositional content in memory. Moreover, information also needs to be stored in sentences that involve agreement, such as SV-agreement, see (2).

Nina sings a song.

Note that in (1) the speaker needs to store propositional content, whereas in (2) the speaker has to store grammatical information.

4. Grammatical processing has access to a grammatical memory store that can hold grammatical information.

Both propositional content and grammatical information need to be stored temporarily in order for the speaker to be able to generate a message. Yet, there is a great difference between those two types of information. Grammatical information is highly specific and the speaker does not need to pay (conscious or unconscious) attention to it in order to be able to store it. That is, the speaker does not need to be aware of the fact that the ‘person’ and ‘number’ information between the subject and verb matches. However, focus must be placed on the propositional content, since it represents the planned conceptualisation the speaker wants to articulate.

In order to explain how the processor handles language production and what languages are like, PT relies on two feeder theories. (Bettoni & Di Biase, 2012) For language production, PT relies on Levelt’s (1989) model of speech production, whereas for language description, it relies on Bresnan’s (2001) LFG. The most important aspects of these two feeder theories in regards to PT will be summarised in the following two sections, before explaining PT’s hierarchy of processing procedures in more detail.

3.1.1 Levelt’s model of speech production

This section provides a brief overview of Levelt’s (1989) model of language production, which is one of PT’s two feeder theories.

Levelt’s (1989) model suggests that speech production involves various components from conceptualisation to articulation. Each of the four autonomous processing components is claimed to transform their characteristic input into their characteristic
output which in turn becomes the input for another component. Figure 3.1 shows Levelt’s (1989) model of language production and its four components; that is, the Conceptualiser, the Formulator, the Articulator, and the Speech-Comprehension System. Note that processing components are represented in boxes, whereas knowledge stores are denoted in a circle or an ellipse.

![Diagram of Levelt's model of language generation](image)

**Figure 3.1 Levelt’s model of language generation (Levelt, 1989, p. 9)**

In the Conceptualiser, preverbal messages are generated which provide the input for the Formulator which then translates this conceptual structure into a linguistic structure. This translation takes place in two steps. First, the grammatical information of a message is encoded in the Grammatical Encoder. Then, a phonetic plan is
created on the base of this surface structure in the Phonological Encoder. Following that, the phonetic plan is unfolded and executed in the Articulator, which results in overt speech. Lastly, the Speech-Comprehension System allows the speaker to monitor his own production, as it makes self-produced internal and overt speech available to the conceptual system. (Levelt, 1989)

For PT (Pienemann 1998a), the concept of the Formulator (see Figure 3.2) of Levelt’s (1989) model of speech production is of especial interest, as the production of morpho-syntax takes place there and procedural knowledge of the lexicon is stored in the Grammatical Encoder.

![Figure 3.2](image)

Figure 3.2  *Levelt’s Model: Language production from preverbal message to phonetic plan (after Levelt 1989: 9)*

However, in the updated version of PT (Bettoni & Di Biase 2013), more importance is also placed on the Conceptualiser, since PT now also includes a pragmatic/discourse-syntax interface. In the conceptualiser, the form of the message gets planned. Speakers have to select the language and register that they want to produce an utterance in it and they also need to choose an appropriate speech act, et cetera. Bettoni and Di Biase (2013) point out that the construction of this preverbal message does not present a problem for L2 learners since they can use the same conceptualiser they already use for their L1.

Levelt’s (1989) original ‘blueprint for the speaker’ underwent several changes over the years and in 1999 Levelt, Roelofs and Meyer proposed a new version of the speech model, see Figure 3.3.
In light of PT, the most relevant change is the addition of Roelof's (1992) lexical retrieval network model into the theory of lexical selection. While Levelt's (1989) original speech model was only concerned with lemma and form, Roelof's (1992) model also includes the conceptual level at the lexical access stage. Thus, in the new speech processing model, information about words is stored in the lexicon on three levels (the conceptual level, the lemma level and the lexeme level) instead of only two, which in turn allows PT to provide a more precise characterisation of the acquisition of a larger variety of features. At the conceptual level, the meaning of a word is stored. At the lemma level, the word is assigned its syntactic properties, whereas at the lexeme level, the morphological and phonological shape (that is, the
word’s formal properties) are stored. (Bettoni & Di Biase, 2013). Example (3) includes an illustration of the three levels of the lexical network for the word goat.

(3) A part of the lexical network for the word goat (after Bock & Levelt, 1994, p. 951) (taken from Bettoni & Di Biase, 2013, p. 6)

At the lemma level, characteristic information about the word goat is stored. That is, a goat is a kind of animal with horns that gives milk, and so on. At the next level, the concept level, the syntactic properties of the word goat are stored, such as features of person, number, tense, and mood. The two syntactic properties that can be assigned to the word goat are noun and singular. Lastly, at the lexeme level, the morphological and phonological shape get assigned to the word. That is, the word goat is made up of only one morpheme, but three phonological segments.
3.1.2 Lexical Functional Grammar

LFG (e.g., Bresnan, 2001, Falk 2011) is a variety of generative grammar that serves as an alternative to transformational theory. According to Pienemann (1998a, p. 44), it can be considered “a theory of grammar that represents linguistic knowledge AND is in line with cognitive features of language processing”. Further, it “has provided the framework for a substantial amount of descriptive and theoretical research on many languages” (Bresnan, 2001, p. vii), such as German (Berman, 2003), Warlpiri (Simpson, 1991), Japanese (Sells 1995; Matsumoto 1996) and Korean (Sells, 1995). As PT aims to be universally applicable to the acquisition of any language, the typological and psychological plausibility of LFG makes it therefore an optimal choice to be implemented into PT.

The following overview of LFG is mainly based on Bresnan’s (2001), Falk’s (2001), Dalrymple’s (2001) and Asudeh & Toivonen’s (2010), as well as Berman’s (2003) application of the LFG framework to the clausal syntax of German.

LFG shares with Incremental Procedural Grammar (Kempen and Hoenkamp, 1987) and Levelt’s (1989) speech model the idea that grammar is lexically driven and that it uses the mechanism of information exchange. The notion of ‘feature unification’ is employed to ensure that the grammatical features of different parts of a sentence or phrase are compatible with each other. In the sentence “Maria isst einen Apfel” (Maria eats an apple), for instance, the features of the subject “Maria” and the verb “isst” have to match in order to be grammatically correct. That is, the features NUMBER and PERSON of both the subject and the verb must have the value ‘third’ and ‘singular’. Moreover, the unification of lexical features “captures a psychologically plausible process that involves (1) the identification of grammatical information in the lexical entry, (2) the storage of that information and (3) its utilisation at another point in the constituent structure” Pienemann (1998a, p. 73).

LFG utilises three independent, but interacting levels of representation of a sentence. namely, the constituent-structure (c-structure), the argument-structure (a-structure) and the functional-structure (f-structure). The relationship of those three parallel structures are expressed by mapping principles, which is illustrated in Figure 3.4 by means of the German sentence “Maria isst einen Apfel”. Each structure is described in more detail below.
The a-structure presents information about the number and types of arguments selected by the predicate of a sentence. It is based on a universal hierarchy of argument roles which indicate who does what to whom. (Pienemann, 2007)
The a-structure for “Maria isst einen Apfel” is shown in (4).

(4) \( \text{essen} < \text{agent, patient} > \)

The f-structure of a sentence contains a collection of all the attributes, such as PRED, SUBJ and OBJ. That is, it consists of a list of grammatical information that is needed to interpret the semantic meaning of the constituent elements in a sentence. Unlike in the c-structure, the syntactic information and relations presented in the f-structure are more abstract. Its information remains more or less constant across languages, which facilitates the observation of various cross-linguistic universals. (Asudeh & Toivonen, 2010) The f-structure of the German sentence “Maria isst einen Apfel” is represented as an attribute-value matrix in Figure 3.5.

![Figure 3.5 f-structure of “Maria isst einen Apfel”](image)

The f-structure has to observe four well-formed conditions, which assure that ungrammatical sentences get dismissed. The first well-formed condition is the Completeness Condition that states that “all argument functions specified in the value of the PRED feature must be present in the local f-structure. All functions that
receive a thematic role must have a PRED feature” (Falk, 2001, p. 63). Thus, the example shown in (5) would be deemed ungrammatical by this condition since the object is missing, resulting in an incomplete f-structure.

(5) 

**”Maria mag” (Maria likes)**

```
(5) *"Maria mag" (Maria likes)

```

The second condition is the Coherence Condition, which says that “all argument functions in an f-structure must be selected by their local PRED. Any argument function that has its own PRED feature must be assigned a thematic role” (Falk, 2001, p. 63). The sentence in (6) is ungrammatical according to this condition, as the OBJ is not governed by the predicate, resulting in an incoherent f-structure.

(6) **”Maria schläfªt die Möhre“ (Maria sleeps the carrot)**

```
(6) *"Maria schläfªt die Möhre“ (Maria sleeps the carrot)

```

The Extended Coherence Condition adds the concept of coherence to non-argument functions.
Falk (2001, p. 64) formulates it as follows:

All functions in an f-structure must be incorporated into the semantics. Argument functions are subject to the Coherence Condition. Overlay functions must be identified with arguments or adjuncts. Adjuncts must be in f-structures containing PREDs.

The Uniqueness Condition, which is also known as the Consistency Condition, states that “every attribute has a unique value” (Falk, 2001, p. 64). This last condition rules out ungrammatical sentences like the one shown in (7).

(7) *"Maria essen" (Maria eat)

The SUBJ is 3rd person SG, whereas the verb form is 3rd person PL resulting in an inconsistent f-structure.

The c-structure describes the structure of the different parts of a sentence and it is directly produced by phrase structure rules. It “models the surface exponence of syntactic information, such as word order and constituency” (Asudeh & Toivonen, 2010, p. 3). Unlike the Government and Binding theory, which assumes surface and deep structures, there are no intervening levels of representation in the mapping of the predicate-argument form. The c-structure of the German sentence “Maria isst einen Apfel” is illustrated in the form of a structure tree in Figure 3.6.
Figure 3.6  *c*-structure of “Maria isst einen Apfel” with lexical entry

The German phrase structure rules relating to the sentence “Maria isst einen Apfel” are shown in Figure 3.7.

Figure 3.7  *c*-structure rules

The lexicon also plays an important role, as the information relating to each constituent in the *c*-structure displayed in Figure 3.6 is retrieved from the lexical entry of each element. Or, as Pienemann puts it “lexical entries specify a number of syntactic and other properties of lexical items by assigning values to features” (Pienemann, 1998a, p. 94), for instance SUBJECT NUMBER = singular. The lexical entries for each constituent in “Maria isst einen Apfel” are listed in Figure 3.8.
### 3.1.3 Hierarchy of processing procedures

As mentioned above, PT regards language acquisition as a hierarchical process; that is, the acquisition of each lower stage is a prerequisite to enabling a move to a higher stage. The stages proposed for language acquisition by PT have their origins in Kempen and Hoenkamp’s (1987) Incremental Procedure Grammar (IPG) which “incorporates many key features of psychological plausible language processing” (Pienemann, 1998a, p. 6). Furthermore, IPG is also one of the essential parts of Levent’s (1989) model of lexically driven language generation (see Section 3.1.1). The following hierarchy for language acquisition can be applied to any language:

1. lemma access
2. the category procedure
3. the phrasal procedure
4. the S-procedure
5. the subordinate clause procedure – if applicable

(Pienemann, 1998a, p. 7)
A word has to be added to the lexicon, before it is possible to assign its grammatical category. Next, the category procedure of said word can be called. The phrasal procedure can only be activated if the grammatical category of the head of a phrase is appointed. The function of the phrase can only be established after the phrasal procedure is acquired and its value is returned. Once the function of the phrase has been established, it can be attached to the S-node and it is also possible to store sentential information in the sentence procedure.

PT’s hypothesised hierarchy of those processing procedures is illustrated in Table 3.2, followed by a general description of each stage that is non-language-specific. In Section 3.2 the sequence will be explained further by applying it to the acquisition of German as a L2.

Table 3.2  *Hypothetical hierarchy of processing procedures (after Pienemann 2005, p. 14)*

<table>
<thead>
<tr>
<th>STAGE</th>
<th>t1</th>
<th>t2</th>
<th>t3</th>
<th>t4</th>
<th>t5</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-BAR PROCEDURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>interclausal information exchange</td>
</tr>
<tr>
<td>SENTENCE PROCEDURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>interphrasal information exchange</td>
</tr>
<tr>
<td>PHRASAL PROCEDURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>phrasal information exchange</td>
</tr>
<tr>
<td>CATEGORY PROCEDURE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>lexical form variation</td>
</tr>
<tr>
<td>LEMMA ACCESS</td>
<td>Singular words &amp; formulas</td>
<td>Singular words &amp; formulas</td>
<td>Singular words &amp; formulas</td>
<td>Singular words &amp; formulas</td>
<td>Singular words &amp; formulas</td>
</tr>
</tbody>
</table>

According to the hierarchy, learners follow a sequence of stages that is in agreement with the level of grammatical information exchange. (Pienemann, 1998a, p. 11 ff.).
Stage 1 (Lemma access)

Learners are only able to produce single words or formulae in their respective L2. They have not developed any language-specific procedures yet and therefore phrase or information exchange is not possible at this stage.

Stage 2 (Category procedure)

At Stage 2, learners are able to assign lexical category to L2 words, but they are still unable to exchange information between the elements of the sentence. For instance, a verbal morpheme representing the past tense can now be added to a verb since it can be achieved from conceptualisation, but does not require the temporal storage of information. The only syntactic structure at this stage is canonical order, which is achieved by the learners through direct mapping of the conceptual structure onto the linguistic form.

Stage 3 (Phrasal procedure)

Phrasal morphology starts to emerge and the learners are now able to exchange information between the head of a phrase and its modifiers. In regards to syntax, the learners are still relying on canonical word order. However, another constituent can now occur in sentence-first position before the subject, if the learners want to give prominence to it for discourse or pragmatic reasons.

Stage 4 (Sentence procedure)

Information exchange between phrases is now possible and learners are able to produce inter-phrasal morphemes. That is, the learners are now able to match the information between a NP and a VP. Canonical order is also freed up, which means that the learners are now able to produce sentences that are in accordance with the rules of the target grammar. Yet, information exchange between clauses is still not possible.

Stage 5 (S-bar procedure)

At the last stage, the learners are able to distinguish between the main and the subordinate clause. That is, information exchange now also takes place between clauses.
3.1.4 New hypotheses in the extension of PT

The original version of PT focused on the hierarchy of morphosyntactic structures, whereas the extended version of PT also deals with aspects of language production “that extend beyond the transfer of grammatical information modelled through feature unification” (Pienemann et al, 2005, p. 245). As a result, three hypotheses were added: the Unmarked Alignment Hypothesis, the Topic Hypothesis and the Lexical Mapping Hypothesis. (Pienemann et al, 2005). Yet, in more recent publications (see Bettoni & Di Biase, 2013) the Unmarked Alignment Hypothesis was made redundant and the Topic Hypothesis was reformulated as the Discourse Functions Hypothesis. ²

Unlike the Topic Hypothesis, the Discourse Functions Hypothesis can account for the development of interrogatives, as well as declaratives and it can also be applied to a larger variety of typologically different languages. Bettoni & Di Biase (2013, p. 37) define the Discourse Functions Hypothesis as follows:

In second language acquisition learners will initially not differentiate between grammatical functions (GFs) and discourse functions (DFs), e.g., between SUBJ and TOP. Differentiation begins when an XP is added to the canonical string in a position of prominence (e.g., the first in the sentence). This XP can be either TOP in declaratives or FOC in interrogatives leaving the canonical string unaltered. At the next stage, learners will be able to construct noncanonical strings assigning prominence to any constituent in an unequivocal way.

The learner’s syntactic development based on the Discourse Functions Hypothesis is illustrated in Table 3.3.

Table 3.3 PT: Syntactic development based on the Discourse Functions Hypothesis (after Bettoni & Di Biase, 2013, p. 38)

<table>
<thead>
<tr>
<th>STAGE</th>
<th>STRUCTURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONCANONICAL WORD ORDER</td>
<td>TOPXP marked orders</td>
</tr>
<tr>
<td></td>
<td>FOCXP marked orders</td>
</tr>
<tr>
<td>XPDF CANONICAL WORD ORDER</td>
<td>TOPXP SVO/SOV/…</td>
</tr>
<tr>
<td></td>
<td>FOCWH- SVO/SOV/…</td>
</tr>
<tr>
<td>CANONICAL WORD ORDER</td>
<td>SVO/SOV/…</td>
</tr>
<tr>
<td></td>
<td>single words; formulas</td>
</tr>
</tbody>
</table>

² Please refer to Bettoni & Di Biase (2013) for a detailed explanation concerning these changes.
The Lexical Mapping Hypothesis is derived from LFG’s Lexical Mapping Theory (e.g. Bresnan, 2001) and its original version (Pienemann et al. 2005) accounted for the mapping between the a-structure (thematic roles) and the f-structure (grammatical function). That is, it outlined the learner’s syntactic progress “away from the rigidity of canonicity to the full flexibility of the optional choices allowed by their L2 lexicon in assigning GFs to thematic roles” (Bettoni & Di Biase, 2012, p. 40). In 2013, however, Bettoni & Di Biase proposed a revised version of the Lexical Mapping Hypothesis which can be defined as follows:

In second language acquisition learners will initially map the highest available role (e.g., agent and experiencer) in the thematic hierarchy onto a minimally specified SUBJ/TOP. We call this default mapping. Then they learn to add further arguments mapped onto grammatical functions (GFs) differentiating them from SUBJ (and OBJ, if present). Finally, they learn to attribute prominence to a particular thematic role lower in the hierarchy by promoting it to SUBJ, and to defocus the highest role by mapping it onto a GF other than SUBJ, or suppress it altogether. (Bettoni & Di Biase, 2013, p. 40-41)

The learner’s syntactic development based on the Lexical Mapping Hypothesis is illustrated in Table 3.4.

<table>
<thead>
<tr>
<th>STAGE</th>
<th>CONSTRUCTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONCANONICAL MAPPING</td>
<td>passives, causatives, benefactives, exceptional</td>
</tr>
<tr>
<td></td>
<td>verb constructions, etc.</td>
</tr>
<tr>
<td>CANONICAL MAPPING AND ADDITIONAL</td>
<td>agent/experiencer, patient/theme, and/or other</td>
</tr>
<tr>
<td>ARGUMENTS</td>
<td>members of the a-structure hierarchy, such as goals</td>
</tr>
<tr>
<td></td>
<td>and locatives</td>
</tr>
<tr>
<td>CANONICAL MAPPING</td>
<td>agent/experiencer and/or patient/theme</td>
</tr>
<tr>
<td></td>
<td>single words; formulas</td>
</tr>
</tbody>
</table>

This section gave a general overview of PT and its two feeder theories; Levelt’s (1989) model of speech production and LFG (e.g., Bresnan 2001). In the next section, the theoretical framework of PT will be applied to the acquisition of German as a L2 and a L1, respectively.
3.2 Application of PT to German

Pienemann (1998a\&b) showed that the theoretical framework of PT could be applied to describe the acquisition of syntactic and morphological rules in German L2 and L1 acquisition. In this section, the stages of PT are applied specifically to the acquisition of German syntactic and morphological rules by L2 and L1 learners. This section first provides an overview of the proposed stages for the acquisition of German, followed by a comparison of the developmental sequence in German L1 and L2 acquisition.

3.2.1 Proposed stages for German L2

In this section the stages for German L2 acquisition proposed by PT (Pienemann, 1998a & 1998b) are summarized. Table 3.5 gives a general overview of the acquisitional stages for German as a L2, followed by a summarised description of each stage below. It should be noted that in this model, there is a distinction between simple S-procedure and S-procedure, as Stage 4 (S-procedure) is divided into two stages for configurational languages.

Table 3.5  
German L2 stages of syntax and morphology

<table>
<thead>
<tr>
<th>Stage</th>
<th>Exchange of information</th>
<th>Procedures</th>
<th>Word order</th>
<th>Morphology</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td></td>
<td>Subordinate clause procedure</td>
<td>V-end</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Inter-phrasal</td>
<td>S-procedure</td>
<td>INV</td>
<td>SV-agreement</td>
</tr>
<tr>
<td>4</td>
<td>Inter-phrasal</td>
<td>Simple S-procedure</td>
<td>SEP</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Phrasal</td>
<td>Phrasal procedure</td>
<td>ADV</td>
<td>Plural agreement</td>
</tr>
<tr>
<td>2</td>
<td>None</td>
<td>Lexical categories</td>
<td>SVO</td>
<td>Past-te etc.</td>
</tr>
<tr>
<td>1</td>
<td>None</td>
<td>Words</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Source: Pienemann, 1998a, p. 116)

Stage 1: Words/lemmas

At Stage 1, as proposed for all languages by PT, German L2 learners are only able to produce single words and formulaic expressions. No morphological variation is acquired at this stage. Possible structural outcomes at this stage are single constituents (e.g. “ja/nein” – yes/no) and formulae (e.g. “Wie geht’s?” – How are you?).
Stage 2: SVO
At Stage 2, the word order of the learners’ interlanguage is fixed. The canonical word order SVO is used by all German L2 learners whose L1 is SVO. (Jansen, 2008, p. 190) The possible structural outcome is shown in (8) with the sentence “Maria isst einen Apfel” (Maria eats an apple).

(8) “Maria isst einen Apfel”
    isst <x, y>
    agent theme a-structure (thematic roles)
    | | 
    subject object f-structure (grammatical functions)
    | | 
    Nina einen Apfel c-structure (word order)

The exchange of information between elements of the sentence is not possible for L2 learners. Yet, unsplit verbs might occur at this stage, for example “hat-ge-sag-en” (have-past-say-indefinite). Pienemann analyses them as a single verb entry (“PAST-PAST-V”) that therefore can be placed into the V-position. (Pienemann, 1998a, p. 99)

Stage 3: ADV
At Stage 3, the L2 learners still resort to canonical word order, but are now also able to fill the focus position of the sentence with a constituent other than the subject. The structure XP+SV is created from the c-structure that allows a constituent other than the subject (XP) to occur in TOP position, see (9).

(9) S’ → (XP) S
    (↑TOP)=↓ ↑=↓

In German, the XP could be a wh-word, an object, an adjunct, a lexical verb or a subordinate clause. It is placed into TOP position, if the learner wants to give prominence to the XP for discourse or pragmatic reasons at this stage, resulting in the non-target-like structure XP+SV, see (10).
Information exchange is possible on a phrasal level and the learners now start to match the information of the constituents within the noun phrase, as they acquire the morphological rules for plural agreement.

Stage 4: SEP

At Stage 4, the L2 learners are able to “split” verbal elements that contain a finite and a non-finite part. The non-finite part is placed into sentence final position. According to Pienemann (2005, p. 31), “the German “split verb” position […] can be described as a gradual lexical acquisition process which is based on a number of alterations of the existing c-structure acquisition rule”, see (11).

\[
\text{(11)} \quad S \rightarrow \text{NP}_{\text{subj}} \text{ VP} \\
V \rightarrow V \left[ (\text{NP}_{\text{obj1}})(\text{NP}_{\text{obj2}}) \right] \\
V-\text{COMP} \rightarrow (\text{NP}_{\text{obj1}})(\text{NP}_{\text{obj2}}) V
\]

(after Pienemann, 2005, p. 31)

Information exchange now takes place on an inter-phrasal level with saliency.

Stage 5: INV

At Stage 5, the learners are able to invert subject and verb after ADV-fronting; that is, the c-structure has to be modified further. In German, the finite verb has to be placed into sentence-second position, if the focus position of the sentence is filled with any other constituent than the verb. At this stage, the target like structure XP+VS is said to emerge, see (12).
Exchange of information takes place on an inter-phrasal level, but now with no saliency. The L2 learners acquire the morphological rules for SV-agreement. As a result, they start to match the features of two distinct constituents of the sentence, that is the noun phrase of the subject and the verb phrase. (Pienemann, 1998a, p. 113)

Stage 6: V-End:
At Stage 6, the learners are finally able to distinguish between main and subordinate clauses. In subordinate clauses, the finite verb is now placed correctly into sentence-final position.

3.2.2 Comparison of the development in German L1 and L2 acquisition
This section contains a comparison of the developmental stages proposed by PT for the acquisition of German by L1 and L2 learners. The major differences between German L1 and L2 according to PT are summarised in Table 3.6. The first column on the left lists the six stages for the development of German within the framework of PT, while the second column specifies the exchange of information that takes place at each stage. The third column displays the procedures that are involved and the last two columns show the differences in the development of German L1 and L2.
Table 3.6  Comparison of development in German as L1 and L2 viewed from a processability perspective

<table>
<thead>
<tr>
<th>Stage</th>
<th>Exchange of information</th>
<th>Procedures</th>
<th>German L2</th>
<th>German L1</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Subordinate clause procedure</td>
<td>V-end</td>
<td>(no errors)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Inter-phrasal WO rules S-procedure</td>
<td>INV ± agr</td>
<td>V-2\textsuperscript{nd} ± agr</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Interphrasal WO rules S-procedures saliency</td>
<td>SEP</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Phrasal procedure</td>
<td>ADV</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>None</td>
<td>Lexical categories</td>
<td>SVO</td>
<td>SOV</td>
</tr>
<tr>
<td>1</td>
<td>None</td>
<td>words</td>
<td>words</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Pienemann, 1998a, p. 315)

For an easier comparison, the acquisitional paths in German L1 and L2 acquisition for syntax are displayed again in Table 3.7 and described in more detail below.

Table 3.7  Developmental pattern in the acquisition of German as L1 and L2

<table>
<thead>
<tr>
<th>L1 sequence</th>
<th>L2 sequence</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) variable word order</td>
<td>(1) SVO</td>
</tr>
<tr>
<td>(2) SOV</td>
<td>(2) ADV</td>
</tr>
<tr>
<td>(3) V-2\textsuperscript{nd}</td>
<td>(3) SEP</td>
</tr>
<tr>
<td>(4) subordinate clauses (without any mistakes in the positioning of the verb)</td>
<td>(4) INVERSION, SV-agreement or not</td>
</tr>
<tr>
<td>(5) V-Final in subordinate clauses (with mistakes in the positioning of the verb)</td>
<td></td>
</tr>
</tbody>
</table>

(Source: Pienemann, 1998a, p. 312)

As can be seen, the developmental sequence differs notably between German L1 and L2 acquisition. German L1 learners, on the one hand, appear to go through fewer stages in their acquisition of German word order than L2 learners. They start out with a variable word order before moving on to SOV at Stage 2 which, according to
Clahsen (1982) and Clahsen & Muysken (1986), is the underlying word order of German. Further, L1 learners seem to be able to place the verb correctly into sentence-second position, as soon as they start to place an element other than the subject in sentence-first position. Lastly, they also acquire the word order of subordinate clauses without making any mistakes in regard to verb-placement when they start to use embedded clauses.

German L2 learners, on the other hand, start out with SVO as their canonical word order. At Stage 2, they start to place sentence elements other than the subject in sentence-first position, but still retreat to SVO, which results in the ungrammatical use of the structure ADV+SV. During Stage 3, L2 learners gain the ability to “split” verbal elements that contain a finite and a non-finite part, a process that is not marked as a separate step in L1 acquisition. L2 learners are able to invert the subject and the verb after ADV-fronting when they reach Stage 4 and are finally capable of distinguishing between main and subordinate clauses at Stage 5, although they still make mistakes in regard to verb-placement.

Overall, it can be said that in regard to language processing, L1 and L2 acquisition are fundamentally similar. Yet, L1 learners have the advantage that their initial hypothesis is superior to that of L2 learners which propagates throughout the entire developmental process. (Pienemann, 1998b)

It should be noted that Pienemann (1998a&b) based the developmental stages of PT for German L1 acquisition solely on the developmental pattern found by Clahsen (1982) without a re-analysis of the data from a processability perspective.

### 3.3 Research questions and hypotheses

This section presents the research questions and hypotheses formulated for this study. As pointed out in Chapter 2, one of the shortcomings of previous research concerned with German FLA is that none has explicitly focused on the period of time in the children’s syntactic development in which word order starts to play an imperative role, which is usually between the ages of 2;1 and 2;4 years. The current study intends to bridge this gap by investigating German L1 children’s acquisitional path specifically at this crucial stage in their development. Further, the study also aims to contribute to the debate evolving around the fundamental difference in L1
and L2 acquisition. It hopes to contribute to the resolution of the issue by demonstrating that the interlanguage grammars from L2 learners and L1 learners are in fact not fundamentally different from each other. The research questions and hypotheses below were formulated in order to achieve this goal.

### 3.3.1 Research questions

The objective of this thesis is to trace the acquisition of word order by German L1 children aged 2;1 to 2;4 years to gain further insight into the early stages of their linguistic development at a time when their syntax develops rapidly. In order to achieve this goal, two key research questions are formulated as follows.

- **(Q1)** What word order preference do German L1 children develop once utterances contain more than one word?
- **(Q2)** Can a fundamental difference between L1 and L2 acquisition be postulated on the basis of syntactic development?

In order to answer these questions, the following sub-questions will be addressed:

- **(Q1a)** What is the preferred word order in utterances containing three words or more?
- **(Q1b)** How do German L1 children develop a differentiation between declaratives and interrogatives?
- **(Q2a)** Do German L1 children and L2 learners follow a similar acquisitional sequence in their syntactic development?
- **(Q2b)** Are there areas of differentiation between German L1 and L2 learning?

### 3.3.2 Hypotheses

For (Q1), it is hypothesised that German L1 children show a word order preference that is similar to that of German L2 learners once their utterances contain more than one word. That is, at first subject-like constituents are placed into sentence-first position, followed by the verb in sentence-second position. All other constituents are placed after the verb. Once non-subject-like constituents start to appear in sentence-first position, they are initially followed by a subject-like constituent in sentence-second and the verb in sentence-third position which results
in the ungrammatical structure XP+SV according to German word order rules. Finally, German L1 children will be capable of inverting the subject-like constituent and the verb after placing another constituent in sentence-first position. They abandon the ungrammatical structure XP+SV and replace it with the structure XP+VS which is in compliance with German word order rules. Although this hypothesis contradicts most previous research concerning FLA, it is compatible with the findings from Wirbatz (2008), which gave the incentive for the current study.

For (Q1a), it is hypothesised that the preferred word order in utterances containing three words or more is V-2nd if a subject-like constituent is placed into sentence-first position. Once non-subject-like constituents appear in sentence-first position, German L1 children, like German L2 learners, will initially employ the ungrammatical structure XP+SV, before (at last) applying the structure XP+VS as is required by German word order rules.

For (Q1b), it is hypothesised that at first German L1 children rely solely on intonation in order to differentiate between declaratives and interrogatives. Yet, once their utterances start to contain more than one word, they will also slowly start to arrange the constituents in a different order to distinguish between the two utterance types. In regards to constituent questions, German L1 children will follow a similar path in their development of interrogatives as they do in their acquisition of declaratives. That is, at first they will not place the verb in sentence-second position followed by the subject, when a wh-word is placed into sentence-first position. This hypothesis is compatible with the findings of other German FLA studies (for instance, Felix 1980; Tracy 1994 & 2008).

For (Q2), it is hypothesised that there is no fundamental difference based on the syntactic development which is derived from the hypothesised outcomes for (Q1).

For (Q2a), it is hypothesised that German L1 children and adult L2 learners indeed follow a similar acquisitional sequence in their syntactic development. This hypothesis once again contradicts most previous research studies, but is compatible with the findings from Wirbatz (2008).

For (Q2b), it is hypothesised that there are differences between German L1 and L2 learning in regards to ultimate attainment and developmental speed, but not in regards to the syntactic development of these two learner types. This is compatible with the findings from various other research studies that claim that there is a difference between L1 and L2 learning in regards to ultimate attainment and

3.4 Summary

This chapter presented the outline of the theoretical framework for the present study, namely Processability Theory (Pienemann 1998 a&b; Pienemann et al. 2005; Bettoni & Di Biase 2012). It also presented the research questions and hypotheses for this study. In Chapter 5, the hypotheses will be tested with data obtained from three longitudinal studies with German L1 children conducted by the researcher herself and further with already published data sets from German L1 and German L2 learners in Chapter 6. First, however, the research design will be described in the following chapter.
Chapter 4
Research Methodology

4.0 Introduction

The previous chapter included an overview of PT (Pienemann 1998a&b, 2005; Pienemann, Di Biase & Kawaguchi 2005, Pienemann & Kessler 2011; Di Biase & Kawaguchi 2012) as a key part of the theoretical framework to investigate the research questions and hypotheses formulated for this study in Section 3.4. In order to test these hypotheses, the data from a series of empirical studies were utilized and evaluated. The data sets in the current study were as follows:

1. The data sets of three concurrent longitudinal studies conducted over a critical period of four months at weekly intervals of two German L1 children (Mia, aged: 2;2.27-2;6.13 years and Emma, aged: 2;7.20-2;11.03 years) and one German/Polish L1 bilingual child (Karl, aged: 2;1.24-2;5.06 years). This is the main data set that is used to explore the syntactic and morphological aspects of German L1 acquisition investigated by this study.

2. A focused re-analysis of data sets from longitudinal studies of two German L1 children (Wagner n.d., Rigol 1991-1999) obtained from the CHILDES data base and Clahsen’s (early 1980s, retrieved from MacWhinney 1995) three longitudinal studies of two German L1 twins (aged: 2;9-3;6 years) and their younger sister (aged: 2;1-2;5 years). This data set is used to test the generalisability of the findings from the main data set.

3. A focused re-analysis of data sets from three longitudinal studies of German L2 learners with Italian L1 background conducted by the ZISA project over a period of two years in the early 1980s. This data set is compared to the findings of the main data set in order to look into the differences and similarities between German L1 and L2 acquisition.
The analysis of these data sets will be presented and discussed in the next two chapters (Chapter 5 and Chapter 6), whereas the current chapter contains an outline of the methodology adopted for this study as a whole. It is structured as follows. Section 4.1 describes the method of data collection, including type of data, the informants, data elicitation, data collection and recording sessions, transcription and coding, and data size. Section 4.2 discusses the methods used for data analysis, including acquisition criteria, distributional analysis, implicational scaling and scoring procedures. Section 4.3 concludes this chapter.

4.1 Method of data collection

4.1.1 Type of data

Three concurrent longitudinal data sets were collected in order to capture the period in the linguistic development of German L1 children at the point when they were just starting to combine more than two words in their utterances. These three data sets were collected from two German L1 children acquirers and one German/Polish bilingual child. Their recorded production constitutes the main data set used in this study.

As mentioned previously, the acquisition of German is well documented in the studies and literature concerned with L1 acquisition and has been subject to study for more than a hundred years now (see, for instance, Stern & Stern 1924; Clahsen 1982; Dittmann 2002, Tracy 1991 & 2008 among others). Nevertheless, the majority of previous studies concerned with German L1 acquisition were either designed as cross-sectional studies, or as longitudinal studies lasting a year or longer. Cross-sectional studies, on the one hand, are usually conducted with a great number of children and are used to ‘confirm’ a certain assumption about the children’s linguistic development. However they cannot be employed to describe the overall syntactic development. Consequently, they have the disadvantage that they are not developmental, as they only provide insight into one particular moment in the linguistic development of children. On the other hand, longitudinal studies conducted over a year and longer can provide an insight into the overall linguistic development of children, but have the disadvantage that they are not able to capture small details of the children’s language development, as they collect data at longer intervals. That
is, it is usually not possible to collect data more than once or twice a month due to the sheer amount of time that has to be invested into the collection, transcription and analysis of said data. Yet Bloom (1991, p.1) points out that the period from 2 to 3 years is the time ‘when children acquire their basic knowledge of semantics, syntax, morphology, and discourse’ and, even more importantly, in which their linguistic development goes through rapid changes. This study is designed to shed some light on the gaps left by earlier investigations and was designed to conduct a thorough investigation to capture one of the most important milestones in the language acquisition of German L1 children. Therefore, the three children were recorded up to twice a week over a period of four months in an attempt to capture as many small details of their linguistic development as possible. The results of those three longitudinal studies are expected to provide answers to (Q1) and (Q2) proposed in Chapter 3.

The second data set consists of a focused re-analysis of data sets obtained from previous longitudinal studies with German L1 children. It is made up of two data sets of two German L1 children (Wagner n.d.; Rigol 1991-1999) taken from the CHILDES data base and three data sets collected by Clahsen (early 1980s, retrieved from MacWhinney 1995) of two German L1 twins (aged: 2;9-3;6 years) and their younger sister (aged: 2;1-2;5 years). It should be noted that none of these studies was specifically designed to capture the syntactic development of German L1 children at the point at which they were just starting to combine more than two words in their utterances. By contrast, this study will confine itself to looking only at data from this time period of the children’s linguistic development. The main purpose of the third data set is to function as a control for the main data set and to back up or reject its findings. Its findings will also assist in answering (Q1) and (Q2) proposed in Chapter 3.

The third set of data used for this study comprises three longitudinal studies of Italian L1 speakers learning German as a second language. The selected data is part of a larger study conducted by the ZISA project in the early 1980s called Second Language Acquisition by Adult Immigrants. For that study, spontaneous second language acquisition data of forty adult immigrant workers living in Western Europe were collected and analysed. Three interviews of each participant were chosen in order to assess their language development at various points in time, as each interview represents a different point of the learners’ language acquisition. The
results of those three longitudinal studies are expected to assist in the answering of (Q2) outlined in Chapter 3.

4.1.2 The informants

*Longitudinal study with two monolingual German L1 children and one bilingual German/Polish L1 child*

The concurrent longitudinal studies involve three informants. All three children were selected from families that are situated on the Island of Usedom in the Mecklenburg-Vorpommern region in the North-East of Germany. The participating families were recruited with the help of Dr. Marina Nowack who is a paediatrician located in Heringsdorf on the Island of Usedom and Miss Knötzel, the managing director of the local childcare-centre “Ostseeknirpse”, which caters for children from the age of two years onwards. All children aged two to three years that attended the local childcare-centre were invited to participate in the study. By selecting informants that attended the same day-care centre and lived in the same region, some external factors, such as input language and regional dialect variations, could be controlled at least to some extent. Participation was on a voluntary basis and no payment was involved. Further, the following points were considered important when selecting informants:

1. The informants’ linguistic development should ideally not have advanced past the two-word stage at the start of the longitudinal study.
2. The informants’ parents and/or kindergarten teacher had to be willing to carry out regular weekly recordings over a four months period.
3. In regards to the bilingual child, it should be ensured that the child was only addressed in German during the recording sessions, not in his/her other L1.

Lastly, prior to the beginning of the recording sessions, the parents were asked to fill out the ELFRA-2 questionnaire in order to determine the stage of all three children’s linguistic development at that time. ELFRA ("Elternfragebogen für die Früherkennung von Risikokindern") (Grimm, 2006) is a standardised questionnaire that is used as a screening tool to diagnose delays in children’s language development between the ages of 12 and 24 months. It is an adaption of the MacArthur Communicative Development Inventory (CDI) which was first developed
as an instrument to measure early communicative and lexical development for American English (Fenson, Dale, Reznick, Thal, Bates, Hartung, Pethick & Reilly, 1993). However, over the years it has been adapted to many other languages including, for instance, Mexican Spanish (Jackson-Maldonado, Thal, Marchman, Newton, Fenson & Conboy, 2003), Austrian German (Vollmann, Marschik & Einspieler, 2000) and Swedish (Eriksson & Berglund, 2002). The CDI consists of two parts: the Infant Scale ‘which looks at word production, and aspects of symbolic and communicative gesture, in the period from 8 to 16 months’ and the Toddler Scale ‘which looks at word production and the early phases of grammar, in the period from 16 to 30 months’ (Bates & Carnevale, 1993, p. 440). The German adaption also has two parts, namely ELFRA-1 and ELFRA-2. ELFRA-1 is a parental questionnaire designed to test the abilities of 12 months old German infants in the areas of language development, gestures and fine motor skills, whereas ELFRA-2 tests the productive vocabulary, as well as the syntactic and morphological development of German children aged 24 to 36 months.

Of the three informants that participated in this study, Mia can be considered the main informant. The results of the ELFRA-2 questionnaire (which are discussed in more detail in Chapter 5) revealed that she was still at the early stages of producing utterances that contained two words or more at the beginning of the study. Furthermore, according to her parents, Mia had not yet started to produce questions at that stage which therefore provided the opportunity to capture the development of questions by a German L1 child from the very beginning. Mia was 2;2.27 years old at the time of the first recording session and 2;6.13 years by the time of her last one. She is the only child of a monolingual German family that can be considered to belong to the middle-class. Both parents work full-time jobs and therefore Mia usually attends the childcare day-centre five times a week and also spends a lot of time with her grandparents.

The second German L1 monolingual child, Emma, was 2;7.20 years old at the time of her first recording session and 2;11.03 years by the time of her last one. Consequently, Emma did not fall into the targeted age bracket and the results of the ELFRA-2 questionnaire (which will be discussed in more detail in Chapter 5) confirmed that her linguistic development was already more advanced compared to that of the other two children. As a result, the main purpose of Emma’s data is to confirm whether certain linguistic phenomena, such as the use of the ungrammatical
structure XP+SV, exclusively occur at a certain stage in the language development of German L1 children or if they can be found throughout. Emma’s family set-up is very similar to that of Mia’s, which therefore helped to control some additional external factors. Like Mia, she is the only child of a monolingual German family belonging to the middle-class and both of her parents work full-time. As a result, she goes to the childcare day-centre five times a week and also spends a lot of time with her grandparents. Furthermore, Mia and Emma attend the same group at the kindergarten and are supervised by the same caretaker. Therefore, the linguistic input they were exposed to was mostly identical at least during the recording sessions conducted at the day-care centre.

The third informant, Karl, was aged 2;1.24 years at the time of the first recording session and 2;5.06 years by the time of the last one. The results of the ELFRA-2 questionnaire (which are discussed in more detail in Chapter 5) revealed that he was still at the early stages of producing utterances that contained two words or more at the beginning of the study, although he was already able to produce questions. Karl is a German/Polish L1 bilingual and the only child of a Polish L1 mother and a German L1 father. Both of his parents work full-time and belong to the middle-class. Like the other two informants, Karl attends the kindergarten five times a week and also spends a lot of time with his grandparents. Unlike the other two informants, Karl was only recorded at the day-care centre interacting with his caretaker and other children. Although his mother is fluent in both German and Polish, she communicates with Karl exclusively in Polish and therefore only agreed to participate in the study under the condition that she did not have to conduct any recordings at home. As mentioned above, Karl was bilingual. Therefore, the opportunity presented itself to compare his data with that of the two monolingual girls to check if certain linguistic phenomena are exclusive to the development of monolingual children or can also be found in bilingual L1 children.

*Longitudinal studies with five German L1 children (obtained from the CHILDES data base)*

The first informant, Andreas, was part of a longitudinal study conducted by Wagner (n.d.). He was recorded eight times throughout the age of 2;1 years; that is twice a week for a period of four weeks. No other information was available from the CHILDES database.

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Cosima was part of a longitudinal study of three German L1 children conducted by Rigol from 1991 to 1999. Cosima was 0;00.12 years old at the time of the first recording and 7;11.03 years at the time of the last recording session. However, for the purpose of this study only data obtained from the age of 2.04.02 years to 2;7.22 years was utilized.

The background information on the three informants from Clahsen’s (1982) study is more detailed, as he included an ample summary in his 1982 book “Spracherwerb in der Kindheit. Eine Untersuchung zur Entwicklung der Syntax bei Kleinkindern”. The informants of Clahsen’s (1982) study were three L1 German siblings, the twins Daniel and Mathias and their younger sister Julia. The twins were aged 2;9.7 (Mathias) and 2;9.28 (Daniel) by the time of their first interview and aged 3;6.28 by the time of their last interview. Julia was aged 2;1.14 at the time of her first interview and 2;5.28 by the time of her last interview. The father of the three children was a well-paid lawyer and the mother was a doctor. Therefore, the family can be considered to belong to the upper-middle class. By choosing informants from the same family, social variables, such as social class, can be controlled and therefore do not have an effect on the results. (Clahsen, 1982, p. 25) In order to determine the children’s personalities, a psychologist performed a Kramer IQ-test and various other psycho-diagnostic tests right after the conclusion of the longitudinal study with the children. The results of the IQ-test showed that the intelligence level of all three children was above average, that is, Mathias had an IQ of 128; Daniel had an IQ of 123; and Julia had an IQ of 121. The additional tests revealed that Mathias was a demanding and sometimes aggressive child, whereas Daniel seemed to be shy and more introverted than his twin brother. Julia was classified as most normal in her temperament. Unlike her brothers, she did not show any extreme behaviour. Furthermore, all of them were able to work on any given task thoroughly with concentration, as well as being able to identify the specific character of those tasks. (Clahsen, 1982, pp. 25-27)

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1 The Kramer IQ-test is used to determine the IQ of infants, children and adolescents. (Clahsen, 1982, p. 28)
Longitudinal study with three adult German L2 learners with L1 Italian background (data from the ZISA project conducted in the early 1980s)

The three German L2 learners were all of Italian L1 background. The group consisted of two young men, Marcello and Tino, and one young woman, Angelina. All of them were in their late teens or early twenties at the beginning of the study and none of them had formal instruction in GSL, although Marcello had done some self-studies before. By the time of the first interview Marcello had spent 1;6 years in Germany and 2;9 years by the time of the last interview. Tino had lived 1;2 years in Germany at the time of his first interview and 2;7 years by the time of his last interview. He also returned to Italy for four months during this time period. Angelina had spent 1;10 years in Germany at the time of the first interview and 3;2 years by the time of the last interview. Table 4.1 provides a summary of the three informants biodata details. (Please note that more information can be found on the MPI-website from which the data were obtained.)

Table 4. 1  German L2 learners – Biodata

<table>
<thead>
<tr>
<th>Biodata</th>
<th>Marcello</th>
<th>Tino</th>
<th>Angelina</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Date of Birth</td>
<td>1959</td>
<td>1963</td>
<td>1961</td>
</tr>
<tr>
<td>Country of Birth</td>
<td>Italy</td>
<td>Italy</td>
<td>Italy</td>
</tr>
<tr>
<td>Age of arrival in</td>
<td>22 (December, 1981)</td>
<td>19 (April 1982 for 6 months, returned to Italy; came back to Germany February 1983)</td>
<td>20 (July 1981)</td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.3 Data elicitation

The nature of the data is also a methodological issue that needs to be taken into consideration. Most studies concerned with L1 acquisition mainly rely on free conversation (e.g. Brown 1973; Bloom 1991; Clahsen 1982; and Tracy 2008), whereas more and more studies investigating L2 acquisition choose to utilize communicative tasks to elicit certain linguistic features or conduct semi-structured interviews (e.g. Pienemann & Mackey 1993; Pica, Kanagy and Falodun, 1993; and Kawaguchi 2005). One of the major drawbacks of studies that only rely on free
conversations, on the one hand, is that there is a high probability that they simply fail to gather sufficient rich data for the target structures (e.g. Duff 2008). Due to the very nature of ‘free conversation’, it is simply not possible to control the nature of the language produced by the informant, as the input language provided depends on the situation it occurs in. It is generally not altered to trigger the use of specific linguistic structures. Studies that implement communicative tasks, on the other hand, aim to elicit the use of certain structures by the learner. By employing communicative tasks, such as the Fish Film (Tomlin, 1995), it is possible to constrain the output of the informant to some extent, as those tasks are specifically designed to target certain linguistic structures. Some researchers (e.g. Selinker and Douglas 1985; Tarone 1989) have claimed that the language produced by learners and their linguistic competence depend highly on the task performed and the context in which it is implemented. However a study on speech production that was conducted with six ESL learners carrying out six different communicative tasks (Pienemann & Mackey, 1993) showed that the learners’ interlanguage did not fluctuate from task to task, but rather stayed ‘perfectly consistent’ throughout. Pienemann (1998a, p.308) therefore put forward the ‘steadiness hypothesis’, which “predicts that the basic principles of the grammar will be steady across different communicative tasks while there may be fluctuations in accuracy levels in each”. Although there are reasons to believe that an increased use of communicative tasks could also have benefits for the study of L1 acquisition, the three concurrent longitudinal studies conducted for this project only relied on free conversation on various grounds. Firstly, similar to the studies conducted by Clahsen (1982) and Bloom (1991), this study intended to gain a representative insight into the linguistic development of monolingual children, rather than to test their fluency or accuracy in regards to a certain linguistic item at a specific point in their development. Secondly, Clahsen (1982) points out that one of the main stipulations for gaining a representative insight into the linguistic development of German L1 children is to ensure that they are observed in their ‘natural linguistic setting’. The use of communicative tasks, on the other hand, may result in the creation of a rather artificial linguistic setting that might not accurately reflect the child’s usual linguistic environment. Due to the age of the informants and the fact that their linguistic development was still at the very early stages, it was simply optimal to follow Clahsen’s (1982) advice regarding natural linguistic settings, as it was not feasible to
implement communicative tasks.
Since the additional German L1 data and the German L2 data were taken from already published data sets, the researcher did not have any influence on the data elicitation process of those studies. No information on the data elicitation process employed by Wagner (n.d.) and Rigol (1991-1999) was available from the CHILDES website, besides the fact that Cosima was recorded on a fortnightly basis. The nature of the data, however, suggests that those studies mainly relied on free conversation. As mentioned above, one of Clahsen’s (1982) aims was to observe German L1 children in their natural linguistic setting which suggests that he also mainly relied on free conversation, rather than employing certain communicative tasks in order to target specific linguistic structures. Based on evidence inherent in the data and some additional information provided by Clahsen et al. (1983), the German L2 data were gathered by conducting semi-structured interviews with the informants that also involved some communicative tasks, such as the re-telling of a movie.

4.1.4 Data collection and recording sessions

Prior to the commencement of the actual data collection, it had to be ensured that the children’s linguistic development had neither progressed too far ahead, nor was too far behind. Thus, to determine the actual stage of their linguistic development and their MLU, the children were tested with the help of the MacArthur Communicative Development Inventories (German adaption) and ELFRA-2, a questionnaire designed to examine vocabulary production and grammar in the areas of morphology and syntax of two-year olds. (Grimm & Doil 2000) (Szagun, Steinbrink, Franik, & Stumper, 2006, p. 260) The results of ELFRA-2 for each child are discussed in Chapter 5. Following that, up to two “test-interviews” were conducted with each participating family and the kindergarten teachers to help them to get familiar with the recording device and the recording-process. As a recording device the LENA (‘language environment analysis’) Pro was utilized in order to obtain a high quality recording of the speech. LENA Pro is an automatic language collection analysis tool that was specifically designed to record and track the language development of children aged 2 months to 48 months. (LENA Foundation

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3 Please note that this section only applies to the data collection of the three concurrent longitudinal studies conducted by the researcher herself.
The children were recorded up to twice a week interacting with their kindergarten teachers and other children, as well as during interaction with their parents and grandparents. During the recording sessions, the researcher was deliberately not present in order to minimize the effects of the “observer’s paradox” (Labov, 1972). Bates (1993) points out that a child who is able to produce 20-40 words will usually not utter more than five different words in a two hours recording session with an unfamiliar researcher at home and that in an unfamiliar laboratory setting the actual language production of the same child is even lower. In addition, a lot of young children act rather shy around strangers and therefore, as Larsen-Freeman and Long (1991, p. 26) point out, ‘the mere presence of an observer is likely to cause the subjects to pay more attention to their speech and thus result in unspontaneous performance’ or, in the worst case scenario, no speech production at all. On average, the recordings were between 20 to 30 minutes long. Yet, some recordings lasted up to an hour, as a constant stream of conversation could not be guaranteed due to the fact that only natural speech was collected.

4.1.5 Transcription and coding

After the recording and preliminary analysis of the data with the help of LENA, each recording-session was transcribed by the researcher based on a set of transcription conventions developed by Di Biase (2000). Following that, the transcripts were checked by another native speaker of German while listening to the recordings. Any occurring discrepancies were checked by the researcher and, if necessary, resolved. After the transcriptions of the recordings were finished, each turn was coded in preparation for the computer-aided analysis. A short example of a transcription can be seen below. The sample was taken from a conversation between Mia and her father that occurred at T13 and coding was used to identify turn numbers and speakers.

---

4 See Appendix B.
(M = Mia, P = Mia’s father)

85 M  (laughs)
86 P  (gives M a kiss) ein Kuss für Papa bitte. (gives M a kiss) ein Kuss auf die andere Seite
87 M  hm
88 P  (gives M a kiss) und ein Nasenkuss. (laughs) (long pause) wir gehen jetzt schlafen ne?
89 M  nee kuscheln noch erst
90 P  wir gehen auf Toilette dann gehen wir Zähne putzen dann gehen wir schlafen
91 M  kuscheln noch erst. kuscheln (long pause) nein auch an die Füsse xxx (mumbles) guck mal das ist x. das ist das ist. das x

In the transcription, all turn numbers are coded at the beginning. According to Di Biase (2000, p. 25), a turn is “a normally continuous (including pauses) utterance of a speaker, until the Interlocutor (i.e. the other participant in the interaction) either takes his/her turn where he/she judges to be the end of the first speaker's utterance or interrupts the first speaker's utterance in order to take his/her turn”. After that, the speaker code is entered, followed by the actual speech produced by each speaker.

4.1.6 The data

The data size of each interview was calculated with the assistance of the linguistic computer software KWIC (Keyword In Context). This program can be used to create a concordance in which all the words in the interview are ordered alphabetically with some contexts before and after each word. Furthermore, it is possible to create an index of the lexicons indicating the number of occurrences in the data. It should be noted that this section only provides an overview of the data size for each informant. The results presented in the tables will be explained in more detail in Chapter 5 and Chapter 6.

Longitudinal study with two monolingual German L1 children and one bilingual German/Polish L1 child

Table 4.2 summarises the data of the longitudinal study of Mia’s German L1
acquisition. The first column on the left shows the time of the data collection session, whereas the second column indicates the age of the child at the time of the recording. The age of the child is shown in the format ‘years; months. days’. For example, Mia was two years two months and 27 days of age at the time of the first recording (T1). The third column marks the child’s MLU at that stage, while the following two columns list the number of the child’s utterance tokens and types for each recording session. Finally, the last column shows the different utterance types of the informant in total after each recording session. Note that discourse markers, such as “um”, “ah”, fragments of words, as well as other non-words were excluded from the count of word tokens and types.

Table 4.2 Summary of Mia’s data in her four months longitudinal study

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months. days)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;2.27</td>
<td>2.50</td>
<td>65</td>
<td>34</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;3.09</td>
<td>2.22</td>
<td>133</td>
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<td>67</td>
</tr>
<tr>
<td>T3</td>
<td>2;3.17</td>
<td>2.20</td>
<td>121</td>
<td>53</td>
<td>95</td>
</tr>
<tr>
<td>T4</td>
<td>2;3.23</td>
<td>2.41</td>
<td>70</td>
<td>38</td>
<td>114</td>
</tr>
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<td>T5</td>
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<td>61</td>
<td>146</td>
</tr>
<tr>
<td>T6</td>
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<td>2.22</td>
<td>275</td>
<td>93</td>
<td>198</td>
</tr>
<tr>
<td>T7</td>
<td>2;4.14</td>
<td>3.96</td>
<td>265</td>
<td>79</td>
<td>234</td>
</tr>
<tr>
<td>T8</td>
<td>2;4.16</td>
<td>3.32</td>
<td>555</td>
<td>127</td>
<td>294</td>
</tr>
<tr>
<td>T9</td>
<td>2;4.20</td>
<td>2.79</td>
<td>159</td>
<td>58</td>
<td>310</td>
</tr>
<tr>
<td>T10</td>
<td>2;4.27</td>
<td>3.55</td>
<td>277</td>
<td>92</td>
<td>347</td>
</tr>
<tr>
<td>T11</td>
<td>2;4.28</td>
<td>4.00</td>
<td>224</td>
<td>79</td>
<td>368</td>
</tr>
<tr>
<td>T12</td>
<td>2;5.06</td>
<td>2.90</td>
<td>453</td>
<td>120</td>
<td>414</td>
</tr>
<tr>
<td>T13</td>
<td>2;5.07</td>
<td>4.56</td>
<td>269</td>
<td>93</td>
<td>446</td>
</tr>
<tr>
<td>T14</td>
<td>2;5.13</td>
<td>3.73</td>
<td>403</td>
<td>109</td>
<td>483</td>
</tr>
<tr>
<td>T15</td>
<td>2;5.18</td>
<td>3.29</td>
<td>204</td>
<td>78</td>
<td>501</td>
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<td>T16</td>
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<td>525</td>
</tr>
<tr>
<td>T17</td>
<td>2;6.01</td>
<td>4.13</td>
<td>583</td>
<td>105</td>
<td>554</td>
</tr>
<tr>
<td>T18</td>
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<td>3.58</td>
<td>408</td>
<td>114</td>
<td>577</td>
</tr>
</tbody>
</table>
Table 4.3 summarises the data size of the longitudinal study of Karl’s German L1 acquisition. This table and all the following tables in this section are laid out the same way as Table 4.2 in this chapter and therefore should be read the same way.

### Table 4.3 Summary of Karl’s data in his four months longitudinal study

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months. days)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
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<td>2.06</td>
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<td>95</td>
<td>-</td>
</tr>
<tr>
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<td>2;2.01</td>
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<td>350</td>
<td>74</td>
<td>138</td>
</tr>
<tr>
<td>T3</td>
<td>2;2.07</td>
<td>2.33</td>
<td>326</td>
<td>80</td>
<td>176</td>
</tr>
<tr>
<td>T4</td>
<td>2;2.15</td>
<td>2.55</td>
<td>181</td>
<td>40</td>
<td>189</td>
</tr>
<tr>
<td>T5</td>
<td>2;2.21</td>
<td>2.55</td>
<td>245</td>
<td>68</td>
<td>210</td>
</tr>
<tr>
<td>T6</td>
<td>2;2.28</td>
<td>2.61</td>
<td>345</td>
<td>84</td>
<td>231</td>
</tr>
<tr>
<td>T7</td>
<td>2;3.05</td>
<td>2.51</td>
<td>178</td>
<td>59</td>
<td>252</td>
</tr>
<tr>
<td>T8</td>
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<td>86</td>
<td>278</td>
</tr>
<tr>
<td>T9</td>
<td>2;3.19</td>
<td>2.53</td>
<td>496</td>
<td>95</td>
<td>306</td>
</tr>
<tr>
<td>T10</td>
<td>2;3.28</td>
<td>2.88</td>
<td>679</td>
<td>105</td>
<td>332</td>
</tr>
<tr>
<td>T11</td>
<td>2;4.03</td>
<td>2.84</td>
<td>520</td>
<td>117</td>
<td>362</td>
</tr>
<tr>
<td>T12</td>
<td>2;4.16</td>
<td>2.58</td>
<td>423</td>
<td>90</td>
<td>382</td>
</tr>
<tr>
<td>T13</td>
<td>2;4.23</td>
<td>2.89</td>
<td>459</td>
<td>97</td>
<td>406</td>
</tr>
<tr>
<td>T14</td>
<td>2;4.30</td>
<td>2.51</td>
<td>435</td>
<td>100</td>
<td>440</td>
</tr>
<tr>
<td>T15</td>
<td>2;5.06</td>
<td>3.19</td>
<td>511</td>
<td>113</td>
<td>460</td>
</tr>
</tbody>
</table>
Table 4.4 summarises the data size of the longitudinal study of Emma’s German L1 acquisition.

**Table 4.4  ** *Summary of Emma’s data in her four months longitudinal study*  

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months. days)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
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<td>2.60</td>
<td>78</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;8.11</td>
<td>2.81</td>
<td>540</td>
<td>162</td>
<td>185</td>
</tr>
<tr>
<td>T3</td>
<td>2;8.17</td>
<td>2.73</td>
<td>232</td>
<td>90</td>
<td>217</td>
</tr>
<tr>
<td>T4</td>
<td>2;8.25</td>
<td>2.52</td>
<td>272</td>
<td>90</td>
<td>257</td>
</tr>
<tr>
<td>T5</td>
<td>2;9.02</td>
<td>3.27</td>
<td>717</td>
<td>162</td>
<td>342</td>
</tr>
<tr>
<td>T6</td>
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<td>176</td>
<td>72</td>
<td>359</td>
</tr>
<tr>
<td>T7</td>
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<td>2.73</td>
<td>571</td>
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<td>441</td>
</tr>
<tr>
<td>T8</td>
<td>2;9.22</td>
<td>2.76</td>
<td>210</td>
<td>90</td>
<td>468</td>
</tr>
<tr>
<td>T9</td>
<td>2;9.23</td>
<td>2.69</td>
<td>417</td>
<td>134</td>
<td>518</td>
</tr>
<tr>
<td>T10</td>
<td>2;9.29</td>
<td>2.73</td>
<td>410</td>
<td>145</td>
<td>559</td>
</tr>
<tr>
<td>T11</td>
<td>2;10.18</td>
<td>3.02</td>
<td>372</td>
<td>116</td>
<td>590</td>
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<tr>
<td>T12</td>
<td>2;10.24</td>
<td>3.29</td>
<td>451</td>
<td>132</td>
<td>610</td>
</tr>
<tr>
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<td>2;10.25</td>
<td>3.13</td>
<td>655</td>
<td>162</td>
<td>651</td>
</tr>
<tr>
<td>T14</td>
<td>2;11.03</td>
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<td>652</td>
<td>181</td>
<td>710</td>
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</table>
Longitudinal studies with five German L1 children (partially re-analysed data obtained from the CHILDES data base)

Table 4.5 summarises the data of the longitudinal study of Andreas’ German L1 acquisition.

Table 4.5  Summary of Andreas’ data in his longitudinal study

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
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</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;1</td>
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<td>825</td>
<td>208</td>
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</tr>
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<td>T2</td>
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<td>290</td>
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<tr>
<td>T3</td>
<td>2;1</td>
<td>3.20</td>
<td>838</td>
<td>173</td>
<td>372</td>
</tr>
<tr>
<td>T4</td>
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<td>730</td>
<td>194</td>
<td>458</td>
</tr>
<tr>
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<td>2;1</td>
<td>3.37</td>
<td>963</td>
<td>215</td>
<td>743</td>
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</tbody>
</table>

Table 4.6 summarises the data of the longitudinal study of Cosima’s German L1 acquisition.

Table 4.6  Summary of Cosima’s data in her longitudinal study

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months days)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
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<tbody>
<tr>
<td>T1</td>
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<td>2.10</td>
<td>283</td>
<td>109</td>
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<td>T4</td>
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</tbody>
</table>
Table 4.7 summarises the data size of the longitudinal study of Mathias’ German L1 acquisition.

**Table 4.7  Summary of Mathias' data in his longitudinal study**

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months; days)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
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<td>-</td>
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<td>T2</td>
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<td>2.68</td>
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<td>54</td>
<td>177</td>
</tr>
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<td>570</td>
<td>197</td>
<td>331</td>
</tr>
</tbody>
</table>

Table 4.8 summarises the data of the longitudinal study of Daniel’s German L1 acquisition.

**Table 4.8  Summary of Daniel’s data in his longitudinal study**

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months; days)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;9.28</td>
<td>2.15</td>
<td>133</td>
<td>71</td>
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<tr>
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<td>3;2.14</td>
<td>2.95</td>
<td>168</td>
<td>70</td>
<td>127</td>
</tr>
<tr>
<td>T3</td>
<td>3;6.28</td>
<td>3.33</td>
<td>360</td>
<td>146</td>
<td>235</td>
</tr>
</tbody>
</table>

Table 4.9 summarises the data of the longitudinal study of Julia’s German L1 acquisition.

**Table 4.9  Summary of Julia’s data in her longitudinal study**

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months; days)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;1.14</td>
<td>1.60</td>
<td>136</td>
<td>42</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;3.21</td>
<td>1.92</td>
<td>263</td>
<td>94</td>
<td>124</td>
</tr>
<tr>
<td>T3</td>
<td>2;5.28</td>
<td>2.68</td>
<td>356</td>
<td>105</td>
<td>198</td>
</tr>
</tbody>
</table>
Longitudinal study with three adult German L2 learners with L1 Italian background (partially reanalysed data from the ZISA project conducted in the early 1980’s)

Table 4.10 summarises the data of the longitudinal study of Marcello’s German L2 acquisition. This table and Tables 4.11 and 4.12 are laid out the same way as Table 4.2 in this chapter with the exception of the second column from the left, which indicates the time spent in Germany in “years; months”, rather than the age of the informant.

Table 4.10  Summary of Marcello’s data in his longitudinal study

<table>
<thead>
<tr>
<th>Time</th>
<th>Time spent in Germany (years; months)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>1;6</td>
<td>3.29</td>
<td>250</td>
<td>126</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>1;10</td>
<td>7.82</td>
<td>462</td>
<td>127</td>
<td>229</td>
</tr>
<tr>
<td>T3</td>
<td>2;9</td>
<td>14.56</td>
<td>1237</td>
<td>301</td>
<td>451</td>
</tr>
</tbody>
</table>

Table 4.11 summarises the data of the longitudinal study of Tino’s German L2 acquisition.

Table 4.11  Summary of Tino’s data in his longitudinal study

<table>
<thead>
<tr>
<th>Time</th>
<th>Time spent in Germany (years; months)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>1;2*</td>
<td>9.81</td>
<td>265</td>
<td>113</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>1;5*</td>
<td>5.83</td>
<td>233</td>
<td>105</td>
<td>189</td>
</tr>
<tr>
<td>T3</td>
<td>2;7*</td>
<td>6.68</td>
<td>1008</td>
<td>373</td>
<td>498</td>
</tr>
</tbody>
</table>

*Tino arrived in Germany in April 1982, but returned to Italy for four months before coming back in February 1983.
Table 4.12 summarises the data of the longitudinal study of Angelina’s German L2 acquisition.

Table 4.12  Summary of Angelina’s data in her longitudinal study

<table>
<thead>
<tr>
<th>Time</th>
<th>Time spent in Germany (years; months)</th>
<th>MLU</th>
<th>Utterance Tokens</th>
<th>Utterance Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>1;10</td>
<td>12.13</td>
<td>728</td>
<td>213</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;2</td>
<td>5.30</td>
<td>281</td>
<td>81</td>
<td>263</td>
</tr>
<tr>
<td>T3</td>
<td>3;2</td>
<td>4.66</td>
<td>303</td>
<td>113</td>
<td>359</td>
</tr>
</tbody>
</table>

4.2  Method of data analysis

This section describes the method of data analysis employed for this research. Similar to previous studies employing PT as their main theoretical framework (e.g. Di Biase & Kawaguchi 2002; Kawaguchi 2005; and Yamaguchi 2010), a computer software (i.e. KWIC) was used to create word concordances and sort the linguistic data. Following that, a distributional analysis was carried out to obtain a qualitative and quantitative summary of each informant’s speech samples. Implicational scaling was employed to check the variability and systematicity of the data. Further, the scalability was calculated to ensure the reliability of the implicational scaling. Lastly, the computer program Praat was utilized to analyse parts of the main German L1 data set in order to examine prosodic variation in declarative and interrogative utterances.

4.2.1 Acquisition criteria

In any study concerned with language acquisition, one of the most indispensable fundamentals is the definition of an acquisition criterion. Certain criteria of acquisition are needed “to make replicable and falsifiable claims about the order in which different linguistic structures appear in an interlanguage” (Palotti, 2007, p. 1). The formulation of those criteria not only makes it possible to compare different sets of data within a study itself, but it also enables a comparison with the results of other studies investigating the same issues. Further, the definition of
consistent acquisition criteria helps to avoid conflicting results drawn from the same data which Jansen (2002) observed has happened in the past. In the late 1980s to the late 1990s, various studies (e.g. Pienemann & Johnston 1987; Pienemann 1998a; Jordens 1988; and Vainikka & Yong-Scholten 1994) analysed data obtained from the ZISA project database (Meisel et al., 1981) to investigate the acquisition of SV-agreement by German L2 learners. Yet, although the analysis was based on the same data sets, the claims made by these studies conflicted with each other, as they were based on different theoretical frameworks and acquisition criteria.

Generally, it can be said that most studies dealing with L1 and L2 acquisition employ one of two acquisition criteria. That is, they may look at the ‘accuracy rate’ of a certain linguistic structure or its ‘emergence’. Cazden (1968), for instance, employed ‘mastery’ criteria in her study of the acquisition of noun and verb inflections in L1 acquisition. She defined the acquisition point for various noun and verb inflections as the ‘the first speech sample of three such that in all three the inflection is supplied in at least 90 percent of the contexts in which it is clearly required’ (Cazden, 1968, p. 435). Cazden’s (1968) definition was also employed by various other studies concerned with L1 acquisition and Hakuta (1974) successfully adapted it to an SLA study with a Japanese girl learning ESL by altering it slightly. That is, he defined the point of acquisition as ‘the first of three consecutive two-week samples in which the morpheme is supplied in over 90% of obligatory contexts’ (Hakuta, 1974, p.137).

Yet, the major drawback of using accuracy as an acquisition criterion is that the actual mastery point of emergence in most studies is set arbitrarily, as becomes evident when comparing studies from varying researchers with each other. Vainikka & Young-Scholten (1994), for instance, set the ‘mastery’ point of a structure at 60% suppliance, whereas Ellis (1989) considers it to be over 75% and Brown (1973) even sets it as high as 90%. A direct consequence of this subjectiveness is that it is extremely difficult to compare the results of these studies with each other. In order to overcome the problems that arise from acquisition criteria based on accuracy, other researchers (e.g. Meisel et al. 1981; Pienemann 1998b) have proposed acquisition criteria that focus on the ‘emergence’ of linguistic structures instead. Pienemann (1998a, p. 138) defines emergence as “the point at which certain skills have, in principle, been attained or at which certain operations can, in principle, be carried out”. The ‘emergence’ of a new structure indicates that the learner has entered a new stage in his or her linguistic development, although it does not necessarily mean that
previous structures have been mastered in all possible contexts at this point. In PT, the first emergence of a structure is considered as the point at which it is acquired provided this is not a formula. To filter out possible formulaic occurrences a minimal 'productive' use of the structure needs to be produced. In regard to syntax, two occurrences of a syntactic structure involving different lexical items provide sufficient evidence for its acquisition. Pienemann (1998a, p. 145) points out that the emergence criterion can also be applied to the analysis of morphological development “by laying the distributional analysis out in such a way that the null-hypothesis can be tested for any hypothesised morphological rule”. Di Biase and Kawaguchi (2002, p. 14) add that “the full distributional analysis must display a productive application of the rule in appropriate contexts”. In other words, a single occurrence of a morphological structure does not provide sufficient evidence for the emergence of a morphological structure, as it is possible that the learner simply has memorised a certain structure or uses a formulaic expression. In neither case would it be a productive use of a morphological process, as the learner does not use the structure ‘productively’. Therefore, lexical and structural variation of a morphological structure has to be produced in order to avoid misleading results. (Pienemann, 1998a) The emergence criterion has been applied in much recent research in L1 and L2 acquisition set within the theoretical framework of PT (e.g. Pienemann 1998a, 1998b, 2005; DiBiase & Kawaguchi 2002; Håkansson 2005; Keßler and Keatinge 2008; and Medojević 2009). As this study is also set within the theoretical framework of PT, it will not depend on accuracy, but will adopt Pienemann’s (1998a) criteria of emergence. In regard to syntax, following Pienemann (2005), two occurrences of a syntactic structure involving different lexical items are necessary to provide sufficient evidence to be able to say that it has emerged. In regard to morphology, that is SV-agreement in particular, the full distributional analysis must show a productive use of a structure in appropriate contexts. That is, the structure has to be applied in different lexical and structural environments with the exclusion of formulaic or imitative expressions. In order to say that a learner is able to use a morphological structure productively and not only by chance, it has to be applied correctly at least 60% of the time in an interview.
4.2.2 Distributional analysis

In this study, a distributional analysis is carried out for all of the linguistic structures under examination. A lot of studies concerned with L1 and L2 acquisition only focus on the suppliance of linguistic structures in their obligatory context. Yet, by doing so, they neglect to acknowledge the very likely possibility that a structure is used by the learner outside its obligatory context. Pienemann (1998a) calls attention to the fact that an obligatory context in any given language does not automatically mean that is relevant to the interlanguage of the learner as well. Thus, as Larsen-Freeman & Long (1991) point out it is simply not enough to identify the use of a certain structure in its obligatory context, as the oversupply of said structure also needs to be taken into consideration to obtain an accurate insight into the learner’s development. Or, as Pienemann (1998a, p.139) states ‘it is more informative to atomise linguistic contexts as much as possible in distributional analyses to determine which contexts or even which lexical items are related to which particular interlanguage rules’.

4.2.3 Implicational scaling and scalability

Studies in the field of applied linguistics often employ implicational scaling (Guttman 1944; DeCamp 1973) in order to test the theorized hierarchical relationship in a set of linguistic structures or rules. Through implicational scaling, the data can be presented in a way that highlights their variability and systematicity. It has also been acknowledged as one of the most efficient methods to represent the dynamic features of the learner’s interlanguage (e.g. Pienemann, 1998a). Pienemann (1998a, p. 134) points out that “cumulative learning processes can be represented by successive additions of linguistic rules to the interlanguage system: rule 1 + rule 2 + rule 3 etc.” Implicational scales, such as the one shown in Table 4.13, facilitate the depiction of complex acquisition processes.
Table 4.13  *Implicational scale (after Pienemann, 1998a, p. 134)*

<table>
<thead>
<tr>
<th></th>
<th>Time 1</th>
<th>Time 2</th>
<th>Time 3</th>
<th>Time 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule 1</td>
<td>-</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Rule 2</td>
<td>-</td>
<td>-</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>Rule 3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>+</td>
</tr>
</tbody>
</table>

The table above displays an implicational scale for a longitudinal study. On the vertical axis the rules of the learner’s language are listed, while the time of acquisition is displayed on the horizontal axis. The “+” sign implies the occurrence of that structure, whereas the “-” sign indicates its absence. Yet, it is also possible to apply implication scaling to cross-sectional studies. In that case, the horizontal axis displays the data according to informant, rather than the time of acquisition.

To determine the reliability of the implicational scaling, it is also necessary to calculate the scalability. A high coefficient of the scalability signifies a true scale in the data with 1.0 being the highest coefficient possible. Further, Hatch and Lazaraton (1991) determined that it must be at least over 0.6 in order to demonstrate scalability.

4.3  Summary

This chapter outlined the method of data collection, including type of data, the informants, data elicitation, data collection and recording sessions, transcription and coding, and data size. It also defined the data analysis method, including acquisition criteria, distributional analysis, implicational scaling and scoring procedures. The results of the data analysis will be presented in the next chapter.
Chapter 5
Results (Mia, Emma & Karl)

5.0 Introduction

The previous chapter described the research design for the present study. In this chapter, the results of the three longitudinal data sets of the two German L1 monolingual children (Mia and Emma) and the German/Polish bilingual child (Karl) are presented. To recap, the children were recorded usually once a week over a time period of four months with most recording sessions lasting between 20 and 30 minutes. That is, Mia was recorded 18 times in total from the age of 2;2.27 years until the age of 2;6.13 years; Emma was recorded 14 times in total from the age of 2;7.20 years to the age of 2;11.03 years; and Karl was recorded 15 times in total between the ages of 2;1.24 years and 2;5.06 years.

Mia can be considered the main informant of this study since she falls into the right age bracket and her syntactic development is also at the aimed at stage; that is she had just started to produce multi-word utterances at the beginning of the recording sessions. Therefore, the main focus of the data analysis will be on her. The main purpose of the analysis of Emma’s data, on the one hand, is to confirm whether certain linguistic phenomena, such as the use of the ungrammatical structure XP+SV exclusively occur at a certain stage in the language development of German L1 children or if they can be found throughout. Karl’s data, on the other hand, are used as a check on whether certain linguistic phenomena are exclusive to the development of monolingual children or can also be found in bilingual L1 children.

The remainder of this chapter is structured as follows: Section 5.1 reports the findings from the longitudinal study conducted with Mia. Section 5.2 and 5.3 report findings from the longitudinal studies conducted with Karl and Emma, respectively. They are laid out in the same way as Section 5.1. Section 5.4 draws broad conclusions for this chapter.
The analysis of the data revealed some interesting results that differed greatly from those of other studies with probably the most noteworthy finding being that the syntactic developmental path of German L1 children appears to be more similar to that of German L2 learners than previously thought.

5.1 Mia

This section contains a detailed analysis of Mia’s development throughout her longitudinal study. First, Mia’s results for the ELFRA-2 are presented to give the reader an insight into Mia’s linguistic development at the beginning of the longitudinal study. Second, her general development in terms of MLU and vocabulary growth throughout the study is presented to provide a general overview of her linguistic development. Third, her syntactic development throughout the study is documented relating to her acquisition of declaratives and interrogatives utterances. Lastly, this section will look into one aspect of the L1 learner’s morphological development, specifically SV-agreement.

As the reader will see, the analysis of the data revealed that Mia’s overall linguistic development resembles that of a typical German L1 child. Yet, in regards to syntax some interesting findings emerged. The structure XP+SV, which is not an allowable structure according to German word order rules, appeared throughout the data set although it was previously only associated with German L2 acquisition.

5.1.1 ELFRA-2 results

The ELFRA-2 test was conducted prior to the commencement of the recordings in order to gain an insight into Mia’s linguistic development up to that point (2;2.27 years). Table 5.1 displays her ELFRA-2 scores for the three tested areas (productive vocabulary, syntax and morphology). The highest possible score, the critical score, as well as the average score achieved by German children at the age of 24 months (see, Grimm & Doil 2006) are also shown to enable an easy direct comparison.
Table 5.1  
*Mia: ELFRA-2 scores*

<table>
<thead>
<tr>
<th></th>
<th>highest possible score</th>
<th>critical score</th>
<th>average score</th>
<th>Mia’s score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productive vocabulary</td>
<td>260</td>
<td>&lt; 50</td>
<td>133</td>
<td>107</td>
</tr>
<tr>
<td>Syntax</td>
<td>47</td>
<td>7</td>
<td>19</td>
<td>23</td>
</tr>
<tr>
<td>Morphology</td>
<td>16</td>
<td>2</td>
<td>6.5</td>
<td>8</td>
</tr>
</tbody>
</table>

The given scores reflect the stage of Mia’s linguistic development at the age of 2;2.27 years. As can be seen, her scores were well over the critical score in regard to all three areas. That is, Mia scored 107 points out of a possible 260 in regard to productive vocabulary, 23 out 47 points in regard to syntax and 8 out of 16 points in regard to morphology. Interestingly, her score for productive vocabulary was below the average score, whereas her scores in the other two areas (syntax and morphology) were both above the average.

*Productive vocabulary*

Mia already used a variety of nouns, as well as a third of the verbs given in the questionnaire. Although nouns and verbs were clearly dominant in her productive vocabulary at this stage, she also produced a few words in each of the following categories: attributes, pronouns, quantifiers/articles, prepositions/location and time adverbials. The only two tested areas that were not yet part of her productive vocabulary are question words and conjunctions. In addition, the only auxiliary/modal verb she used so far was *ist* (‘is’).

*Syntax*

Mia was already able to produce declarative utterances that contained more than two words, although the majority of them did not follow a target-like pattern, as can be seen in (1).

(1)  Mami reingehen

‘mommy in go’

*mommy goes inside*
In regard to interrogatives, Mia’s parents stated that she was not yet capable of producing questions containing a question word. Yet, according to their answers, she was already able to produce more complex questions; such as questions that require a yes/no answer.

**Morphology**

According to the answers given by her parents, Mia was already able to mark possession by adding an “s” to a person’s name, but was not yet able to mark nouns for plural. She had started to inflect verbs for past tense, although she still used a wide variety of target-like and non-target-like forms when generally inflecting verbs for tense and person, see (2) and (3).

(2) Hunde laufen
    ‘dogs run’
(3) du zeigen
    ‘you show’

### 5.1.2 MLU and vocabulary size

Table 5.2 summarises Mia’s speech data. The second column on the left shows the age of the child at the time of the recording, the third column specifies the length of recording time in minutes and the fourth column indicates the child’s MLU at that stage. The following two columns list the number of the child’s word tokens and types for each recording session and the last column shows the different word types of the child in total after each recording session.
Table 5.2  Summary description of Mia’s speech samples

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months. days)</th>
<th>Recording time (minutes)</th>
<th>MLU</th>
<th>Word Tokens</th>
<th>Word Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;2.27</td>
<td>20</td>
<td>2.50</td>
<td>65</td>
<td>34</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;3.09</td>
<td>55</td>
<td>2.22</td>
<td>133</td>
<td>47</td>
<td>67</td>
</tr>
<tr>
<td>T3</td>
<td>2;3.17</td>
<td>60</td>
<td>2.20</td>
<td>121</td>
<td>53</td>
<td>95</td>
</tr>
<tr>
<td>T4</td>
<td>2;3.23</td>
<td>55</td>
<td>2.41</td>
<td>70</td>
<td>38</td>
<td>114</td>
</tr>
<tr>
<td>T5</td>
<td>2;3.30</td>
<td>40</td>
<td>2.20</td>
<td>163</td>
<td>61</td>
<td>146</td>
</tr>
<tr>
<td>T6</td>
<td>2;4.06</td>
<td>40</td>
<td>2.22</td>
<td>275</td>
<td>93</td>
<td>198</td>
</tr>
<tr>
<td>T7</td>
<td>2;4.14</td>
<td>50</td>
<td>3.96</td>
<td>265</td>
<td>79</td>
<td>234</td>
</tr>
<tr>
<td>T8</td>
<td>2;4.16</td>
<td>55</td>
<td>3.32</td>
<td>555</td>
<td>127</td>
<td>294</td>
</tr>
<tr>
<td>T9</td>
<td>2;4.20</td>
<td>50</td>
<td>2.79</td>
<td>159</td>
<td>58</td>
<td>310</td>
</tr>
<tr>
<td>T10</td>
<td>2;4.27</td>
<td>45</td>
<td>3.55</td>
<td>277</td>
<td>92</td>
<td>347</td>
</tr>
<tr>
<td>T11</td>
<td>2;4.28</td>
<td>25</td>
<td>4.00</td>
<td>224</td>
<td>79</td>
<td>368</td>
</tr>
<tr>
<td>T12</td>
<td>2;5.06</td>
<td>40</td>
<td>2.90</td>
<td>453</td>
<td>120</td>
<td>414</td>
</tr>
<tr>
<td>T13</td>
<td>2;5.07</td>
<td>30</td>
<td>4.56</td>
<td>269</td>
<td>93</td>
<td>446</td>
</tr>
<tr>
<td>T14</td>
<td>2;5.13</td>
<td>30</td>
<td>3.73</td>
<td>403</td>
<td>109</td>
<td>483</td>
</tr>
<tr>
<td>T15</td>
<td>2;5.18</td>
<td>40</td>
<td>3.29</td>
<td>204</td>
<td>78</td>
<td>501</td>
</tr>
<tr>
<td>T16</td>
<td>2;5.26</td>
<td>35</td>
<td>3.51</td>
<td>323</td>
<td>93</td>
<td>525</td>
</tr>
<tr>
<td>T17</td>
<td>2;6.01</td>
<td>45</td>
<td>4.13</td>
<td>583</td>
<td>105</td>
<td>554</td>
</tr>
<tr>
<td>T18</td>
<td>2;6.13</td>
<td>50</td>
<td>3.58</td>
<td>408</td>
<td>114</td>
<td>577</td>
</tr>
<tr>
<td>Total</td>
<td>765</td>
<td>4950</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As can be seen, Mia produced a total of 4950 utterances in 18 recording sessions, which represent 765 minutes (12 hours 45 minutes) of actual recording time collected over a time period of roughly four months. The data reveals that her vocabulary grew significantly throughout the duration of the longitudinal study. At T1, it only consisted of 34 word types, but at T2 it had already doubled in size and at T3 it had nearly tripled, as it then contained 95 types in total. From then on, Mia’s vocabulary steadily gained around 30-50 types at each recording session, although it slowed down to an average of 20-30 types after T14. Overall, Mia’s vocabulary reached 577
words at T18. Mia’s average MLU score for all recording sessions combined was 3.17. Yet, a clear distinction can be drawn between the first six recording sessions and the remaining twelve. Mia’s MLU varied only slightly in the first six recording sessions, remaining below the 3+ mark, averaging 2.29. At T7, however, her MLU increased to an impressive 3.96 and remained over 3+ throughout with the exception of T9 and T12.

5.1.3 Declaratives

This section presents the Mia’s syntactic development in regard to declaratives over the 18 recording sessions.

Single word and formulae
Mia had already passed the one-word stage in regard to declaratives by the time of the first recording session. There was no time where declarative utterances were made up only of single words, as in (4), or formulae, as in (5).

(4) Mia (T1) ja
    ‘yes’
    yes

(5) Mia (T3) guck mal
    ‘look once’
    look

Table 5.3 presents the results of the distributional analysis for Mia’s data, whereas Table 5.4 gives an overview of the lexical categories found in the one-word declarative sentences produced by Mia.
Table 5.3  *Mia: Distribution of single words and formulae*

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single word</td>
<td>4</td>
<td>22</td>
<td>13</td>
<td>5</td>
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### Table 5.4  Mia: Lexical categories of single words

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<th>T3</th>
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<td>8</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>
As can be seen, affirmatives, such as ja (‘yes’) and yupp (‘yeah’), and holophrastic negations, such as nein (‘no’) and nee (‘nah’) accounted for the biggest part of one-word utterances produced by Mia. Nouns also appeared frequently by themselves, as well as names, which were usually used to gain the attention of a certain person.

Subject first
The occurrences of utterances with the subject in sentence-first position are counted and divided into eight categories. Note that structures including negators, as in (6), were not included with canonical order structures in this study.

(6) Emma (T7) ich kann nicht mehr bauen
   ‘I cannot more build‘
   I cannot build anymore/anything else

The addition of negators usually entails more complex sentence formation and therefore negation was excluded from this study for reasons of space.

Table 5.5 shows the range of canonical structures used by Mia throughout the study. Sentences with the subject in initial position were divided into the following eight categories: SV, SVO, SOV, SV(O) + (OBL) + (ADJ), S aux (X)V and SVX. The category SV (+particle) includes all complete sentences that consist of a subject and verb, as in (7), or a subject and verb plus a verbal particle placed after the verb, as in (8). The utterances listed under SVO and SOV have an object added either in sentence-last, see (9), or sentence-medial position, see (10).

(7) Mia (T1) Mia malt
    ‘Mia draws‘
    Mia draws

(8) Mia (T7) ich mach zu
    ‘I make close‘
    I close (it)

1 Note that examples given to illustrate the different categories are not limited to Mia’s data alone, but include examples taken from the other children’s data sets as well.
Copula sentences, as in (11), are listed separately.

(11) Emma (T14) ich bin schon fertig

‘I am already done’

I am already done

Sentences containing the required subject and verb (and object, if available) plus an ADJ, as in (12), are listed under $SV(O) + ADJ$, while sentences containing a subject and verb (and object, if available) plus an OBL, as in (13) are listed under $SV(O) + OBL$.

(12) Karl (T5) Karl spielt auch

‘Karl plays as well’

Karl plays as well

(13) Emma (T7) mein Auto steht hier

‘my car stands here’

my car is here

Sentences in which the VP consist of an auxiliary verb plus a lexical verb fall under the category $S aux (X)V$, see (14) and (15).

(14) Emma (T14) ich hab Abendbrot gegessen

‘I have dinner eaten’

I have eaten dinner

(15) Karl (T12) Andy will Bonbon haben

‘Andy wants lolly have’

Andy wants to have (a) lolly

Sentences where only the subject and verb could be identified positively are also included in the table under SVX, but will not be discussed further.
Table 5.5  
*Mia: Distribution of canonical order structures and adjuncts*

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
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<th>T13</th>
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<th>T15</th>
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<td>0</td>
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</tr>
</tbody>
</table>
At T1 (2;2.27 years) and T2 (2;3.09 years) only the structure SV, as in (16), and S cop X, as in (17), appeared.

(16)  (T1)  Mia malt (3x)
       ‘Mia draws’
       *Mia draws*

(17)  (T2)  Mia war das
       ‘Mia was it’
       *Mia did it*

At T3 (2;3.17 years), Mia produced one SV sentence and one sentence including a copula, see (18).

(18)  (T3)  das hier ist deine Hose
       ‘this here is your pants’
       *these here are your pants*

At T3 (2;3.17 years), Mia produced one SV sentence and one sentence including a copula, see (18).

(18)  (T3)  das hier ist deine Hose
       ‘this here is your pants’
       *these here are your pants*

At T3 (2;3.17 years), Mia produced one SV sentence and one sentence including a copula, see (18).

No complete canonical order sentences were found at T4 and T5, but at T6 (2;4.06 years) Mia produced one SVO sentence, see (19).

(19)  (T6)  ich hab dich
       ‘I got you’
       *I got you*

From T6 onwards, all three structures mentioned above started to appear frequently. Moreover, they progressed from simple SV structures at the beginning, as in (16), to more complex canonical structures that contain more than one additional constituent, as in (20), towards the end of the study.

(20)  (T18)  der hat auch eine Sonnenbrille auf
       ‘he has also a sunglasses on’
       *he also wears sunglasses*

At T8 (2;4.16 years), an adjunct is added to an utterance for the first time, see (21).

(21)  (T8)  Mama auch trinken
       ‘mum also drink‘
       *mum (should) drink as well*
There was one more occurrence of the structure SV(O) + ADJ at T9, nine at T17 and six at T18. There were no occurrences of the structure SV(O) + OBL.

T8 also marked the first occurrence of the structure S aux (X)V, see (22).

(22) (T8) ich möchte jetzt essen
‘I would like now eat’

*I would like to eat now*

The structure S aux (X)V did not reoccur until T17 (2;6.01 years) where Mia used it four times and T18 (2;6.13 years) where she applied it once. Note that additional elements to the basic structure S aux V always occurred in the correct position before the non-finite verb, regardless of whether it was an adjunct, as in (22) above, or an object, see (23).

(23) (T17) ich möchte das haben
‘I would like this have’

*I would like to have this*

Throughout the whole corpus, there were only three occurrences (two at T9 and one at T17) of the structure SOV, see (24) and in all three instances the verb appeared in its infinitive form.

(24) (T9) *Mia einen Apfel essen
‘Mia an apple eat’

*Mia eats an apple*

This was also the case in utterances in which an ADJ was placed between the subject and the verb, as in (21) above. As mentioned previously, German word order rules require the finite part of the VP to occur in sentence-second position, which means that the two structures discussed above are non-target-like. Note, however, that it is more than likely that in all those utterances the VP is actually incomplete. In all utterances in which either an object or an adjunct was placed between subject and verb, the verb appeared in its infinitive form. The only exception is one utterance where the verbal particle *an* (‘on’) has not been moved to sentence-final position and the verb is inflected wrongly, see (25).
(25)  (T9)  *Mia Schuhe anzieh
      ‘Mia shoes on-put’
      Mia puts shoes on

All of this suggests that the auxiliary verb (i.e. the finite part of the VP) was omitted and that those instances are incomplete, rather than non-target-like.

Adverbial and object in sentence-initial position

The occurrences of declarative sentences where a constituent other than the subject is placed into sentence-initial position, as in (26), are counted and analysed.

(26)  Mia (T6)  das darfst du nicht
      ‘that allowed you not’
      you are not allowed (to do) that

Table 5.6 presents the distributional analysis of XP\(^1\) in sentence-initial position found in Mia’s data set. Sentences with a constituent other than the subject in first position were divided into the following seven categories: da/hier + SV (‘there/here + SV’), ADJ + SV(O), OBJ + SV, da/hier + copula + S (‘there/here + copula + S’), da/hier + VS (‘there/here + VS’), ADJ + VS(O), and OBJ + VS. Note that da & hier are listed separately from other ADJ, as they are considered presentational words that tend to be used quite frequently before any other ADJ starts to emerge.

\(^1\) XP represents any other constituent of the sentence than the subject.
Table 5.6  Mia: Distribution of XP in initial position

<table>
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<th>Time/structure</th>
<th>T5</th>
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</tbody>
</table>

*formulæ: das darfst du nicht ^da anmach Mia (3x; utterance does not confirm to German grammar rules)
The first time another constituent than the subject occurs in sentence-first position is at T5 (2;03.30 years), see (27) and (28).

(27)  (T5)  hier du machst (2x)
       ‘here you make’
       *you do (it) here*

(28)  (T5)  da Mia pullern
       ‘there Mia pees’
       *Mia pees there*

In all three instances, an XP is produced in first position and is then followed by the remaining constituents canonically ordered; that is, the subject is now in second position followed by the verb in third. Crucially, this kind of structure is not permitted in mature native German, which requires the inversion of subject and verb when a constituent other than the subject is placed in initial position.

At T6 (2;4.06 years), three instances appeared where an XP was placed in initial position. In two instances *da* (‘there’) was placed in initial position and in the presentational sentence in (29) the verb (copula) is correctly placed in sentence-second position. Yet, the sentence that contained a full lexical verb, see (30), maintained canonical order after an XP was placed in sentence-first position. It also seems that the object was dropped.

(29)  (T6)  da ist Mami
       ‘there is mommy’
       *there is mommy*

(30)  (T6)  da ich gefunden
       ‘there I found’
       *I found (it) there*

(31)  (T6)  das darfst du nicht
       ‘this allowed you not’
       *you are not allowed (to do) that*

In (31), the object was placed in sentence first-position, while the subject appeared post-verbal. However, the sentence occurred only once and looks very much like a formulaic expression that would often occur at home and in kindergarten. In addition, there were two occurrences at T8 (2;04.16 years) of a non-formulaic
expression where an object was placed in sentence-initial position with the subject following in second and the verb in third position, see (32).

(6) (T8)  das Mia essen (2x)

‘this Mia eat’

*Mia eats this*

The subject was not placed post-verbal again after an object appeared in sentence-first position until T13, thus, the occurrence of the correct placement of the subject at T6 does not constitute sufficient evidence that Mia had acquired the structure OBJ+VS at that point.

At T8, Mia also produced three utterances in which the subject was placed post-verbal after *da* was fronted, see (33). Note, however, that those utterances did not conform to German grammar rules, which require the particle ‘an’ (*on*) to be placed in sentence-final position.

(7) (T8)  da anmach Mia (3x)

‘there turn on Mia’

*Mia turns (it) on there*

Although there were only a few occurrences where an XP occurred in sentence-first position, the target-like structure XP + VS appeared almost exclusively only from T10 (2;4.27 years) onwards. The only exception occurred at T15 (2;5.18 years) where Mia retreated to canonical order after placing an adverb in first-position, see (34).

(8) (T15) gleich Mia packt weg

‘immediately Mia put away’

*Mia puts (it) away immediately*

In all other utterances with an XP in initial position from T10 onwards the subject appeared post-verbal, regardless of whether the XP was an adjunct, as in (35), or an object, as in (36).

\[^1\] A complete list of all the occurrences of XP-fronting found in Mia’s data set is presented in Appendix C.
There were no instances of XP in initial position at T7, T9, T11 and T12.

### 5.0.1 Interrogatives

This section presents Mia’s development of interrogatives. As noted in Section 5.1.1, Mia had not started to produce questions prior to the commencement of the study. The first instance of a question-like utterance did not occur until T3. As a result, the opportunity to observe the early stages of question development in German L1 acquisition arose and the findings are presented below.

**Single word questions**

The first occurrences of questions in Mia’s data were at T3 in the form of single word questions. At that stage, all of Mia’s question-like utterances are made up of a single word and their distinction from declaratives is only marked by a change in intonation. This can be seen when looking at the differences in prosody of the same utterance in two different speech environments. That is, once in a situation in which the utterance under investigation is suspected to be a declarative based on the context it appears in and once in a situation in which it is suspected to be an interrogative based on the context it appears in. Figure 5.1 below is a visualisation of the utterance “Sophie” in the form of a waveform (top) and a pitch contour (bottom). On the left-hand side the utterance is shown in its declarative form, whereas on the right-hand side it is presented in its interrogative form.

---

2 Note that the expression ‘single word questions’ will be used throughout this study, in order to avoid confusing questions that contain only a single constituent with ‘content questions’ or ‘wh-questions’ (cf Mycock 2007) which in other literature are also referred to as ‘constituent questions’.
Figure 5.1 Visualisation of the utterance "Sophie" (waveform and pitch)

Figure 5.2 below is a visualisation of the utterance "Emily" in the form of a waveform (top) and a pitch contour (bottom). On the left-hand side the utterance is shown in its declarative form, whereas on the right-hand side it is presented in its interrogative form.
As can be seen, in both cases, the waveforms and pitch contours of the same utterance differ greatly from each other, when used in varying contexts. There is a clear change in regards to prosody that seems to depend on whether the utterance appears in a context that suggests that it functions as a declarative, or in one that suggests that it functions as an interrogative. Thus, the visual comparison of Mia’s use of the utterances “Sophie” and “Emily” suggests that at least at the very early stages Mia solely relies on prosody in order to mark question-like utterances.

Table 5.7 presents the results of the distributional analysis of single word questions produced by Mia. Single word questions were divided into the following three categories: Y/N questions, wh- constituent questions and interjections. All single constituents with rising intonation, which are not constructed by a wh-word, were counted as Y/N question, whereas occurrences of a single wh-word with rising intonation were counted as a wh- constituent question. Single word questions used to express doubt or confusion, as in (37), were classified as interjections.

(11) Karl (T1)  häh?
     huh?
As noted, Mia did not produce any questions in the first two recording sessions. The first single word questions appeared at T3 (2;3.17 years) in the form of five Y/N questions with only one word, as in (38), and one interjection, see (39).

(12) Mia (T3) Emma?
     Emma?

(13) Mia (T3) ja?
     yes?

After that, there were no more single word Y/N questions up until T6 (2;4.06 years). From T6 to T15, Mia only used single word Y/N questions sporadically and there were no instances at T7 and T14. On average, there were one or two instances per recording session, with the only exception found at T12 (2;5.06 years) where six instances of single word Y/N questions occurred. Moreover, two of those six occurrences are made up of a fuller NP (that is, a noun plus modifier), rather than a single word, see (40) and (41).

(14) Mia (T12) ein Bonbon?
     a lolly?

(15) Mia (T12) dein Bonbon?
     your lolly?

Single wh-word questions occurred only twice at T13 (2;5.07 years) and T18 (2;6.13 years), see (42) and (43), whereas interjections occurred at irregular intervals throughout the recording period, see (44).

(16) Mia (T13) was?
     what?
Table 5.8 gives an overview of the lexical categories found in Mia’s production of single word Y/N questions.

<table>
<thead>
<tr>
<th>structure/time</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noun/Pronoun?</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
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<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Verb?</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Particle/Preposition?</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Adjective?</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Adverb?</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

As can be seen, only three lexical categories appeared in Mia’s production of single word Y/N questions, namely nouns/pronouns, verbs and adverbs, see (45) to (47).

Throughout the longitudinal study, Mia did not produce any single word Y/N questions that contained adjectives or verbal particles/prepositions.

Y/N questions
This sub-section presents the results of the analysis of Y/N questions produced by Mia throughout the study.

Please note that verbal particles and prepositions are grouped together, as it is impossible to distinguish between the two in utterances that consist of a single word.
Table 5.9 presents the full distributional analysis of Y/N questions found in Mia’s corpus. Y/N questions were divided into the following categories: single constituent?, S or V missing, canonical order?, canonical order + tag?, VS(X)?, aux + S(X)V?, and others. Note that single word Y/N questions, as in (48), were already presented in Table 5.8, but are included in the table to enable comparison.

(22) Karl (T1) Mund?
*mouth?*

Y/N questions that do not contain a subject, as in (49), or a verb, as in (50), are listed under S missing, and V missing respectively.

(23) Mia (T14) geht gar nicht?
‘goes at all not?’
*doesn’t it work at all?*

(24) Karl (T7) Karl fertig?
‘Karl ready?’
*is Karl ready?*

Y/N questions that appear in canonical word order, as in (51), are listed under canonical order?, whereas questions in canonical word order with an added tag question, as in (52), appear in canonical word order + tag?.

(25) Mia (T18) du machst das?
‘you do this?’
*are you doing this?*

(26) Emma (T5) ich schiebe, ja?
‘I push, yes?’
*I push, okay?*

Y/N questions in which the subject is post-verbal, as in (53), are categorized under VS(X). Questions where the finite part of a VP appears in sentence-initial position, while the non-finite part is placed in sentence-final position with all other elements in between, as in (54), are listed under aux S(X)V. Note also that those two structures

---

4 Note that the examples given to illustrate the different categories are not limited to Mia’s data alone, but include examples taken from the other children’s data sets as well.

5 That is, all questions with the subject in sentence-initial position.
and canonical order + tag are the only word orders that correspond with German grammar rules for Y/N questions.

(27) Mia (T16) willst du ein Taschentuch?
    ‘want you a tissue?’
    do you want a tissue?

(28) Emma (T12) wollen wir eine Reihe machen?
    ‘want we a row make?’
    should we line up in a row?

All remaining Y/N questions that could not be categorised are listed under others.

Table 5.3 Mia: Full distribution of Y/N questions

<table>
<thead>
<tr>
<th>structure/time</th>
<th>T3</th>
<th>T5</th>
<th>T6</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>aux + S(X)V?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
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<td>0</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>canonical order + tag?</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td></td>
</tr>
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<td>canonical order?</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>5</td>
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<td>2</td>
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<td></td>
</tr>
<tr>
<td>single word?</td>
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<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
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<td>2</td>
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<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mia did not produce any Y/N questions containing more than one constituent up until T12 (2;5.06 years), and even then most of the Y/N questions were either single word questions (six in total)⁶ or were incomplete. That is, twelve were missing the verb, see (55), whereas in one the subject was omitted, see (56).

(29) (T12) du ein Bonbon?
    ‘you a lolly?’
    do you have/want a lolly?

⁶ Please refer to the previous section for a complete analysis of single-constituent questions.
(30)  (T12)  Heia machen?
      ‘little nap make?’
      *are you having a little nap?*

There was one instance of a canonical order Y/N questions, see (57), and one instance where Mia fronted an adjunct and the subject appeared post-verbal, see (58).

(31)  (T12)  hm du lecken?
      ‘hm you lick?’
      *hm do you want to lick?*

(32)  (T12)  nass ist das?
      ‘wet is this?’
      *is this wet?*

Note that this word order is permitted in declarative, but not interrogative sentences. There were also five instances where the subject appeared post-verbal to form a target-like Y/N question. In four of those utterances the copula *ist* (‘is’) was fronted, as in (59), while in the remaining one the lexical verb *hast* (‘have’) appeared in sentence-initial position, see (60).

(33)  (T12)  ist das nass?
      ‘is this wet?’
      *is this wet?*

(34)  (T12)  Andy hast du auch ein Bonbon?
      ‘Andy have you as well a lolly?’
      *Andy, do you have a lolly as well?*

At T13 (2;5.07 years), Mia only produced one single word Y/N question and one canonical order question, see (61).

(35)  (T13)  Papa auch pusten?
      ‘daddy as well blow?’
      *does daddy want to blow as well?*

Note that the adverb *auch* (‘as well’) was placed before the verb, which appeared in the infinitive form. This suggests that in the utterance the auxiliary verb was most
likely omitted, rather than following a non-target like word order.⁷

There was only one Y/N question with a missing subject at T14 (2;5.13 years), see (62).

(36) (T14) geht gar nicht?
‘goes at all not?’

doesn’t it work at all?

At T15 (2;5.18 years), only non-target like structures occurred, that is one instance was missing the verb and in the other instance the constituents remained in canonical order. There was also one occurrence where an adjunct was fronted, although this time the subject did not appear post-verbal, see (63).

(37) (T15) eine Mütze Mia aufsetzen?
‘a hat Mia on-put?’

does Mia put a hat on?

Note that the structure ADJ+SV is non-target-like in declarative, as well as in interrogative sentences according to German word order rules.

At T16 (2;5.26 years), there were nine occurrences where the subject appeared post-verbal to produce a target-like structure, as in (64).

(38) (T16) willst du ein Taschentuch?
‘want you a tissue?’

do you want a tissue?

However, four of those utterances were incomplete, as the object was missing, see (65), and in one the non-finite part of the verb was omitted, see (66).

(39) (T16) darfst du?
‘can you?’

are you allowed (to do X)?

(40) (T16) Emma musst du ein Taschentuch?
‘Emma must you a tissue?’

Emma, do you need a tissue?

⁷ The context in which the question occurs further supports this assumption.
Moreover, there were seven instances with a non-target-like structure: five were missing the verb and in the two other instances canonical order was applied, although Mia seemed to correct herself in one of them, as the subject was repeated again after the verb, see (67).

(41)  (T16)  
\textit{du haben du Roller?}
\textit{‘you have you scooter?’}
\textit{do you have a scooter?}

At T17 (2;6.01 years), Mia produced a tag-question for the first time, see (68).

(42)  (T16)  
\textit{xxx ich hab auch xx ja?}
\textit{‘xxx I have as well xx yes?’}
\textit{xxx I have xx as well, okay?}

Unfortunately, half of the utterance was unintelligible in the recording and therefore it cannot be counted as positive evidence that the structure had actually emerged at this stage. Again, there were eight instances in which the verb was missing and one instance where canonical order was applied, as well as two instances that only contained sentence-fragments, see (69) and (70).

(43)  (T17)  
\textit{und Andy?}
\textit{and Andy?}

(44)  (T17)  
\textit{mit beide Hände?}
\textit{with both hands?}

Note that (69) and (70) are possible structures in spoken speech, although they are not complete sentences.

At T18, Mia produced one fuller Y/N question, in (71), and one using canonical order, in (72).

(45)  (T18)  
\textit{hast du Xeine Brille mehr?}
\textit{‘have you (no) glasses anymore?’}
\textit{don’t you have glasses anymore?}

(46)  (T18)  
\textit{du machst das?}
\textit{‘you make it?’}
\textit{are you making it?}
Further, there were three instances of incomplete Y/N questions; that is two were missing the verb and one was missing the subject.

No instances of the structure ‘aux S(X)V’ were found in Mia’s corpus, which suggests that she had not yet started to produce Y/N questions with a VP that contained more than one element.

Constituent questions

This section presents the results of the analysis of constituent questions produced by Mia throughout the study.

Table 5.10 presents the full distribution of constituent questions appearing in Mia’s corpus. Constituent questions were divided into the following categories: single wh-word?, canonical order?, post-V S?, wh-word + SV?, and wh-word + VS?.

All constituent questions that contain a single wh-word are listed in the category single wh-word?, whereas questions in which the wh-word occurs in situ, as in the fictitious example in (73), fall under the category canonical order?.

(47) Hanna isst was?  

_Hanna eats what?_

The category post-V S contains all constituent questions where the subject appeared post-verbal, but no wh-word is supplied, as shown in (74). Note that this structure does not conform with German word order rules, as it is incomplete.

(48) Mia (T10) ist das?  

‘is this?’  

_what is this?_

Questions with a wh-word in FOC position followed by subject and verb in canonical order, as in (75), are listed under wh-word + SV?.

(49) Emma (T13) wo Onkel Karl hingehe?  

‘where uncle Karl to-go?’  

_where does uncle Karl go to?_

---

8 Note that the examples given to illustrate the different categories are not limited to Mia’s data alone, but include examples taken from the other children’s data sets as well.
Lastly, questions with a wh-word in FOC position and the subject in post-verbal position, see (76), are listed under wh-word + VS?.

(50) Karl (T13) was ist das?
‘what is this?’

Table 5.4  Mia: Full distribution of constituent questions

<table>
<thead>
<tr>
<th>structure/time</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>wh-word+VS?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>wh-word + SV?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>Post-V S?</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>canonical order?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
</tr>
<tr>
<td>single wh-word?</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

There were ten occurrences of wh- questions in Mia’s production. The first instance of a constituent question occurred at T10 (2;4.27 years). Yet, although the subject appeared post-verbal after the copula, it is incomplete as the wh-word was (‘what’) is missing, see (77).

(51)  (T10) ist das?
‘is this?’

(what) is this?

The utterance shown in (77) also occurred at T11 (2;4.28 years) and T12 (2;5.06 years).

At T13 (2;5.07 years), Mia produced the first complete constituent question, see (78).

(52)  (T13) Wo ist meine Giesskanne?

Where is my watering can?

As mentioned previously, the wh-word was (‘what’) also occurred on its own during this recording session.

At T14 (2;5.13 years), the instance shown in (77) above occurred again, as well as two occurrences of the structure shown in (79).
(53) (T14) ist denn Clown? (2x)
    ‘is then clown?’
    (where) is (the) clown then?

As can be seen, Mia again did not supply a wh-word, in this case wo (‘where’). Yet, she correctly placed the subject and copula verb and the adjunct denn (‘then’) in the correct position.

No constituent questions were found between T15 to T17, but Mia produced another complete constituent question at T18 (2;6.13 years), see (80), as well as a single wh-word question, see (81).

(54) (T18) wo’s Andy?
    Where’s Andy
(55) (T18) wo?
    where?

Throughout the corpus, no instances were found in which the wh-word appeared in situ, nor were there any occurrences where subject and verb were not inverted after placing a wh-word in FOC position.

5.0.2 Morphology

This section deals with Mia’s grammatical development in regards to morphology. It should be noted that it only looks at one morphological aspect, namely Mia’s accuracy rate in SV-agreement. According to her ELFRA-2 results (see Section 5.1.1), SV-agreement had already started to emerge prior to the commencement of the study. Thus, this section looks at accuracy rather than emergence.9

Table 5.11 shows Mia’s accuracy in SV-agreement for each recording session in total numbers and percentage. It shows the overall score for SV-agreement, as well as separate scores for declaratives and interrogatives. Each cell contains two numbers divided by a slash (i.e., “/”). The number before the slash signifies the frequency count of positive evidence for SV-agreement, while the number after the slash indicates the total occurrence of SV-like structures.

9Please refer to Section 4.2.1 in Chapter 4 for a discussion of ‘emergence’ versus ‘acquisition’.
Table 5.5  Mia: Accuracy rate in SV-agreement

<table>
<thead>
<tr>
<th>Time</th>
<th>Total</th>
<th>Total (%)</th>
<th>Declaratives</th>
<th>Interrogatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>5/5</td>
<td>100%</td>
<td>5/5</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2/2</td>
<td>100%</td>
<td>2/2</td>
<td>-</td>
</tr>
<tr>
<td>T3</td>
<td>1/2</td>
<td>50%</td>
<td>1/2</td>
<td>-</td>
</tr>
<tr>
<td>T4</td>
<td>1/1</td>
<td>100%</td>
<td>1/1</td>
<td>-</td>
</tr>
<tr>
<td>T5</td>
<td>2/3</td>
<td>66.7%</td>
<td>2/3</td>
<td>-</td>
</tr>
<tr>
<td>T6</td>
<td>4/8</td>
<td>50%</td>
<td>4/8</td>
<td>-</td>
</tr>
<tr>
<td>T7</td>
<td>2/3</td>
<td>66.7%</td>
<td>2/3</td>
<td>-</td>
</tr>
<tr>
<td>T8</td>
<td>9/17</td>
<td>52.9%</td>
<td>9/17</td>
<td>-</td>
</tr>
<tr>
<td>T9</td>
<td>1/4</td>
<td>25%</td>
<td>1/4</td>
<td>-</td>
</tr>
<tr>
<td>T10</td>
<td>8/9</td>
<td>88.9%</td>
<td>7/8</td>
<td>1/1</td>
</tr>
<tr>
<td>T11</td>
<td>5/5</td>
<td>100%</td>
<td>4/4</td>
<td>1/1</td>
</tr>
<tr>
<td>T12</td>
<td>19/21</td>
<td>90.5%</td>
<td>11/12</td>
<td>8/9</td>
</tr>
<tr>
<td>T13</td>
<td>4/6</td>
<td>66.7%</td>
<td>3/4</td>
<td>1/2</td>
</tr>
<tr>
<td>T14</td>
<td>13/15</td>
<td>86.7%</td>
<td>10/12</td>
<td>3/3</td>
</tr>
<tr>
<td>T15</td>
<td>4/6</td>
<td>66.7%</td>
<td>3/4</td>
<td>1/2</td>
</tr>
<tr>
<td>T16</td>
<td>13/14</td>
<td>92.9%</td>
<td>3/3</td>
<td>10/11</td>
</tr>
<tr>
<td>T17</td>
<td>21/30</td>
<td>70%</td>
<td>20/29</td>
<td>1/2</td>
</tr>
<tr>
<td>T18</td>
<td>28/30</td>
<td>93.3%</td>
<td>24/26</td>
<td>4/4</td>
</tr>
<tr>
<td>Total</td>
<td>142/180</td>
<td>-</td>
<td>112/145</td>
<td>30/35</td>
</tr>
</tbody>
</table>

Figure 5.3 shows Mia’s accuracy rate in SV-agreement for each recording session in percentage and her MLU. It shows the separate scores for declaratives and interrogatives, as well as her MLU at each recording session.
Based on Figure 5.3, it does not appear that Mia’s accuracy in SV-agreement and her MLU are interrelated. Mia’s score for SV-agreement, on the one hand, varied drastically between recording sessions, as it ranges from as low as 25% at T9 to up to 100% at T1, T2, T4, T11 and T14. Her MLU, on the other hand, stayed below the 3+ mark until T6, before increasing to a remarkable 3.96 at T7 and remaining mostly over 3+ from then on onwards.

Table 5.12 shows Mia’s accuracy in SV-agreement based on the different verb types that were found in the children’s data. It is divided into four categories: copula, lexical verb, aux + V and split verb. Each cell contains two numbers divided by a slash. The number before the slash signifies the frequency count of positive evidence for each verb type, whereas the number after the slash indicates the total occurrence of SV-like structures for that specific verb type.
Table 5.6  *Mia: Accuracy rate in SV-agreement based on verb type*

<table>
<thead>
<tr>
<th>Time</th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2/2</td>
<td>3/3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>1/1</td>
<td>1/1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T3</td>
<td>1/1</td>
<td>-</td>
<td>-</td>
<td>0/1</td>
</tr>
<tr>
<td>T4</td>
<td>-</td>
<td>1/1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T5</td>
<td>-</td>
<td>2/3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T6</td>
<td>1/1</td>
<td>3/7</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T7</td>
<td>-</td>
<td>0/1</td>
<td>-</td>
<td>2/2</td>
</tr>
<tr>
<td>T8</td>
<td>5/5</td>
<td>2/6</td>
<td>2/2</td>
<td>0/4</td>
</tr>
<tr>
<td>T9</td>
<td>-</td>
<td>1/2</td>
<td>-</td>
<td>0/2</td>
</tr>
<tr>
<td>T10</td>
<td>7/7</td>
<td>1/1</td>
<td>-</td>
<td>0/1</td>
</tr>
<tr>
<td>T11</td>
<td>2/2</td>
<td>3/3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T12</td>
<td>10/10</td>
<td>8/10</td>
<td>-</td>
<td>1/1</td>
</tr>
<tr>
<td>T13</td>
<td>3/3</td>
<td>1/2</td>
<td>0/1</td>
<td>-</td>
</tr>
<tr>
<td>T14</td>
<td>7/7</td>
<td>4/4</td>
<td>1/1</td>
<td>1/3</td>
</tr>
<tr>
<td>T15</td>
<td>1/1</td>
<td>1/1</td>
<td>-</td>
<td>2/4</td>
</tr>
<tr>
<td>T16</td>
<td>1/1</td>
<td>11/12</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T17</td>
<td>7/7</td>
<td>8/17</td>
<td>4/4</td>
<td>2/2</td>
</tr>
<tr>
<td>T18</td>
<td>9/9</td>
<td>12/14</td>
<td>2/2</td>
<td>5/5</td>
</tr>
<tr>
<td>Total</td>
<td>57/57</td>
<td>62/88</td>
<td>9/10</td>
<td>14/25</td>
</tr>
</tbody>
</table>

Table 5.13 shows Mia’s accuracy rate in SV-agreement based on person. It is laid out in a similar way to Table 5.12. That is, it also shows her accuracy rate for the four different verb types (copula, lexical verb, aux + verb and split verb), but instead of showing the accuracy rate at each recording session, it shows Mia’s overall accuracy rate based on person.
Table 5.7  Mia: Accuracy rate in SV-agreement based on person

<table>
<thead>
<tr>
<th>Copula</th>
<th>Lexical verb</th>
<th>AUX + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person SG</td>
<td>20/24</td>
<td>5/5</td>
<td>3/3</td>
</tr>
<tr>
<td>2nd person SG</td>
<td>17/24</td>
<td>1/1</td>
<td>0/1</td>
</tr>
<tr>
<td>3rd person SG</td>
<td>24/39</td>
<td>3/4</td>
<td>10/20</td>
</tr>
<tr>
<td>1st person PL</td>
<td>1/1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2nd person PL</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3rd person PL</td>
<td>-</td>
<td>-</td>
<td>0/1</td>
</tr>
<tr>
<td>Total</td>
<td>57/57</td>
<td>62/88</td>
<td>9/10</td>
</tr>
</tbody>
</table>

Based on the data presented in the two tables above, Mia’s accuracy rate in regards to copulas was 100%. However, a closer look at the data shows that between T1 and T17 Mia only used two out of twelve copula forms. Those were 3rd person SG present, see (82), and 3rd person SG past, see (83). At the very last recording session (T18), a third type of copula emerged for the first time, as there were two occurrences in which Mia applied the correct copula form for 2nd person SG past, see (84).

(56)  (T1)  Andy war’s
   ‘Andy was that’
   *Andy did that*

(83)  (T16)  da ist Mami
   ‘there is mummy’
   *there is mummy*

(84)  (T18)  du warst das
   ‘you were that’
   *you did that*

Mia’s accuracy rate in SV-agreement for AUX + verb was nearly 100% as well, although she did not produce any verb phrases that contained more than one verb up until T8, However, during that recording session she produced two utterances that contained an auxiliary plus a lexical verb, as in (85).
Nine out of ten times, Mia was able to match the information between subjects and predicates that contained an auxiliary plus a lexical verb for 1\textsuperscript{st}, 2\textsuperscript{nd} and 3\textsuperscript{rd} person SG. There was only one instance with 3\textsuperscript{rd} person SG where the information did not match, see (86).

(85) (T8) \textit{ich möchte jetzt essen}  
‘I would now eat’  
\textit{I would like to eat now.}

(86) (T13) \textit{eine Häuser hatte Mia gemacht}  
‘a houses has Mia made’  
\textit{Mia built a house}

In regards to utterances with a lexical verb, which made up the biggest part of ‘complete’ utterances containing a subject and predicate, Mia struggled to supply the correct form of the verb from time to time. In the majority of those occurrences, she supplied the infinitive form rather than inflecting the verb for person, as in (87).

(87) (T6) ‘Mia trinken’  
‘Mia drink (inf.)’  
\textit{Mia drinks}

There were also a few occurrences on which she inflected the verb for the wrong person, see (88).

(88) (T5) \textit{da Mia puller}  
‘there Mia (3\textsuperscript{rd} person SG) pee (1\textsuperscript{st} person SG)’  
\textit{Mia pees there}

Note that on all of those occasions, the subject required the verb to be inflected for 3\textsuperscript{rd} person SG, but Mia used 1\textsuperscript{st} person SG instead. The higher error rate compared to copula and AUX + verb might be due to the fact that lexical verbs forms have to be learned individually and cannot simply be memorized like copulas and AUX, which belong to a closed class and are therefore more easily acquired. Interestingly, Mia’s main issue in regards to SV-agreement based on verb type appeared to be with split verbs. She separated the verbal particle and the verb, while also using the correct inflection, in only 14 out of 25 obligatory instances, as in (89).
In the remaining eleven instances, she did not separate the verbal particle from the verb, nor did she use the right inflection, as in (90).

(89)  (T1)  Andy macht das (ka)putt
       ‘Andy makes this break’

Andy is breaking it

(90)  (T15)  eine Mütze Mia aufsetzen?
       ‘a hat Mia put-on’

does Mia put on a hat?

There was only one occurrence in which she used the right inflection, although she did not separate the verbal from the verb, see (91).

(91)  (T9)  die auch mitfahren
       ‘they also along-ride’

they also ride along

Note, however, that the inflection for 3rd person PL coincides with the infinitive form, and therefore the example cannot be counted as positive evidence that Mia was able to match the information between the subject and predicate in this case. It appears that there is a connection between Mia’s ability to match the information between subject and predicate and separating the verbal particle from the verb.

5.0.3 Summary of the key findings

This section contains a summary of the results presented above in bullet point form to help the reader recall the key findings from Mia’s data. Note that those findings will be discussed in more detail in Chapter 7.

Syntax (declaratives)

- The four declarative word orders SVO, SOV, XP+SV and XP+VS were all found in Mia’s L1 variety.
- SVO had already emerged at T1, while XP+SV emerged at T5, followed by XP+VS at T6 and SOV at T9.
- It appears that Mia preferred the word order SVO to SOV in utterances with the subject in sentence-first position.
• In utterances with an element other than the subject in sentence-initial position, the use of XP+SV dominated over the use of XP+VS during the earlier recording session. However, later on it was replaced with XP+VS in most instances and overall XP+VS outweighed the occurrences of XP+SV.

Syntax (interrogatives)

• Questions did not emerge in Mia’s L1 variety until T3.
• The first multi-word constituent question occurred at T10, while the first Y/N question that contained more than one word occurred at T12. In both instances the question was incomplete.
• Mia produced only ten constituent questions in total, although only two of them (T13 and T18) were complete and followed German grammar rules; that is, they contained a wh-word in sentence-first position and the subject occurred post-verbal. Note that in both instances the VP contained a copula.
• Overall, it appears that Mia was still at the very early stages of question acquisition.

Morphology

• Mia’s accuracy rate in SV-agreement varied significantly between recording sessions. It ranged from 25% to 100%, although most of the time it stayed over 65%.
• Mia seemed to struggle the most with supplying the right verb form in utterances with a lexical verb, as well as splitting a VP that contained a verb plus a verbal particle.
• The most common type of error found in Mia’s data was the overuse of the infinitive form, when the context required the use of an inflection.

5.1 Emma

This section presents a detailed analysis of Emma’s development throughout her longitudinal study. The presentation of the data is structured the same way as in
Mia’s section (Section 5.1). Emma was 2;7.20 years old at the beginning of the study which meant that she had already progressed past the targeted age bracket of 2;1 to 2;4 years. The results obtained through the ELFRA-2 questionnaire also revealed that she had progressed a lot further in her linguistic development than Mia. Thus, Emma is not considered the main informant of this study, but her data set is rather used to investigate whether certain linguistic phenomena, for instance the use of the ungrammatical structure XP+SV, exclusively occur at a certain stage in German L1 children’s linguistic development or if they can be found throughout.

5.1.1 ELFRA-2 results

Table 5.14 displays Emma’s ELFRA-2 scores for the three tested areas (productive vocabulary, syntax and morphology) at the age of 2;7.20 years. The highest possible score, the critical score, as well as the average score achieved by German children at the age of 24 months (see, Grimm & Doil, 2006) are also shown to enable an easy direct comparison.

<table>
<thead>
<tr>
<th></th>
<th>highest possible score</th>
<th>critical score</th>
<th>average score</th>
<th>Emma’s score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productive vocabulary</td>
<td>260</td>
<td>&lt; 50</td>
<td>133</td>
<td>203</td>
</tr>
<tr>
<td>Syntax</td>
<td>47</td>
<td>7</td>
<td>19</td>
<td>29</td>
</tr>
<tr>
<td>Morphology</td>
<td>16</td>
<td>2</td>
<td>6.5</td>
<td>10</td>
</tr>
</tbody>
</table>

All of Emma’s scores were well above the average score. That is, she scored 203 out of a possible 260 points for productive vocabulary, 29 out 47 points in regard to syntax and 10 out of 16 points for morphology. However, Emma was already 2;7.20 years old at the time the questionnaire was filled out which is nearly eight months older than the children tested for the average score. Due to this eight months advantage, one would expect that she would exceed the average score and therefore those two scores cannot be directly compared. Nevertheless, Emma’s results can still be used to establish the stage of her linguistic development at the start of the study.
Productive vocabulary

Emma was already able to produce the vast majority of words in all given categories. The only three areas in which her productive vocabulary was rather limited were pronouns, question words, and auxiliary/modal verbs. That is, she only used pronouns that were referring to herself (*ich*/’I’, *mein*/’my’, *meins*/’mine’, *mich*/’myself’ and *mir*/’me’) in addition to *du* (‘you’), *sein* (‘his’) and *wir* (‘we’), the question-words that are usually learnt first by children *wann* (‘when’), *wo* (‘where’) and the auxiliary/modal verbs *was* (‘what’) and *bin* (‘am’) and *muss* (‘must’).

Syntax

Emma was already past the one-word stage and was capable of producing more complex target-like declarative sentences, such as (92).

(92)   *ich* will nicht schlafen.
       ‘I want not sleep’
       *I don’t want to sleep*

She also already used question words other than *wo?* (‘*where?*’) and was capable of producing constituent questions that contained more than one word, although they were incomplete, as in (93).

(93)   *Wo* Ball hin?
       ‘where ball to?’
       *where is the ball?*

Her parents also remarked that Emma was already able to ask more complex questions that require a yes/no answer.

Morphology

Based on the answers given by her parents, Emma was already able to mark possession by adding an “s” to a person’s name and could also produce plural forms of nouns, as well as inflect verbs for the past tense. Moreover, she used a mix of target-like, see (94) and non-target-like constructions, see (95), when inflecting verbs for tense and person.
(94) wir gehen
‘we go’
(95) ich bauen
‘I build’

5.1.2 MLU and vocabulary size

This section provides an overview of Emma’s MLU scores and vocabulary size throughout the longitudinal study.

Table 5.15 below shows a summarised description of Emma’s speech data. It is laid out the same way as Table 5.2 in this chapter and therefore should be read the same way.

Table 5.9 Summary description of Emma’s speech samples

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months. days)</th>
<th>Recording time (minutes)</th>
<th>MLU</th>
<th>Word Tokens</th>
<th>Word Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;7.20</td>
<td>35</td>
<td>2.60</td>
<td>78</td>
<td>60</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;8.11</td>
<td>45</td>
<td>2.81</td>
<td>540</td>
<td>162</td>
<td>185</td>
</tr>
<tr>
<td>T3</td>
<td>2;8.17</td>
<td>35</td>
<td>2.73</td>
<td>232</td>
<td>90</td>
<td>217</td>
</tr>
<tr>
<td>T4</td>
<td>2;8.25</td>
<td>50</td>
<td>2.52</td>
<td>272</td>
<td>90</td>
<td>257</td>
</tr>
<tr>
<td>T5</td>
<td>2;9.02</td>
<td>70</td>
<td>3.27</td>
<td>717</td>
<td>162</td>
<td>342</td>
</tr>
<tr>
<td>T6</td>
<td>2;9.08</td>
<td>30</td>
<td>3.83</td>
<td>176</td>
<td>72</td>
<td>359</td>
</tr>
<tr>
<td>T7</td>
<td>2;9.14</td>
<td>70</td>
<td>2.73</td>
<td>571</td>
<td>184</td>
<td>441</td>
</tr>
<tr>
<td>T8</td>
<td>2;9.22</td>
<td>35</td>
<td>2.76</td>
<td>210</td>
<td>90</td>
<td>468</td>
</tr>
<tr>
<td>T9</td>
<td>2;9.23</td>
<td>35</td>
<td>2.69</td>
<td>417</td>
<td>134</td>
<td>518</td>
</tr>
<tr>
<td>T10</td>
<td>2;9.29</td>
<td>35</td>
<td>2.73</td>
<td>410</td>
<td>145</td>
<td>559</td>
</tr>
<tr>
<td>T11</td>
<td>2;10.18</td>
<td>70</td>
<td>3.02</td>
<td>372</td>
<td>116</td>
<td>590</td>
</tr>
<tr>
<td>T12</td>
<td>2;10.24</td>
<td>50</td>
<td>3.29</td>
<td>451</td>
<td>132</td>
<td>610</td>
</tr>
<tr>
<td>T13</td>
<td>2;10.25</td>
<td>35</td>
<td>3.13</td>
<td>655</td>
<td>162</td>
<td>651</td>
</tr>
<tr>
<td>T14</td>
<td>2;11.03</td>
<td>40</td>
<td>3.51</td>
<td>652</td>
<td>181</td>
<td>710</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>635</td>
<td>5753</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Emma produced a total of 5753 utterances in 14 recording sessions, which represent 635 minutes (10 hours and 35 minutes) of actual recording time collected over a time period of roughly four months. The data show that Emma’s vocabulary grew significantly throughout the duration of the longitudinal study. At T1, it consisted of only 60 types, whereas by the time of T2 it had more than tripled; that is 185 types in total. Following that, her vocabulary kept increasing, although not as steadily as that of the other two children. For instance, from T4 and T5 it increased from 257 types to a total of 342 types, whereas from T5 to T6 it only cumulated 27 new types (359 in total). Finally, at T14, however, Emma’s vocabulary contained 710 types in total, which was notably higher than that of the two other German L1 children.

Interestingly, Emma’s overall MLU score was only 2.97 and therefore lower than Mia’s, which was 3.17. Yet, unlike Mia’s, Emma’s MLU score did not vary drastically, but rather increased more or less constantly throughout the study. At T1, Emma’s MLU was only 2.60, whereas at T14 it had increased to 3.51.

5.1.3 Declaratives

This section presents the results of the analysis of Emma’s syntactic development in regard to declaratives.

Single words and formulae

Similar to Mia, Emma had already passed the one-word stage in regard to declaratives by the time of the first recording session. Table 5.16 presents the results of the distributional analysis for Emma’s data.

<table>
<thead>
<tr>
<th>time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>single constituent</td>
<td>7</td>
<td>52</td>
<td>10</td>
<td>29</td>
<td>32</td>
<td>7</td>
<td>43</td>
<td>13</td>
<td>35</td>
<td>31</td>
<td>30</td>
<td>14</td>
<td>40</td>
<td>34</td>
</tr>
<tr>
<td>formula</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>7</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Table 5.17 gives an overview of the lexical categories found in the one-word declarative sentences produced by Emma.
As can be seen, affirmatives, such as *ja* (‘yes’) and *yupp* (‘yeah’), and holophrastic negations, such as *nein* (‘no’) and *nee* (‘nah’) accounted for the biggest part of one-word utterances produced by Emma, while nouns and names were also used regularly on their own.

*Subject first*

The occurrences of utterances with the subject in sentence-first position are counted and divided into eight categories. Table 5.18 shows the range of canonical structures used by Emma throughout the study. It is laid out the same way as Table 5.5 (Mia’s results) in this chapter.
Table 5.12  
Emma: Distribution of canonical order structures and adjuncts

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>S aux (X)V</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>8</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>6</td>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SV(O) + OBL</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SV(O) + ADJ</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>10</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>10</td>
<td>8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>SOV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SVO</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>8</td>
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<td>1</td>
<td>2</td>
<td>6</td>
<td>9</td>
<td>4</td>
<td>11</td>
<td>3</td>
</tr>
<tr>
<td>S cop X</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>8</td>
<td>1</td>
<td>2</td>
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<td>6</td>
<td>1</td>
<td>6</td>
<td>5</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>SV (+ particle)</td>
<td>2</td>
<td>6</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>SVX</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

*mein Auto steht hier

As mentioned previously, Emma was roughly six months older than the other two learners which was also reflected in her use of canonical structures. That is, she was able to use a greater variety and more complex structures from very early on in the study.

At T1 (2;7.20 years), two instances of SV, as in (96), occurred, one of SVO, see (97), and one instance where the adjunct auch (‘also’) was placed between subject and verb, see (98).

(96)  (T1)  ich hab
      ‘I have’
      *I have*

(97)  (T1)  ich brauch die
      ‘I need those’
      *I need those*

(98)  (T1)  ich auch malen
      ‘I also draw’
      *I also (want to) draw*

The structures SV and SVO occurred frequently throughout the study and from T2 (2;8.11 years) onwards. The non-target-like structure SOV, however, only occurred five more times; that is, it occurred twice at T2, once at T8 (2;9.22 years), once at T11 (2;10.18 years) and once at T13. In all of those instances the adverb auch
(‘also’) preceded the verb, except at T13 (2;10.25 years) where the adverb *mal* (‘once’) was used instead, see (99).

(99)  (T13)  du mal rufen
‘you once shout’
you (should) shout

There were also five occurrences of the structure *SOV*, as in (100), and three occurrences of the structure *S + ADJ + OV*, as in (101).

(100)  (T5)  ich ein Löwe sein
‘I a lion be’
*I am a lion*

(101)  (T7)  ich noch meinen Kuchen aufessen
‘I still my cake up-eat’
*I still (have to) finish my cake*

Note that, as in Mia’s data, the verb appeared in the infinitive form in 13 of the 14 occurrences of S(X)V which suggests that the VP was actually incomplete due to a missing auxiliary. In the remaining one at T9, the verb appeared in the past participle, see (102), which also supports that theory.

(102)  (T9)  ich das gleich geschafft
‘I this immediately done’
*I am nearly done with it*

At T2, more complex structures already started to emerge in Emma’s corpus, as now more than one additional constituent is frequently added to the foundational order of SV, as in (103).

(103)  (T2)  ich brauch jetzt das . hier
‘I need now this here’
*I now need this one here*

Additionally, the structure S aux (X)V also emerged at T2 and it occurred three times at this recording session. Like Mia, Emma was able to place any additional elements in the correct position before the non-finite verb right away, regardless of whether it was an object, as in (104), or an adjunct, as in (105).
The structure S aux (X)V occurred continuously throughout the study, that is 43 times in total. The structure of all instances complied with German word order rules, although Emma sometimes had problems supplying the right past participle form, see (106) for an example.

(106) (T11) Mama hat gekaufen
‘mommy has bought’
*mommy has bought (something)*

Interestingly, in all six instances that contained a wrong past participle form, the non-finite verb was made up of the prefix *ge-* plus the infinitive. Thus, it seems that Emma had actually understood the general concept of forming the past participle, as *ge-* is used in German to create the past participle, but she was not yet able to produce the right form at all times.

There was also one occurrence of an OBL at (T5), see (107).

(107) (T7) mein Auto steht hier
‘my car stands here’
*my car is here*

**Adverbial and object fronting**

The occurrences of declarative sentences where a constituent other than the subject is placed into sentence-initial position are counted and analysed.

Table 5.19 presents the distributional analysis of XP-initial found in Emma’s data set. It can be read in the same fashion as Table 5.6 in this section.
Table 5.13  *Emma: Distribution of XP in initial position*

<table>
<thead>
<tr>
<th>time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJ + VS</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>ADJ + VS(O)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>OBJ + SV</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ADJ + SV(O)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>da/hier + lex. S</td>
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<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
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<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>da/hier + cop. S</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>9</td>
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<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>da/hier + SV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

As can be seen, at least one instance of XP-initial occurred during each recording session conducted with Emma with *da/hier* plus copula or lexical verb being the most frequently used structure, see (108) and (109).\(^ {10} \)

(108)  (T2)  hier ist eine Raupe (2x)
  ‘here is a caterpillar’
  
  *here is a caterpillar*

(109)  (T4)  da sitz ich (3x)
  ‘there sit I’
  
  *I sit here*

At T1 (2;7.20 years) only one occurrence appeared in which *da* was placed into sentence-first position followed by a copula. There were five occurrences of the structure *da/hier* plus copula at T2 (2;8.11 years) and one occurrence in which another adverb appeared in initial position, see (110).

(110)  (T2)  so Mia saubermachen
  ‘this way Mia clean make’
  
  *Mia cleans this way*

Note that in example (110) the finite part of the VP *machen* (‘make’) was placed into sentence-final position together with the verbal particle *sauber* (‘clean’), rather than being placed into sentence-second position, as is required by German word order rules.

\(^ {10} \) A complete list of all the occurrences of XP-fronting found in Emma’s data set is presented in Appendix C.
There were two other instances in the whole corpus where the non-target like structure XP + SV was employed, see (111) and (112).

(111) (T7) hier das gehört
‘here this belongs’
this belongs here

(112) (T12) da Mia hat nicht gemacht
‘there Mia has not done’
Mia has not done (it) there

As can be seen, the utterance shown in (112) occurring at T12 (2;10.24 years) was made up of a rather complex structure. The VP not only consisted of an auxiliary verb plus a lexical verb that had to be separated, but also contained a negator that had to be placed into the right position in order to comply with German word order rules. However, the whole VP appeared in sentence-final position resulting in the non-target-like structure XP + SV. Note that at T11 (2;10.18 years) a comparable example to the one found at T12 occurred, see (113).

(113) (T11) da hast du (ge)macht
‘there have you done‘
you have done (it) there

Both instances contained the same lexical verb and are in the past progressive, which required the addition of the auxiliary verb haben (‘to have’). However, SV-inversion only occurred in the utterance that did not include a negator (159); that is the one with the less complex structure.

In all other instances, the verb was placed correctly in sentence-second position followed by the subject, regardless of whether an adverb was placed into TOP position, see (114), or an object, see (115).

(114) (T5) jetzt sitzt du da
‘now sit you there‘
you sit here now

(115) (T11) das mag ich nicht
‘this I like not‘
this I don’t like
There was also a drastic increase in OBJ-fronting that occurred around T11 (2;10.18 years). There were eight instances in total where an object was placed into sentence-first position from T11 to T14 (2;11.03 years), whereas there were only two instances\textsuperscript{11} between T1 (2;7.20 years) and T10 (2;9.29 years). The most frequent object that was fronted is the pronoun \textit{das} (‘this’) on its own, as in (116), but there were also two occurrences in which a NP containing a determiner plus noun, as in (117), was fronted and one occurrence where the pronoun \textit{das} (‘this’) was accompanied by two adverbs, see (118).

\begin{equation}
\text{(116) (T8) } \text{das mach ich gleich} \\
\text{‘this make I soon’} \\
\text{\textit{I do this soon}} \\
\end{equation}

\begin{equation}
\text{(117) (T13) } \text{nen Gummibär hab ich noch} \\
\text{‘a gummi-bear have I still’} \\
\text{\textit{a gummi-bear I still have}} \\
\end{equation}

\begin{equation}
\text{(118) (T11) } \text{nur das hier mag ich} \\
\text{‘only this here like I’} \\
\text{\textit{I only like this here}} \\
\end{equation}

5.1.4 Interrogatives

This section presents the results of the analysis of Emma’s syntactic development in regards to interrogatives.

\textit{Single constituent questions}

Unlike Mia, Emma had already started to produce questions prior to the commencement of the study. Therefore, the first one-word question-like utterances appeared as early as T1 in her data. Similar to Mia, Emma also marked those early question-like one-word utterances by a change in intonation. Figure 5.4 below is a visualisation of the utterance “Nudi” (‘noodle’) in the form of a waveform (top) and a pitch contour (bottom). On the left-hand side the utterance is shown in its

\footnote{The instance that occurred at T2 (see below) was not taken into account, as it could not be established, whether the informant used the object \textit{das} (‘this’) or the adverb \textit{da} (‘there’).}

(T2) da(s) da ess ich (\textit{this/there there eat I})
declarative form, whereas on the right-hand side it is presented in its interrogative form.

Figure 5.4  *Visualisation of the utterance “Nudi” (waveform and pitch)*

Figure 5.5 below is a visualisation of the utterance “Pfannekuchen” (‘pancake’) in the form of a waveform (top) and a pitch contour (bottom). On the left-hand side the utterance is shown in its declarative form, whereas on the right-hand side it is presented in its interrogative form.
As can be seen, in both cases, the waveforms and pitch contours of the same utterance differ greatly from each other, when used in varying contexts. There is a clear change in regards to prosody that seems to depend on whether the utterance appears in a context that suggests that it functions as a declarative, or in one that suggests that it functions as an interrogative. Based on the visual comparison of the utterances “Nudi” and “Pfannekuchen”, it appears that Emma assigns the same utterance different functions through a change in intonation.
Table 5.20 presents the results of the distributional analysis of single word questions produced by Emma. It is laid out the same way as Table 5.7 in this chapter and therefore should be read the same way.

Table 5.14  

<table>
<thead>
<tr>
<th>structure/time</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y/N?</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>12</td>
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<td>3</td>
</tr>
<tr>
<td>wh-word?</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>1</td>
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</tr>
<tr>
<td>Interjections?</td>
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<td>4</td>
<td>6</td>
<td>13</td>
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<td>11</td>
<td>4</td>
<td>7</td>
<td>18</td>
<td>5</td>
</tr>
</tbody>
</table>

Emma used all three types of single word questions multiple times throughout the duration of the longitudinal study. Although interjections, as in (119) and (120), made up the majority of her single word questions, she also produced a variety of *wh-* constituent questions, see (121) to (123).

(119)  (T7)  ja?
      yes
(120)  (T11) hâh?
      huh?
(121)  (T1)  was?
      what?
(122)  (T3)  wohin?
      where to?
(123)  (T10) wo?
      where?

Table 5.21 gives an overview of the lexical categories found in Emma’s production of single word Y/N questions.
Table 5.15  *Emma: Lexical categories of single word Y/N questions*

<table>
<thead>
<tr>
<th>Structure/time</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noun/Pronoun?</td>
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<td>1</td>
<td>3</td>
<td>2</td>
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<td>1</td>
<td>3</td>
<td>3</td>
<td>-</td>
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<td>0</td>
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</tr>
<tr>
<td>Verb?</td>
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<td>0</td>
<td>0</td>
<td>6</td>
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<td>1</td>
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<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Particle/Prep.?</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>-</td>
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</tr>
<tr>
<td>Adjective?</td>
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<td>3</td>
<td>0</td>
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<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Adverb?</td>
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<td>1</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

The majority of single word Y/N questions produced by Emma contained a noun phrase, either made up of a single noun/pronoun, as in (124), or a determiner plus noun, see (125).

(124)  (T10)  ich?
       me?
(125)  (T7)  ein Spielplatz ?
       *a playground?*

Verbs, adjectives and adverbs were also sporadically used by Emma to create single constituent Y/N questions, but no instance with verbal particles/prepositions was supplied.

Y/N questions

This sub-section presents the results of the analysis of Y/N questions produced by Emma throughout the study. Table 5.22 displays the full distribution of Y/N questions appearing in Emma’s corpus. It is laid out as Table 5.9 in this chapter and therefore can be read the same way.
Table 5.16  
Emma: Full distribution of Y/N questions

<table>
<thead>
<tr>
<th>structure/time</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>aux + S(X)V?</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
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</tr>
<tr>
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<td>0</td>
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<td>1</td>
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<td>0</td>
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<td>2</td>
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</tr>
<tr>
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<td>3</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
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<td>0</td>
<td>2*</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*imperative plus tag ^ADJ fronting

Emma only produced one Y/N question with the structure VS(X)? at T1 (2;7.20 years), see (126).

(126)  (T1)  darf ich xx Baby?
      ‘may I xx baby?’

However, half of the utterance was unintelligible in the recording and therefore it cannot be counted as positive evidence that the structure had actually emerged at that stage.

At T2 (2;8.11 years), Emma only produced incomplete Y/N questions, that is two were missing the subject, as in (127), and one was missing the verb, see (128).

(127)  (T2)  ein Buch angucken?
      ‘a book at-look?’

      *can we look at a book?*

(128)  (T2)  du auch mal?
      ‘you as well once?’

      *do you want to do it as well?*

There were also two instances where a tag-question was added to an imperative, as in (129).
At T3 (2;8.17 years), there were two instances in which canonical order was applied, as in (130), as well as one instance where the subject was omitted. 

(130) (T3) du auch Mittag essen? 
‘you as well lunch eat?’
do you (want to) eat lunch as well?

Note that in both instances with canonical order the verb occurred in the infinitive form in sentence-final position, which suggests that they were rather incomplete than non-target-like, as the auxiliary verb seemed to have been omitted. There were two non-target-like Y/N questions at T4 (2;8.25 years), one that followed canonical order and one in which the subject was omitted. Yet, there was also one occurrence of a target-like structure, see (131) and one instance that only contained a sentence fragment, see (132), which, nonetheless is a target-like utterance in spoken speech.

(131) (T4) naschst du immer noch? 
‘nibble you still?’
are you still nibbling?
(132) (T4) bei de(m) Baum?
at this tree?

At T5 (2;9.02 years), there was one instance where the subject appeared post-verbal to produce a target-like Y/N question, see (133), and three occurrences in which a tag question was added to canonical order, as in (134).

(133) (T5) hast du auch ein Auto? 
‘have you as well a car?’
do you have a car as well?
(134) (T5) ich schiebe, ja? 
‘I push, yes?’
I push, okay?

There was one more instance made up of a sentence fragment that was target-like, see (135), but the remaining 17 instances were all non-target-like.
In eight instances the constituents occurred in canonical order, one was missing the subject, five were missing the verb and three instances only contained a verb plus a tag question, see (136).

(135) (T5) hier oben?
‘here up?’

(136) (T5) rutschen, ja? (3x)
‘slide, yes?’

Only non-target-like Y/N questions appeared at T6 (2;9.08 years) and T7 (2;9.14 years). That is, there was one instance with canonical order (T7), three instances where the verb was omitted (one at T6 and two at T7) and three instances in which the subject was omitted (T7).

From T8 (2;9.22 years) onwards, the number of target-like Y/N questions started to increase visibly in Emma’s data, although those with a non-target-like structure also still appeared frequently. There was only one instance at T8 in which the constituents appeared in canonical order and where the object was missing, see (137), whereas all other Y/N questions during this recording session were target-like. That is, in two instances a tag-question was added to an utterance with canonical order, as in (138), and in two instances the auxiliary verb and the subject were inverted, while the non-finite part of the verb was moved to sentence-final position, as in (139).

(137) (T8) ich machen?
‘I make?’

(138) (T8) du rufst mich, ja?
‘you call me, yes?’

(139) (T8) ha(s) t du mir gerufen?
‘have you mine called’
At T9 (2;9.23 years), there was one instance with the constituents in canonical order, one in which the subject was omitted and one in which the verb was missing. However, there was also one Y/N question with the structure aux S(X)V, see (140).

(140) (T9) ich will . kann ich noch mehr haben?
‘I want . can I again more have?’

Can I have more?

There was one instance of a Y/N question with the subject appearing post-verbal and one in which the verb was missing at T10 (2;9.29 years), but there were only non-target-like Y/N questions at T11 (2;10.18 years). That is, in one instance the subject was not placed behind the verb in sentence-second position, while in the other the subject was omitted. At T12 (2;10.24 years), the great majority of Y/N questions produced by Emma were target-like, as there was only one instance in which canonical order was applied. Four of the remaining seven instances had the structure aux S(X)V, as in (141), whereas in the other three instances a tag-question was added to an utterance in canonical order, see (142).

(141) (T12) musst du auch kacken?
‘must you as well poo?’

Do you need to poo as well?

(142) (T12) ich geh ganz nah ran, ja?
‘I go really close up, yes?’

I go really close (to it), okay?

At T13 (2;10.25 years), there were two Y/N questions where the subject occurred post-verbal and two with the structure canonical order + tag. In addition, there were three instances in which canonical order was supplied and one instance where the subject was omitted. There was also one instance where the object was placed into sentence-first position followed by the verb in sentence-second and the subject in sentence-third position, see (143).

(143) (T13) eine Banane hast du noch?
‘a banana have you still?’

Do you still have a banana?

At T14 (2;11.03 years), Emma produced four Y/N questions with the structure aux S(X)V, as in (144), and two with the structure VS(X), as in (145).
(144) (T14) hast du die sauber(ge)macht? (3x)
   ‘have you those clean-make?’
   did you clean up those?

(145) (T14) hast du Popel?
   ‘have you bogey?’
   do you have a bogey?

There were also four Y/N questions where canonical order was applied, as well as one with the subject missing, three with the verb missing and one that only contained a sentence fragment, see (146).

(146) (T14) und das?
   ‘and this?’
   and this?

Constituent questions
This section presents the results of the analysis of constituent questions produced by Emma throughout the study. Table 5.23 displays the full distribution of constituent questions appearing in Emma’s corpus. It is laid out in the same way as Table 5.10 in this chapter with the addition of two extra rows, as Emma produced a greater variety of constituent questions than the other two informants. Constituent questions where the subject is omitted, as in (147), are listed under S missing, while those without a verb, as in (148), are listed under V missing.

(147) Emma (T2) was . das?
   ‘what . this?’
   what is this?

(148) Emma (T13) wo ist?
   ‘where is?’
   where is (X)?
Table 5. 17  *Emma: Full distribution of constituent questions*

<table>
<thead>
<tr>
<th>Structure/time</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>wh-word + VS?</td>
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<td>1</td>
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<td>-</td>
<td>0</td>
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<td>3</td>
<td>(1)</td>
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<td>0</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>wh-word + SV?</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>2</td>
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<td>-</td>
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<td>0</td>
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<td>3</td>
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<td>0</td>
<td>0</td>
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</tr>
</tbody>
</table>

At T1 (2;7.20 years), there was only one occurrence of a constituent question in form of a single wh-word question, see (149).

(149)  (T1)  was?
    *what?*

At T2 (2;8.11 years), however, Emma produced eight constituent questions which were target-like, that is a wh-word was fronted and the subject appeared post-verbal, see (150).

(150)  (T2)  wo ist Krabbel?
  ‘where is Krabbel?‘
  *where is Krabbel?*

In all eight instances, the focal question word was either *wo* (‘where’) or *was* (‘what’) and in five instances it was followed by the copula *ist* (‘is’), as in (150) above. However, there was also form variation, see (151) as well as lexical variation, see (152).

(151)  (T2)  wo bist du?
  ‘where are you?’
  *where are you?*

(152)  (T2)  was willst du? (2x)
  ‘what want you?’
  *what do you want?*
Consequently, it can be said that the structure wh-word + VS? had already emerged in Emma’s L1 variety at that point. There were also two instances at T2 in which the verb was omitted, although only one can be classified as non-target-like; that is the one in (153). The other instance shown in (154) is a shortened version of was ist denn? or was willst du? (‘what is it then?/what do you want?’).

(153) (T2) was . das?
‘what this?’
what is this?
(154) (T2) was denn?
‘what then?’
what is it then?/what do you want?

It could be classified as a formula, as it is widely used in colloquial German and also frequently employed by adult German L1 speakers.

At T3 (2;8.17 years), there was one instance of a single wh-word constituent question, one occurrence of a post-verbal subject with the wh-word missing, see (155), and one instance of a complete constituent question, see (156).

(155) (T3) Mia . machst du?
‘Mia . do you?’
Mia what are you doing?
(156) (T3) wo ist das nur?
‘where is this just?’
where did it go?

Note that the adjunct nur (‘just’) was added at the end in (156) which made it a more complex structure.

At T4 (2;8.25 years), one more complete constituent question occurred, see (157), but otherwise only incomplete constituent questions (eight in total) can be found up until T7 (2;9.14 years). That is, the subject occurred correctly post-verbal, but the wh-word was missing, as in (158).

(157) (T4) wer war das?
‘who was it?’
who was it?
No instances of constituent questions were found at T6 (2;9.08 years) and only an incomplete one occurred at T7, see (159).

(159)  (T7)  Cora Cora bist du?
‘Cora Cora are you?’
*Cora, where are you?*

One instance of a complete constituent question occurred at T8 (2;9.22 years), see (160), and three at T9 (2;923 years), as in (161).

(160)  (T8)  was machst du?
‘what do you?’
*what are you doing?*

(161)  (T9)  wo ist mein Essen hin?
‘where is my food to?’
*where is my food?*

Interestingly, all three instances at T9 exhibited the same structure, that is wo (‘where’) + ist (‘is’) + subject in addition to the particle/preposition hin (‘to’) in sentence-final position. Note that in German the wh-word wo (‘where’) in combination with hin (‘to’) deals with the motion towards a destination, whereas wo by itself deals with a single location or a state of rest. Recall also that wohin (‘where to’) on its own already occurred as early as T3 (2;8.17 years) in Emma’s data.

At T10 (2;9.29 years), there were two instances in which the VP was made up of an auxiliary plus lexical verb, see (162) and (163).

(162)  (T10)  wollen alle Kinder hingehen?
‘want all children to go?’
*where do all the children want to go to?*

(163)  (T10)  wo x. wollen die Kinder hingehen?
‘where x. want the children to go?’
*where do the children want to go to?*

In (162), subject and verb were inverted and the non-finite part of the VP was moved to sentence-final position, yet the wh-word was missing which therefore made it
incomplete. In (163), the wh-word was included, but was followed by an unintelligible word, as well as a hesitation pause. Therefore, it cannot be counted as positive evidence that the structure had actually emerged at that stage. There was a third version of the same question which, however, was missing the VP except for the particle *hin* (‘to’), see (164).

(164) (T10)  wo alle Kinder hin?
   ‘where all children to?’
   *where do all the children want to go to?*
There were two instances of complete constituent questions at T11 (2;10.18 years), but none at T12 (2;10.24 years), as the wh-word was omitted in all six instances, although the subject occurred post-verbal. At T13 (2;10.25 years), there were seven occurrences of a complete constituent question, but also five incomplete constituent questions, as four of them did not contain a wh-word and one was missing the subject, see (165).

(165) (T13)  wo ist?
   ‘where is?’
   *where is X?*
There was also one instance in which the non-target-like structure wh-word + SV was applied, see (166).

(166) (T13)  wo Onkel Karl hingehen?
   ‘where uncle Karl to go?‘
   *where does uncle Karl go to?*
Note that the VP in (166) above contains a finite and non-finite part. In order to produce a target-like constituent question, it would therefore be necessary to split up the VP and move the finite part to sentence-second position, as shown in (167), or to add an auxiliary in sentence-second position, as in (168).

(167)  wo geht Onkel Karl hin?
   *where does uncle Karl go to?*
(168)  wo will Onkel Karl hingehen?
   *where does uncle Karl want to go to?*
At T14 (2;11.03 years), there were three instances of the structure \( wo + \text{ist} \) (‘where + is’), see (169), and one instance where the particle/preposition \( \text{hin} \) (‘to’) was added in sentence final position, see (170).

(169)  (T14)  wo ist x? (3x)
        ‘where is x?'
        \( where \ is \ x? \)

(170)  (T14)  wo ist die jetzt hin?
        ‘where is she now to?’
        \( where \ did \ she \ just \ go? \)

However, there were also three instances where the wh-word \( \text{was} \) (‘what’) was missing, see (171) and (172), one instance where the subject as missing and one instance in which the verb was omitted.

(171)  (T14)  hast du? (2x)
        ‘have you?’
        \( what \ do \ you \ have? \)

(172)  (T14)  machst du? (2x)
        ‘do you?’
        \( what \ are \ you \ doing? \)

5.1.5 Morphology

This section deals with one aspect in regards to Emma’s morphological development, namely SV-agreement.

Table 5.24 shows Emma’s accuracy rate in SV-agreement for each recording session in total numbers and percentage. It is laid out the same way as Table 5.11 (Mia’s section) in this chapter.
Table 5.18  *Emma: Accuracy rate in SV-agreement (total numbers)*

<table>
<thead>
<tr>
<th>Time</th>
<th>Total</th>
<th>Total (%)</th>
<th>Declaratives</th>
<th>Interrogatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>3/5</td>
<td>60%</td>
<td>3/5</td>
<td>-</td>
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<td>T2</td>
<td>40/47</td>
<td>85.1%</td>
<td>26/36</td>
<td>11/11</td>
</tr>
<tr>
<td>T3</td>
<td>13/17</td>
<td>76.5%</td>
<td>11/13</td>
<td>2/4</td>
</tr>
<tr>
<td>T4</td>
<td>17/19</td>
<td>89.5%</td>
<td>12/14</td>
<td>5/5</td>
</tr>
<tr>
<td>T5</td>
<td>58/61</td>
<td>95.1%</td>
<td>48/50</td>
<td>8/11</td>
</tr>
<tr>
<td>T6</td>
<td>11/15</td>
<td>73.3%</td>
<td>11/15</td>
<td>-</td>
</tr>
<tr>
<td>T7</td>
<td>32/37</td>
<td>86.5%</td>
<td>31/36</td>
<td>1/1</td>
</tr>
<tr>
<td>T8</td>
<td>16/18</td>
<td>88.9%</td>
<td>11/12</td>
<td>5/6</td>
</tr>
<tr>
<td>T9</td>
<td>27/31</td>
<td>87.1%</td>
<td>21/25</td>
<td>6/6</td>
</tr>
<tr>
<td>T10</td>
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<td>80.8%</td>
<td>18/23</td>
<td>3/3</td>
</tr>
<tr>
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<td>35/38</td>
<td>2/3</td>
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<td>94.4%</td>
<td>37/40</td>
<td>14/14</td>
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<tr>
<td>T13</td>
<td>64/68</td>
<td>94.1%</td>
<td>46/49</td>
<td>18/19</td>
</tr>
<tr>
<td>T14</td>
<td>49/51</td>
<td>96.1%</td>
<td>35/36</td>
<td>14/15</td>
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<tr>
<td><strong>Total</strong></td>
<td>439/488</td>
<td>345/382</td>
<td>89/98</td>
<td></td>
</tr>
</tbody>
</table>

*Figure 5.6 displays Emma’s separate scores in SV-agreement for declaratives and interrogatives, as well as her MLU at each recording session.*

*Figure 5.6  Emma: Accuracy Rate in SV-agreement (percentage) and MLU*
The first thing that can be noticed when looking at Emma’s data, is that she produced a much higher number of utterances that contain a subject and verb compared to Mia, as her linguistic development had already progressed further due to the age difference. Overall, Emma’s score regarding SV-agreement was much higher than Mia’s, as it averaged around 85.52%. In regards to declaratives, it stayed mostly around 80-90% throughout the study, with the exception of T1 where it was only 60%. Her scores for interrogatives fluctuated a bit more and actually dropped as low as 50% at T3. It does not appear that there was a connection between Emma’s scores in SV-agreement and her MLU, as no pattern became apparent.

Table 5.25 shows Emma’s accuracy rate in SV-agreement based on different verb types, while Table 5.26 shows her accuracy rate in SV-agreement based on person. They are laid out the same way as Table 5.12 and Table 5.13 in Mia’s section and therefore should be read the same way.

Table 5.19  *Emma: Accuracy rate in SV-agreement based on verb types*

<table>
<thead>
<tr>
<th>Time</th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
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<tbody>
<tr>
<td>T1</td>
<td>1/1</td>
<td>2/4</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>16/16</td>
<td>19/24</td>
<td>3/3</td>
<td>2/4</td>
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<td>4/4</td>
<td>7/11</td>
<td>1/1</td>
<td>-</td>
</tr>
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<td>T4</td>
<td>3/4</td>
<td>11/12</td>
<td>3/3</td>
<td>-</td>
</tr>
<tr>
<td>T5</td>
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<td>38/40</td>
<td>1/1</td>
<td>1/1</td>
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<td>18/19</td>
<td>8/9</td>
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<td>8/8</td>
<td>26/29</td>
<td>14/14</td>
<td>3/3</td>
</tr>
<tr>
<td>T13</td>
<td>14/14</td>
<td>44/48</td>
<td>4/4</td>
<td>1/2</td>
</tr>
<tr>
<td>T14</td>
<td>16/16</td>
<td>15/17</td>
<td>17/17</td>
<td>1/1</td>
</tr>
<tr>
<td>Total</td>
<td>106/108</td>
<td>247/286</td>
<td>71/75</td>
<td>15/19</td>
</tr>
</tbody>
</table>
Table 5. 20  

*Emma: Accuracy rate in SV-agreement based on person*

<table>
<thead>
<tr>
<th></th>
<th>Copula</th>
<th>Lexical verb</th>
<th>AUX + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; person SG</td>
<td>10/11</td>
<td>153/169</td>
<td>45/48</td>
<td>11/13</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; person SG</td>
<td>8/9</td>
<td>44/59</td>
<td>14/14</td>
<td>-</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; person SG</td>
<td>87/87</td>
<td>43/51</td>
<td>7/8</td>
<td>4/6</td>
</tr>
<tr>
<td>1&lt;sup&gt;st&lt;/sup&gt; person PL</td>
<td></td>
<td>6/6</td>
<td>2/2</td>
<td>-</td>
</tr>
<tr>
<td>2&lt;sup&gt;nd&lt;/sup&gt; person PL</td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3&lt;sup&gt;rd&lt;/sup&gt; person PL</td>
<td>1/1</td>
<td>1/1</td>
<td>3/3</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>106/108</td>
<td>247/286</td>
<td>71/75</td>
<td>15/19</td>
</tr>
</tbody>
</table>

Interestingly, Emma was the only one of the three children who did not score 100% in regards to copulas. There were two instances in which she failed to supply SV-agreement in an utterance containing a copula, see (173) and (174).

(173)  (T4)    
    du war x
    `you was x`
    *you were x*

(174)  (T5)    
    ich ein Löwe sein
    `I a lion be`
    *I am a lion*

However, by taking a closer look at the data, it becomes apparent that, unlike the other two children, Emma’s use of the copula was not mostly restricted to 3<sup>rd</sup> person SG present, as she employed the copula with a variety of subjects. For instance, the correct copula form for second person SG present emerged as early on as T2 in Emma’s data, see (175).

(175)  (T2)    
    wo bist du?
    `where are you?`
    *where are you?*

In total, seven out of the twelve German copula forms could be found frequently throughout Emma’s data set. That is, she repeatedly used past and present forms for 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> person and there was also one occurrence on which she used the present copula form for 3<sup>rd</sup> person plural.
At times, Emma struggled to supply the correct form of the lexical verb, although this type of error was not nearly as frequent in her data, as it was in the other two children’s data sets. Yet, there were 39 occasions on which she failed to supply the required infinitive. Similar to Mia and Karl, Emma also mainly supplied the infinitive form, see (176) when producing this type of error.

(176) (T4) Mia Hände waschen
‘Mia hands wash (inf.)’
Mia washes (her) hands

There were only eight occasions on which Emma inflected the verb for the wrong person. That is, she supplied a 3rd person SG form although the subject required the inflection to be 1st person SG, see (177), or she supplied 1st person SG although 2nd person SG was required, as in (178)

(177) (T6) ich hat auch ein Auaweh
‘I (1st person SG) has (3rd person SG) also an ouch’
I also hurt myself

(178) (T5) du mach du auch
‘you (2nd person SG) do (1st person SG) you as well’
you do as well

Compared to the other two children, Emma produced a lot more utterances that contained a verb phrase made up of more than one word. Yet, she did not seem to struggle overly with SV-agreement in those instances, as there were only four out of 75 instances in which she produced an error in a verb phrase that contained an auxiliary and a lexical verb. There were two occurrences (T11) in which the information between the subject and the predicate did not match, see (179).

(179) (T11) ich hat hier hingelegen
‘I (1st person SG) has (3rd person SG) here down-put’
I put (it) down here

In one instance, the information within the verb phrase and between the subject and the predicate actually matched. However, Emma failed to supply the correct auxiliary verb, see (180).
(180) (T12) das war ich (g)emacht
   ‘this was I done’
   *I have done this*

In the remaining instance, she did not supply an auxiliary verb, see (181).

(181) (T9) ich das gleich geschafft
   ‘I this right away done’
   *I am done with this right away*

As in the other two children’s data, there were also a few instances in Emma’s data set where she neglected to split a verb phrase containing a verb and a verbal particle in a required context, see (182).

(182) (T7) ich noch meinen Kuchen aufessen
   ‘I still my cake up-eat (inf.)’
   *I still (have to) eat up my cake*

Table 5.27 presents the types of errors Emma made concerning SV-agreement. It is laid out the same way as Table 5.14 in Mia’s section and therefore should be read the same way.
Table 5.21  *Emma: Types of errors in SV-agreement*

<table>
<thead>
<tr>
<th>Time</th>
<th>Infinitive</th>
<th>Wrong inflection</th>
<th>Wrong Aux supplied</th>
<th>Lexical verb not supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T2</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T3</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>T4</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T5</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T6</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>T7</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T8</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T9</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T10</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T11</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T12</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>T13</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>T14</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>34</td>
<td>14</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Similar to Mia and Karl, the majority of errors made by Emma were the overuse of the infinitive form, as in (183).

(183) (T3) ich kochen

‘I cook’

*I cook*

As the other two children, she also inflected the verb wrongly, as in (184).

(184) (T10) Jenni esst so eins

‘Jenni eat such one’

*Jenni eats one of those*

There were four instances (T7, T9 & T11) where Emma produced a verb-like word that was a combination of the past prefix *ge*- and the infinitive form of a verb, as in (185).
Neither Mia nor Karl produced this type of error. Yet, it has to be kept in mind that Emma was already further along in her development and that those types of errors are also quite common in the development of other German L1 children (see Mills, 1985, p.156).

Moreover, there were also three instances (T3, T6 and T12) in which Emma failed to supply the wrong auxiliary, as in (186).

(186) (T12) das war ich (g)emacht
‘that was I done’
I have done that.

There were no occurrences in which Emma did not supply the lexical verb in an obligatory context with an auxiliary verb.

5.1.6 Summary of the key findings
As with Mia’s data above, a summary of the key findings is presented in bullet point form, which then will be discussed in more detail in Chapter 7.

Syntax (declaratives)

• The four declarative word orders SVO, SOV, XP+SV and XP+VS were all part of Emma’s L1 variety.
• Like Mia, Emma seemed to prefer the word order SVO to SOV in utterances with the subject in sentence-first position.
• In utterances with an element other than the subject in sentence-initial position, XP+VS clearly outweighed XP+SV, although the latter structure was still present.
• Compared to Mia, Emma used sentence structures that were much more complex, as ADJ were frequently added on.
Syntax (interrogatives)

- Emma produced questions that contained more than one word from T1 onwards, although a lot of them were incomplete or their word order did not comply with German grammar rules.
- In regards to constituent questions, Emma did not seem to have any trouble arranging the elements in the correct word order in utterances with a copula. Yet, she seemed to still struggle with questions that contained a lexical verb, as those were either incomplete or did not follow German word order rules.

Morphology

- Although Emma produced a greater amount of utterances that contained a subject and predicate, her accuracy rate in SV-agreement was much higher than Mia’s. That is, it averaged between 80-90%.
- Like Mia, Emma seemed to struggle with supplying the right verb form in utterances with a lexical verb.
- Emma also tended to overuse the infinitive, although she also struggled more frequently than Mia with supplying the right inflection.

5.2 Karl

This section presents a detailed analysis of Karl’s development in German throughout his longitudinal study. For ease of comparison, the presentation of the data is structured the same way as in Mia’s section (Section 5.1).

As pointed out previously, Karl is acquiring German and Polish simultaneously, which therefore makes him the only bilingual child in this study. For the purpose of this study, only his linguistic development in German will be investigated in order to see whether it differs significantly from that of monolingual children, or if certain linguistic phenomena can also be attributed to the development of bilingual children as well.
5.2.1 ELFRA-2 results

The ELFRA-2 test was conducted prior to the commencement of the study in order to gain an insight into Karl’s linguistic development up to that point. Table 5.28 shows his ELFRA-2 scores for the three tested areas (productive vocabulary, syntax and morphology) as for the other informants. The highest possible score, the critical score, as well as the average score achieved by German-acquiring children at the age of 24 months (see, Grimm & Doil, 2006) are also displayed to enable direct comparison.

<table>
<thead>
<tr>
<th></th>
<th>highest possible score</th>
<th>critical score</th>
<th>average score</th>
<th>Karl’s score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productive vocabulary</td>
<td>260</td>
<td>&lt; 50</td>
<td>133</td>
<td>65</td>
</tr>
<tr>
<td>Syntax</td>
<td>47</td>
<td>7</td>
<td>19</td>
<td>13</td>
</tr>
<tr>
<td>Morphology</td>
<td>16</td>
<td>2</td>
<td>6.5</td>
<td>3</td>
</tr>
</tbody>
</table>

Karl was 2;1.24 years old when his parents filled out the ELFRA-2 questionnaire. As can be seen, his scores in all three areas were lower than the average score with his score for morphology even being only one point above the critical score of 2. That is, he scored 65 points out of a possible 260 in regard to productive vocabulary, 13 out of 47 points in regard to syntax and only 3 out of 16 in regard to morphology. However, it should be kept in mind that Karl is acquiring German and Polish simultaneously and that the results from ELFRA-2 only reflect the stage of his linguistic development in German. Meisel (2008b), for instance, points out that the overall linguistic development of simultaneous bilingual children tends to be slower, although they do not fall outside the norm recognized for monolingual children. Oller & Eilers (2002) further add that in regards to vocabulary, the size of bilingual children’s vocabulary actually matches that of monolingual children, when both languages are taken into account. Thus, in order to accurately assess Karl’s overall language development, it would be necessary to also examine his linguistic abilities.
in Polish with a screening tool similar to ELFRA-2. Nevertheless, the results can still be used for this study, as their main purpose was to determine the stage of Karl’s language development in German before the first recording session.

**Productive vocabulary**
The majority of Karl’s productive vocabulary was made up of nouns, but it also included some words from other categories such as verbs, attributes, interjections, prepositions/locations, as well as the two pronouns *meins* (‘mine’) and *mein* (‘my’). According to his parents, question words, quantifiers/articles, auxiliary /modal verbs, conjunctions and time adverbials were not yet part of Karl’s productive vocabulary.

**Syntax**
Based on the answers provided by his parents, Karl had already started to combine words, but not more than two at a time. In sentences that contained a lexical verb and a subject or object, he did not inflect the verb for person or tense, but used the infinitive form, as shown in (187)

(187) Mama laufen.
‘mommy run’

In terms of question formation, Karl only produced the one-word question *wo?* (‘where’) at this stage. He did not use any other question-words, nor did he produce complex questions that might require a yes/no answer.

**Morphology**
Based on his parent’s answers, Karl was already able to mark possession by adding an “s” to a person’s name. However, he was not yet able to mark nouns for plural, nor did he inflect verbs for tense or person most of the time. Instead, he tended to use the infinitival (or ‘non-finite’) form of the verb while dropping the subject at the

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12 The CDI has not been adapted into Polish so far. However, the department of General and Indo-European Linguistics at Jagiellonian University (Krakow, Poland) is currently collecting data for a norming study. (CDI Advisory Board, 2006)
same time. That is, he would say *bauen* (‘to build’) if he wanted to say *ich baue* (‘I build’). He only used a target-like form when referring to a third person in singular, as shown in (188).

(188) Oma kommt
‘Grandma comes’

### 5.2.2 MLU and vocabulary size

This section gives an overview of Karl’s MLU scores and vocabulary size throughout the longitudinal study. Table 5.29 contains a summarised description of Karl’s speech data. It is laid out the same way as Table 5.2 in this chapter and therefore should be read the same way.

#### Table 5.23 Summary description of Karl’s speech samples

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months; days)</th>
<th>Recording time (minutes)</th>
<th>MLU</th>
<th>Word Tokens</th>
<th>Word Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;1.24</td>
<td>45</td>
<td>2.06</td>
<td>377</td>
<td>95</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;2.01</td>
<td>40</td>
<td>2.10</td>
<td>350</td>
<td>74</td>
<td>138</td>
</tr>
<tr>
<td>T3</td>
<td>2;2.07</td>
<td>45</td>
<td>2.33</td>
<td>326</td>
<td>80</td>
<td>176</td>
</tr>
<tr>
<td>T4</td>
<td>2;2.15</td>
<td>40</td>
<td>2.55</td>
<td>181</td>
<td>40</td>
<td>189</td>
</tr>
<tr>
<td>T5</td>
<td>2;2.21</td>
<td>35</td>
<td>2.55</td>
<td>245</td>
<td>68</td>
<td>210</td>
</tr>
<tr>
<td>T6</td>
<td>2;2.28</td>
<td>45</td>
<td>2.61</td>
<td>345</td>
<td>84</td>
<td>231</td>
</tr>
<tr>
<td>T7</td>
<td>2;3.05</td>
<td>30</td>
<td>2.51</td>
<td>178</td>
<td>59</td>
<td>252</td>
</tr>
<tr>
<td>T8</td>
<td>2;3.12</td>
<td>30</td>
<td>2.39</td>
<td>344</td>
<td>86</td>
<td>278</td>
</tr>
<tr>
<td>T9</td>
<td>2;3.19</td>
<td>40</td>
<td>2.53</td>
<td>496</td>
<td>95</td>
<td>306</td>
</tr>
<tr>
<td>T10</td>
<td>2;3.28</td>
<td>45</td>
<td>2.88</td>
<td>679</td>
<td>105</td>
<td>332</td>
</tr>
<tr>
<td>T11</td>
<td>2;4.03</td>
<td>40</td>
<td>2.84</td>
<td>520</td>
<td>117</td>
<td>362</td>
</tr>
<tr>
<td>T12</td>
<td>2;4.16</td>
<td>35</td>
<td>2.58</td>
<td>423</td>
<td>90</td>
<td>382</td>
</tr>
<tr>
<td>T13</td>
<td>2;4.23</td>
<td>40</td>
<td>2.89</td>
<td>459</td>
<td>97</td>
<td>406</td>
</tr>
<tr>
<td>T14</td>
<td>2;4.30</td>
<td>40</td>
<td>2.51</td>
<td>435</td>
<td>100</td>
<td>440</td>
</tr>
<tr>
<td>T15</td>
<td>2;5.06</td>
<td>40</td>
<td>3.19</td>
<td>511</td>
<td>113</td>
<td>460</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>590</td>
<td>5869</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Karl produced a total of 5869 utterances in 15 recording sessions, which represent 590 minutes (9 hours and 50 minutes) of actual recording time collected over a time period of roughly four months. It appears that Karl was the most talkative out of the three children, as he produced nearly 1000 utterances more than Mia although he got recorded three hours less.

Karl’s data show that his vocabulary grew considerably throughout the longitudinal study. At T1, it consisted of 95 types, whereas at T2 it has already increased to 138 types in total. From then on, Karl’s vocabulary steadily gained around 20-30 words at each recording session and at T15 it had cumulated to 460 types in total. Karl’s average MLU score for all recording sessions combined was 2.57, which was significantly lower than Mia’s at 3.17. However, unlike Mia’s, Karl’s MLU grew quite consistently throughout the study with no dramatic degrees of variation. Characteristically, Karl’s lowest score (2.06) can be found at T1 and his highest score at T15 (3.19), which was also the only time that he reached the 3+ mark.

5.2.3 Declaratives

This section presents Karl’s syntactic development in regard to declaratives.

Single word and formulae

Similarly to Mia, Karl had already passed the one-word stage in regard to declaratives by the time of the first recording session. Table 5.30 presents the results of the distributional analysis for Karl’s data.

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single constituent</td>
<td>68</td>
<td>40</td>
<td>50</td>
<td>17</td>
<td>20</td>
<td>44</td>
<td>7</td>
<td>42</td>
<td>46</td>
<td>55</td>
<td>49</td>
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<td>Formulae</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Table 5.31 gives an overview of the lexical categories found in the one-word declarative sentences produced by Karl.

Table 5.25  *Karl: Lexical categories of single words*

<table>
<thead>
<tr>
<th></th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noun</td>
<td>15</td>
<td>9</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>10</td>
<td>17</td>
<td>3</td>
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<td>2</td>
<td>1</td>
<td>15</td>
<td>2</td>
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<tr>
<td>Name</td>
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<td>0</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Pronoun</td>
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<td>3</td>
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<td>1</td>
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<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Verb</td>
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<td>0</td>
<td>0</td>
<td>1</td>
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<td>5</td>
<td>2</td>
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<td>2</td>
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<tr>
<td>Adjective</td>
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<td>0</td>
<td>0</td>
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<td>1</td>
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<td>5</td>
<td>1</td>
<td>0</td>
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<tr>
<td>Da/hier</td>
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<td>30</td>
<td>21</td>
<td>18</td>
<td>31</td>
<td>19</td>
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</tbody>
</table>

As can be seen, affirmatives, such as *ja* (‘yes’) and *yupp* (‘yeah’), and holophrastic negations, such as *nein* (‘no’) and *nee* (‘nah’) accounted for the biggest part of one-word utterances produced by Karl. Nouns and the names of people were also frequently on their own.

*Subject first*

The occurrences of utterances with the subject in sentence-first position are counted and divided into eight categories.

Table 5.32 shows the range of canonical structures used by Karl throughout the study. It can be read the same way as Table 5.5 (Mia’s results) in this chapter.
Table 5.26 Karl: Distribution of canonical order structures and adjuncts

<table>
<thead>
<tr>
<th>time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
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<tr>
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<td>0</td>
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<td>0</td>
<td>0</td>
<td>2</td>
</tr>
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<td>SV(O) + OBL</td>
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<td>0</td>
<td>0</td>
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<tr>
<td>SV(O) + ADJ</td>
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<td>5</td>
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</tr>
</tbody>
</table>

At T1 (2;1.24 years), only one complete canonical order sentence appeared in SV sentence form, as in (189).

(189) (T1) es passt
‘it fits’

it fits

The same structure occurred frequently with various subjects and verbs all through the study; that is 30 times in total.

At T2 (2;2.01 years), two instances of SV occurred, as well as two instances of S cop X, see (190).

(190) (T2) Heini ist da
‘Heini is there’

Heini is there

The same structure occurred again at T3 (2;2.07 years). In all three instances, the subject was followed by the copula ist (‘is). Further, it was the most prominent structure in Karl’s data set, as it occurred 28 times in total.

At T4 (2;2.15 years), more complex structures started to emerge, as now more than one additional constituent was able to appear in combination with the foundational order of SV, as in (191).
(191) (T4)  Karl macht das hier zu
     ‘Karl makes this here close’
     Karl shuts this one here

However, there was also one occurrence where the adjunct *hier* (‘here’) was placed before the verb, see (192), resulting in a structure that is not permitted by German word order rules.

(192) (T4)  ich hier komme
     ‘I here come’
     here I come

At T4, the structure S aux (X)V also occurred for the first time, see (193).

(193) (T4)  ich hab gekacka(t)
     ‘I have pooped’
     I have pooped

This structure kept surfacing at irregular intervals throughout the corpus, although it appeared more frequently from T9 (2;3.19 years) onwards. Moreover, T9 marked the first occurrence of an extra constituent added to the basic structure S aux V, see (194). Note also that a number of additional sentence elements appeared in the correct position between the finite and non-finite part of the VP from the start.

(194) (T11) Fabi möchte auch Tee haben
     ‘Fabi would like also tea have’
     Fabi would also like to have tea

The non-target-like structure SOV appeared once at T5 (2;2.21 years) and twice at T6 (2;2.28 years), whereas it occurred an impressive 18 times between T8 (2;3.12 years) and T11 (2;4.03 years). However, it should be noted that the twelve instances occurring at T9 were actually repetitions of the same utterance, as in (195).

(195) (T9)  Karl Bonbon haben (12x)
     ‘Karl lolly have’
     Karl (wants to) have (a) lolly
There were also two instances of the structure S + ADJ + OV at T8, as in (196), one instance at T15 (2;5.06 years) where an adjunct was placed before the verb, see (197), and one instance at T12 (2;4.16 years) where an adjunct was placed before the verb while the object occurred in sentence-final position, see (198).

(196)  (T8)  Karl auch Mama haben
         ‘Karl also mommy have (inf.)’
         Karl also has (a) mommy

(197)  (T15)  ich auch haben
         ‘I also have (inf.)’
         I also (want to) have (X)

(198)  (T12)  Fabi auch essen Birne
         ‘Fabi also eat (inf.) pear’
         Fabi also eats (a) pear

However, as in Mia’s data, the verb appeared in the infinitive form in all 25 occurrences of S ADJ/OBJ V which suggests that the VP procedure may be actually incomplete; that is the auxiliary is missing and the V is not inflected. This assumption is further supported by the fact that the structure S ADJ/OBJ V is a transitional structure as it did not appear again from T12 (2;4.16 years) onwards, which also coincided with the increasing use of S aux (X)V starting at T11.

There were no instances where Karl used the structure SV(O) + OBL.

Adverbial and object in sentence-initial position

The occurrences of declaratives sentences where a constituent other than the subject is placed into sentence-initial position are counted and analysed.

Table 5.33 presents the distributional analysis of XP in sentence-first position found in Karl’s data set. It can be read in the same fashion as Table 5.6 in this chapter.
Table 5.27  Karl: Distribution of XP in initial position

<table>
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<tr>
<th>Time/structure</th>
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<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
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<th>T9</th>
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<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
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</thead>
<tbody>
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<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJ + VS(O)</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>OBJ + SV</td>
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<td>-</td>
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<tr>
<td>ADJ + SV(O)</td>
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</tr>
<tr>
<td>da/hier + lex.</td>
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<tr>
<td>da/hier + SV</td>
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<td></td>
</tr>
</tbody>
</table>

At T1 (2;1.24 years), there was one occurrence where an XP was placed in sentence-initial position, followed by the copula in second and the subject in third position, see (199).

(199)   (T1)   da ist Hammer
        ‘there is hammer’
        *there is (a) hammer*

There were no more instances of an XP in sentence-initial position until T6 (2;2.28 years) where Karl produced two utterances where an adjunct was placed in first position. In the first instance, see (200), the adverb *da* (‘there’) was placed into position, whereas the second instance contained a more complex adjunct consisting of the two adverbs *da* (‘there’) and *auch* (‘also’), see (201). Moreover, a post-verbal subject only occurred with the copula in the first example, while the lexical verb in the second one stayed in sentence final-position resulting in the non-target like structure XP + SV.

(200)   (T6)   da ist Harke
        ‘there is rake’
        *there is a rake*

(201)   (T6)   da auch Karl haben
        ‘there also Karl have’
        *Karl has also there*
There were no instances of XP-initial at T7 and T8, but from T9 (2;3.19 years) to T12 (2;4.16 years) there were 13 instances in total in which a constituent other than the subject appeared initially. Seven of these examples had either *da* (“there”) or *hier* (“hier”) followed by a copula in V2 and subject in post-verbal position, as (202) shows.\(^{13}\)

\[\text{(202) } \begin{array}{ll}
\text{(T11)} & \text{hier ist der Koffer (4x)} \\
& \text{‘here is the suitcase’} \\
& \text{*here is the suitcase*}
\end{array}\]

There were also two instances (T10 and T12) where *da* (“there”) was followed by a lexical verb, yet, at T10 (2;3.28 years) the non-target like structure XP + SV was produced as seen in (203).

\[\text{(203) } \begin{array}{ll}
\text{(T10)} & \text{da Laurie weint} \\
& \text{‘there Laurie cries’} \\
& \text{*Laurie cries there*}
\end{array}\]

T11 (2;04.03 years) marked the first occurrence of an adverb other than *da* (“there”) in sentence-first position and once again Karl relied on non-target like word order with the lexical verb, as in (204).

\[\text{(204) } \begin{array}{ll}
\text{(T11)} & \text{jetzt Karl kackern} \\
& \text{‘now Karl poo (inf.)’} \\
& \text{*Karl poos now*}
\end{array}\]

Throughout the study, Karl did not place the subject post-verbal when another adverb than *‘da/hier’* (there/here) was fronted, but from T12 (2;4.16 years) onwards he started to do so in utterances that included *‘da’* (there) in sentence-first position and a lexical verb, see (205).

\[\text{(205) } \begin{array}{ll}
\text{(T15)} & \text{da fährt er weg} \\
& \text{‘there drives he away’} \\
& \text{*he drives away there*}
\end{array}\]

Note that in the example above subject and verb did not only appear in the correct order, but the verbal particle *weg* (‘away’) was also placed at the end of the sentence.

\(^{13}\) A complete list of all the occurrences of XP-fronting found in Karl’s data set is presented in Appendix C.
The result is a target-like sentence that complies with all German word order rules. At T9 (age 2;3.19), an OBJ appeared in sentence-first position for the first time, see (206).

(206) (T9)  den Tisch Karl holen . den Tisch  
‘the table Karl gets . the table’  
*Karl gets the table*  

As can be seen, this first attempt at topicalising the object caused some disruption in his production where the OBJ was in competition with the SUBJ; however, the object was repeated at the end after a short hesitation pause perhaps in an attempt to preserve canonical order. After this first attempt Karl produced two more instances of object-fronting at T10 (2;3.28 years), each time with the target-like structure XP + VS, as can be seen in (207) and (208).

(207) (T10)  das will ich haben  
‘this want I have’  
*I want to have this*  
(208) (T10)  das will ich  
‘this want I’  
*I want this*

There were no further instances of XP-fronting at T13 (2;4.23 years) and T14 (2;4.30 years).

5.2.4 Interrogatives  
This section traces how Karl develops his question-formation in German.  

Single word questions  
Karl had also already started to produce question-like utterances prior to the commencement of the study as reported from his ELFRA-2 results. Consequently, the first one-word question-like utterances appeared as early as T1 in his data. Similar to the evidence found in Mia’s and Emma’s data, Karl’s data also revealed that he marked question-like one-word utterances by a change in intonation in order
to distinguish them from declaratives. Figure 5.7 is a visualisation of the utterance “das” (‘this’) in the form of a waveform (top) and a pitch contour (bottom). On the left-hand side the utterance is shown in its declarative form, whereas on the right-hand side it is presented in its interrogative form.

![Visualisation of the utterance “das” (waveform and pitch)](image)

As can be seen, the waveforms and pitch contours of the same utterance differ greatly from each other, when used in varying contexts. There is a clear change in regards to prosody that seems to depend on whether the utterance appears in a context that suggests that it functions as a declarative, or in one that suggests that it functions as an interrogative. Based on the visual comparison of the utterance “das” in two different linguistic environments, it appears that in regards to question-like one-word utterances Karl relies on prosody in order to distinguish them from declaratives.

Table 5.34 presents the results of the distributional analysis of single word questions produced by Karl. The table should be read in the same fashion as Table 5.7 in this chapter.
The majority of single word questions produced by Karl are Y/N questions, which occurred throughout the whole longitudinal study. He used interjections sporadically throughout the recording period (i.e. at T1, T2, T3, T9, T13 and T15) and there was only one occurrence of a single wh-word question at T8, see (209).

(209) (T8) warum?

why?

The single word Y/N questions produced by Karl can be divided into five lexical categories, see Table 5.35.

As can be seen, most single word Y/N questions were made up of noun phrases containing a single noun, as in (210), followed by verbal particle/preposition, as in (211). However, instances that contained adverbs, adjectives and verbs also appeared, though infrequently, throughout the recording period.

(210) (T1) Mund?

mouth?

(211) (T2) runter?

down?
Note that there was also one occurrence at T15 where Karl marked the noun for possession by applying the genitive case, see (212).

(212) (T15) Karls?

Karl’s?

Y/N questions
Of course Karl also progressed from one-word polar questions up to Y/N questions that contained multiple elements. Yet, it seems that he still had not completely mastered Y/N questions by the end of the recording time since in most instances Karl still retreated to canonical word order instead of placing the subject post-verbal. Figure 5.8 and 5.9 below are representations of question-like utterances that are marked by a change in intonation, rather than a reordering of the constituents. Figure 5.8 is a visualisation of the utterance “mehr Bonbon haben” (‘more lolly have’) in the form of a waveform (top) and a pitch contour (bottom). On the left-hand side the utterance is shown in its declarative form, whereas on the right-hand side it is presented in its interrogative form.
Figure 5.8  Visualisation of the utterance “mehr Bonbon haben” (waveform and pitch)

Figure 5.9 is a visualisation of the utterance “Matti ist nicht böse” (‘Matti is not bad’) in the form of a waveform (top) and a pitch contour (bottom). On the left-hand side the utterance is shown in its declarative form, whereas on the right-hand side it is presented in its interrogative form.
Figure 5.9  *Visualisation of the utterance “Matti ist nicht böse” (waveform and pitch)*

As can be seen, there is a clear change in prosody that seems to depend on whether the utterance appears in a context that suggests that it functions as a declarative, or in one that suggests that it functions as an interrogative. In both cases, the waveforms and pitch contours of the same utterance differ greatly from each other, when used in varying contexts. Although, unlike one-word utterances, multi-word utterances can be marked as questions by reordering the constituents, Karl seems to solely rely on a change in intonation at least at the early stages of producing question-like utterances that contain more than one word.
Table 5.36 displays the full distribution of Y/N questions appearing in Karl’s corpus. It is laid out as Table 5.9 in this chapter and therefore can be read the same way.

Table 5.30  **Karl: Full distribution of Y/N questions**

<table>
<thead>
<tr>
<th>Structure/time</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
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<td>0</td>
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<td>1</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>V missing</td>
<td>1</td>
<td>10</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>13</td>
<td>7</td>
<td>16</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>single word?</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>others</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

At T1 (2;1.24 years), Karl only produced incomplete Y/N questions. There were four instances of single word Y/N questions, as in (213), one instance where the verb was missing, see (214), and three instances where the subject was omitted, see (215).

(213)  (T1)  Ball?

    *ball?*

(214)  (T1)  Karl einen Ball?

    ‘Karl a ball?’

    *(does) Karl (have) a ball?*

(215)  (T1)  die ausziehen? (3x)

    ‘those off-take?’

    *(should I) take those off?*

The majority of Y/N questions that occurred at T2 (2;2.01 years) were still incomplete, as ten were missing the verb and three were missing the subject. Further, there were five instances that only contained sentence-fragments, as in (216), which, however, are possible structures in spoken speech.
(216)  (T2)  den da? (2x)
   ‘this there?’
   *this one there?*

There was also one instance where the subject was correctly post-verbal, as in (217).

(217)  (T2)  ist das Eimers?
   ‘is that bucket?’
   *is that (a) bucket?*

Between T3 (2;2.07 years) to T6 (2;2.28 years), Karl only produced Y/N questions that contained either a single word or were incomplete; that is they were missing either the subject or the verb. At T7 (2;3.05 years), there were still two occurrences of incomplete Y/N questions in which the verb was omitted, however there was one instance of a complete Y/N question in which subject and (the copula) verb were in the correct order, see (218), and two instances with lexical verbs where canonical order was used with rising intonation, as in (219).

(218)  (T7)  ist da Julia?
   ‘is there Julia?’
   *is Julia there?*

(219)  (T7)  ich will auch raus?
   ‘I want as well outside?’
   *do I want to go outside as well?*

From T7 onwards, the number of Y/N questions using canonical order increased dramatically up until T11 (2;4.03 years) with the only other structure occurring more frequently being an incomplete one where the verb was missing. Note that there was only SV-agreement in utterances in which the verb was placed in sentence-second position, immediately following the subject, as in (220). When other sentence elements were placed in-between subject and verb and therefore moving it to sentence-final position, it always appeared in its infinitive form, as in (221), which most likely indicates a missing auxiliary verb.

(220)  (T10)  Jenny Karl macht das auf?
   ‘Jenny Karl makes this open?’
   *Jenny, can Karl open this?*
There was also one occurrence of verb first at T11, see (222).

(222) (T11) gehen wir raus?
‘go we outside?’
are we going outside?

At T12 (2;4.16 years), the majority of Karl’s Y/N questions were either incomplete (twelve in total) or follow canonical order (four in total), but two new structures also occurred at this stage, see (223) and (224).

(223) (T12) darf ich das auch haben?
‘can I this as well have?’
can I have this as well?

(224) (T12) Andy Birne hast du?
‘Andy pear have you?’
Andy, do you have a pear?

The question shown in (223) is an example of the structure aux S(X)V. It is a rather complex structure, as it not only requires SV-inversion, but also that the non-finite part of the VP is moved to sentence-final position with all additional sentence elements occurring beforehand. As can be seen, the object das (‘this’) and the adjunct auch (‘as well’) both appeared between the subject and the non-finite part of the verb, resulting in a target-like structure.

There was one more instance of a Y/N question in which the subject was correctly placed post-verbal at T13 (2;4.23 years), see (225).

(225) (T13) Jenny hast du Birne auch?
‘Jenny have you pear as well?’
Jenny, do you have (a) pear as well?

After that Karl did not produce any more target-like Y/N questions, as all other instances that occurred between T13 (2;4.23 years) and T15 (2;5.06 years) were either incomplete or followed canonical order.
Constituent questions

While Karl produced a fair amount of Y/N questions, his development of constituent questions appeared to be still at the very early stages. As a result, not many instances of this type of question were found in his data.

Table 5.37 displays the full distribution of constituent questions appearing in Karl’s corpus. It is laid out as Table 5.10 in this chapter and therefore can be read the same way.

Table 5.31 Karl: Full distribution of constituent questions

<table>
<thead>
<tr>
<th>structure/time</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>wh-word+VS?</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>wh-word + SV?</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Post-V S?</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>canonical order?</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>single wh-word?</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

The first constituent questions already appeared at T1 (2;1.24 years), as Karl produced the utterance shown in (226) three times.

(226) (T1) ist das? (3x)

‘is this?’

*(what) is this?*

The subject appeared post-verbal, but the wh-word was (‘what’) was not supplied.

No other constituent questions were found between T2 (2;2.01 years) and T7 (2;3.05 years), but at T8 (2;3.12 years) there was one instance of a single wh-word question, see (227).

(227) (T8) warum?

*why?*

The incomplete utterance shown in (226) occurred at T9 (2;3.19 years) again. During the same recording session, Karl also produced his first complete constituent question, see (228).
(228)  (T9)  was ist das?
‘what is this?’

what is this?

There were no constituent questions at T10 (2;3.28 years), but both instances found at T9 also occurred at T11 (2;04.03 years). The complete constituent question with wh-word in initial position and the subject post-verbal shown in (228) also appeared again at T13 (2;4.23 years), but there were no more instances of constituent questions after that.

5.2.5  Morphology

This section focuses on one aspect in Karl’s morphological development, namely SV-agreement. Verb morphology is also looked at.

Table 5.38 shows Karl’s accuracy rate in SV-agreement for each recording session. It displays his overall score for SV-agreement in total numbers and percentage, as well as separate scores for declaratives and interrogatives.
Table 5.2 Karl: Accuracy rate in SV-agreement (total numbers)

<table>
<thead>
<tr>
<th>Time</th>
<th>Total</th>
<th>Total (%)</th>
<th>Declaratives</th>
<th>Interrogatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>5/5</td>
<td>100%</td>
<td>2/2</td>
<td>3/3</td>
</tr>
<tr>
<td>T2</td>
<td>4/6</td>
<td>66.7%</td>
<td>3/5</td>
<td>1/1</td>
</tr>
<tr>
<td>T3</td>
<td>1/2</td>
<td>50%</td>
<td>1/2</td>
<td>-</td>
</tr>
<tr>
<td>T4</td>
<td>7/9</td>
<td>77.8%</td>
<td>7/9</td>
<td>-</td>
</tr>
<tr>
<td>T5</td>
<td>8/12</td>
<td>66.7%</td>
<td>8/12</td>
<td>-</td>
</tr>
<tr>
<td>T6</td>
<td>12/15</td>
<td>80%</td>
<td>12/15</td>
<td>-</td>
</tr>
<tr>
<td>T7</td>
<td>4/6</td>
<td>66.7%</td>
<td>2/3</td>
<td>2/3</td>
</tr>
<tr>
<td>T8</td>
<td>5/9</td>
<td>55.6%</td>
<td>2/6</td>
<td>3/3</td>
</tr>
<tr>
<td>T9</td>
<td>24/40</td>
<td>60%</td>
<td>20/33</td>
<td>4/7</td>
</tr>
<tr>
<td>T10</td>
<td>23/29</td>
<td>79.3%</td>
<td>17/20</td>
<td>6/9</td>
</tr>
<tr>
<td>T11</td>
<td>17/29</td>
<td>58.6%</td>
<td>14/18</td>
<td>3/11</td>
</tr>
<tr>
<td>T12</td>
<td>19/24</td>
<td>79.2%</td>
<td>14/16</td>
<td>5/8</td>
</tr>
<tr>
<td>T13</td>
<td>24/25</td>
<td>96%</td>
<td>21/21</td>
<td>3/4</td>
</tr>
<tr>
<td>T14</td>
<td>6/7</td>
<td>85.7%</td>
<td>6/7</td>
<td>-</td>
</tr>
<tr>
<td>T15</td>
<td>12/16</td>
<td>73%</td>
<td>12/16</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>171/243</td>
<td>-</td>
<td>141/185</td>
<td>30/49</td>
</tr>
</tbody>
</table>

Figure 5.10 shows Karl’s accuracy rate in SV-agreement for declaratives and interrogatives in percentage and his MLU for each recording session.
As with the two other children, it does not appear that there is a connection between Karl’s accuracy in SV-agreement and his MLU scores. His average score for SV-agreement was 72.53%, which was slightly lower than Mia’s (76.27%). Like Mia’s score, it varied significantly between recording sessions, although overall it never dropped beneath the 50% mark. His MLU, meanwhile, grew consistently throughout the study and there were no dramatic degrees of variation.

Table 5.39 and Table 5.40 show Karl’s accuracy rate in SV-agreement based on different verb types and based on person, respectively. They are laid out the same way as Table 5.12 and Table 5.13 in Mia’s section and therefore should be read the same way.
Table 5.33  **Karl: Accuracy rate in SV-agreement based on verb type**

<table>
<thead>
<tr>
<th>Time</th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>4/4</td>
<td>1/1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>4/4</td>
<td>0/1</td>
<td>-</td>
<td>0/1</td>
</tr>
<tr>
<td>T3</td>
<td>1/1</td>
<td>0/1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T4</td>
<td>-</td>
<td>2/4</td>
<td>1/1</td>
<td>4/4</td>
</tr>
<tr>
<td>T5</td>
<td>1/1</td>
<td>5/9</td>
<td>-</td>
<td>2/2</td>
</tr>
<tr>
<td>T6</td>
<td>2/2</td>
<td>8/11</td>
<td>1/1</td>
<td>2/2</td>
</tr>
<tr>
<td>T7</td>
<td>1/1</td>
<td>3/5</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T8</td>
<td>1/1</td>
<td>4/8</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T9</td>
<td>12/12</td>
<td>8/24</td>
<td>4/4</td>
<td>-</td>
</tr>
<tr>
<td>T10</td>
<td>11/11</td>
<td>6/11</td>
<td>1/1</td>
<td>5/6</td>
</tr>
<tr>
<td>T11</td>
<td>14/14</td>
<td>0/12</td>
<td>1/1</td>
<td>2/2</td>
</tr>
<tr>
<td>T12</td>
<td>9/9</td>
<td>8/13</td>
<td>2/2</td>
<td>-</td>
</tr>
<tr>
<td>T13</td>
<td>6/6</td>
<td>18/19</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T14</td>
<td>4/4</td>
<td>1/2</td>
<td>1/1</td>
<td>-</td>
</tr>
<tr>
<td>T15</td>
<td>-</td>
<td>7/8</td>
<td>3/3</td>
<td>2/5</td>
</tr>
<tr>
<td>Total</td>
<td>70/70</td>
<td>70/127</td>
<td>14/14</td>
<td>17/22</td>
</tr>
</tbody>
</table>

Table 5.34  **Karl: Accuracy rate in SV-agreement based on person**

<table>
<thead>
<tr>
<th></th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person SG</td>
<td>3/3</td>
<td>19/23</td>
<td>5/5</td>
<td>3/4</td>
</tr>
<tr>
<td>2nd person SG</td>
<td>1/1</td>
<td>2/3</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3rd person SG</td>
<td>66/66</td>
<td>49/101</td>
<td>9/9</td>
<td>14/18</td>
</tr>
<tr>
<td>1st person PL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2nd person PL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3rd person PL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>70/70</td>
<td>70/127</td>
<td>14/14</td>
<td>17/22</td>
</tr>
</tbody>
</table>

The data shown in the tables above reveal that Karl, like Mia, supplied the right copula verb form 100% of the time. However, the only subject-copula constructions
Karl produced were in the 3\textsuperscript{rd} person SG present, as (229). The only exceptions to this can be found at T11 and T12 where he produced three other types of copulas. That is, there were two occurrences of 3\textsuperscript{rd} person SG past, see (230), and three occurrences of 1\textsuperscript{st} person SG past, (231) and one occurrence of 2\textsuperscript{nd} person SG present, see (233).

(229) (T1) da da ist Hammer
\begin{quote}
‘there there is hammer’
\end{quote}
\begin{quote}
there is the hammer
\end{quote}

(230) (T12) da war der Bagger
\begin{quote}
‘there was the excavator’
\end{quote}
\begin{quote}
there was the excavator
\end{quote}

(231) (T12) ich war das
\begin{quote}
‘I was that’
\end{quote}
\begin{quote}
I did that
\end{quote}

(232) (T11) du bist böse
\begin{quote}
‘you are bad’
\end{quote}
\begin{quote}
you are bad
\end{quote}

It also seems that Karl did not have a problem matching the information between subjects and predicates that contained an auxiliary plus a lexical verb, as his accuracy rate was again 100\% throughout the study. An example is provided in (233). Note that once again, he only used the inflection for two different person types; that is 1\textsuperscript{st} and 3\textsuperscript{rd} person SG.

(233) (T10) das will ich haben
\begin{quote}
‘this want I have’
\end{quote}
\begin{quote}
I want to have this
\end{quote}

Karl’s main issue in regards to SV-agreement based on verb type appears to be with lexical verbs, as the only time his SV-agreement based on this verb type was 100\% was at T1. However, this seemed to be due to the fact that there was only one occurrence of SV-agreement with a lexical verb, see (234).

(234) (T1) es passt
\begin{quote}
‘it fits’
\end{quote}
\begin{quote}
it fits
\end{quote}
For all the other recording sessions, there was always at least one instance in which the information of the lexical verb did not match with that of the subject. In most cases, either the infinitive form of the verb was supplied, as in (235), or it was inflected for the wrong person, as (236).

(235)  (T5) Karl Gurke essen

‘Karl (3\textsuperscript{rd} person SG) cucumber eat (inf.)’

\textit{Karl (wants to) eat cucumber}

(236)  (T4) Karl komm

‘Karl (3\textsuperscript{rd} person SG) come (1\textsuperscript{st} person SG)’

\textit{Karl comes}

Note that Karl only used 1\textsuperscript{st} and 3\textsuperscript{rd} person SG with lexical verbs up until T12, where 2\textsuperscript{nd} person SG occurred for the first time, see (237).

(237)  (T12) Andy Bonbon hast du?

‘Andy lolly have you?’

\textit{Andy, do you have a lolly?}

In regards to split verbs, Karl’s data reveal mixed results. Overall, it seems that he was able to split verbs that included a verbal particle when the situation required it, as in (238). Yet, there were also a lot of instances throughout the study in which he neglected to do so, see (239).

(238)  (T10) Karl macht das hier zu

‘Karl makes this here close’

\textit{Karl closes this one here}

(239)  (T15) ich aufräumen

‘I up-tidy (inf.)’

\textit{I am tidying up}

Table 5.41 presents the types of errors Karl made concerning SV-agreement. Note that it includes fewer columns than the corresponding tables in the girls’ sections, as Karl only made two types of errors regarding SV-agreement.
Table 5.35  Karl: Types of errors in SV-agreement

<table>
<thead>
<tr>
<th>Time</th>
<th>Infinitive</th>
<th>Wrong inflection</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>T3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>T4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>T5</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>T6</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>T7</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>T8</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>T9</td>
<td>16</td>
<td>0</td>
</tr>
<tr>
<td>T10</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>T11</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>T12</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>T13</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>T14</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>T15</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>7</td>
</tr>
</tbody>
</table>

Only two types of errors were found in Karl’s data. That is, in most instances he supplied the verb in its infinitive form, rather than inflecting it based on the information provided by the corresponding noun phrase, see (240). Further, there were also a few instances throughout the study in which he inflected the verb for the wrong person, as in (241).

(240)  (T5)  Karl Gurke essen
       ‘Karl cucumber eat’
       *Karl (wants to) eat a cucumber*

(241)  (T7)  Karl helf
       ‘Karl (3rd person SG) help (1st person SG)’
       *Karl helps*

There were no occurrences in which Karl supplies a wrong auxiliary verb or where he did not supply a lexical verb in a verb phrase with an auxiliary.
5.2.6 Summary of the key findings

For the reader’s convenience, this section again presents a summary of the key findings obtained from Karl’s data in bullet point form, which then will be discussed in more detail in Chapter 7.

Syntax (declaratives)

- Similar to the girls, Karl also produced four different types of word orders in declarative sentences, namely SVO, SOV, XP+SV and XP+VS.
- In utterances with the subject in sentence-first position, Karl clearly preferred SVO to SOV.
- In utterances with another element than the subject in sentence-initial position, Karl used the structure XP+VS, as well as XP+SV. XP+VS already occurred at T1 and was used more frequently overall compared to XP+SV.

Syntax (interrogatives)

- Karl produced both Y/N and constituent questions from T1 onwards, although most of them were incomplete as in Emma’s case.
- Overall, it appears that he had progressed further in his development of Y/N questions than in his development of constituent questions.
- In regards to constituent questions, Karl still seems to be at a very early stage by the time of T15. Although there were three instances where he produced a complete question that followed German word order rules, all of those utterances were the same. Thus, it cannot be said that he really had acquired constituent questions throughout the duration of the study.

Morphology

- Karl’s accuracy rate in SV-agreement was overall a bit lower than Mia’s, although it did not fluctuate as much.
- Most of the errors made by Karl occurred in utterances where the VP contained a lexical verb. However, this was mostly due to the fact that the majority of his utterances fell under this category.
Similar to the two girls, Karl also tended to overuse the infinitive form of the verb, although on some occasions he also inflected the verb for the wrong person.

5.3 Summary
This chapter presented the results of the three longitudinal data pools obtained from the two German L1 monolingual children and the German/Polish bilingual child. In the next chapter (Chapter 6), the results of the remaining two data pools (CHILDES German L1 children and German L2 learners) are summarised. Following that, a detailed analysis of the key research findings from both chapters is presented in Chapter 7, including a discussion of the findings with reference to each of the research questions and in relation to previous research studies.
Chapter 6
Results (CHILDES German L1 children and German L2 learners)

6.0 Introduction
In the previous chapter, the results from the three data sets of the two German L1 monolingual children (Mia and Emma) and the German/Polish bilingual child (Karl) were presented. This chapter includes the results from two additional data pools in order to help answer the research questions formulated in Chapter 3. The first data pool contains the German L1 children’s data sets obtained from the CHILDES database, as well as the data of the German L1 siblings that were the informants in Clahsen’s (1982) study. Although these data will be used to aid in the answering of Research Questions 1 and 2, their main purpose is to serve as a comparison to the data presented in the previous chapter. That is, these data are used as a cross-reference to the data presented in Chapter 5 to make sure that certain phenomena are not exceptions that are restricted to the linguistic development of those particular children, but can in fact be identified in the data of other German L1 children as well. The second data pool comprises the data sets from the three longitudinal studies of German L2 learners with Italian background conducted by the ZISA project. The main purpose of these data is to help answer Research Question 2 and serve as a contrast to the data obtained from the German L1 learners.

This chapter is structured as follows. Section 6.1 includes a summary of the German L1 children’s data sets obtained from the CHILDES database. It gives a brief overview of each child’s MLU and vocabulary growth throughout their respective longitudinal studies, followed by an insight into their syntactic development. The main focus of the syntactic analysis will be on utterances in which an element other than the subject is placed in sentence-first position. Section 6.2 includes a summary of the data of the German L1 siblings that were the informants in Clahsen’s (1982)
study. It is laid out in the same way as Section 6.1. Section 6.3 includes a description of the German L2 learners’ data sets. It gives a brief summary of the L2 learners’ general development in terms of MLU and vocabulary growth throughout the study, before focusing on their syntactic development in more detail. Furthermore, this section will also look into one aspect of the L2 learners’ morphological development, namely SV-agreement. Section 6.4 concludes the chapter.

6.1 German L1 children (CHILDES)

This section contains a summary of the German L1 children’s data sets obtained from the CHILDES database. It will only provide an overview of the main findings, rather than give a detailed insight into all the stages German L1 children go through in their development, as these data’s central function is to serve as a comparison to the other German L1 data. After taking a brief look at the children’s general development in terms of MLU and vocabulary growth throughout the study, this section will focus mainly on one aspect of their syntactic development in more detail. That is, its main focus is on utterances in which an element other than the subject is placed in sentence-first position. Further, it should be noted that the morphological development of the children was not included in the analysis, although certain aspects will occasionally be pointed out, if the need arises.

6.1.1 Andreas

As mentioned in Chapter 4, the background information about Andreas is rather limited, as nothing was made available on CHILDES besides the fact that he was recorded eight times at the age of 2;1 years and, besides his young age, he seems to be one of the more advanced German L1 learners regarding his overall linguistic development. Yet, this does not come as a surprise, as a lot of the children from the CHILDES database show a faster development compared to other children, since the data are usually donated by highly educated parents who are often linguists themselves Quene (2010).
This section contains an analysis of Andreas’ MLU and vocabulary size. Table 6.1 below shows a summarised description of the child’s speech data. It is laid out the same way as Table 5.2 in Chapter 5. The only exception can be found in the second column from the left, which usually shows the age in years; months; and days of the child at the time of each interview. Andreas’ age was not further specified, therefore it is indicated as 2;1 years for all recording sessions without further specifications.

<table>
<thead>
<tr>
<th>Time</th>
<th>Age (years; months)</th>
<th>MLU</th>
<th>Word Tokens</th>
<th>Word Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;1</td>
<td>3.79</td>
<td>825</td>
<td>208</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;1</td>
<td>4.06</td>
<td>731</td>
<td>159</td>
<td>290</td>
</tr>
<tr>
<td>T3</td>
<td>2;1</td>
<td>3.20</td>
<td>838</td>
<td>173</td>
<td>372</td>
</tr>
<tr>
<td>T4</td>
<td>2;1</td>
<td>3.00</td>
<td>730</td>
<td>194</td>
<td>458</td>
</tr>
<tr>
<td>T5</td>
<td>2;1</td>
<td>3.17</td>
<td>400</td>
<td>129</td>
<td>499</td>
</tr>
<tr>
<td>T6</td>
<td>2;1</td>
<td>2.64</td>
<td>580</td>
<td>193</td>
<td>588</td>
</tr>
<tr>
<td>T7</td>
<td>2;1</td>
<td>3.45</td>
<td>896</td>
<td>243</td>
<td>681</td>
</tr>
<tr>
<td>T8</td>
<td>2;1</td>
<td>3.37</td>
<td>963</td>
<td>215</td>
<td>743</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>5963</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Andreas’ data show that his cumulative vocabulary grew considerably within one month. At T1, it only consisted of 208 types, whereas at T2 it already contained 290 cumulative types. From then on, approximately 80 new types can be found in Andreas’ vocabulary after each recording session, the only two exceptions being T5 and T8, where his vocabulary only contained 41 and, respectively, 62 new types. At T8, Andreas’ vocabulary consisted of 743 types in total, which means that his vocabulary had more than doubled. Keeping in mind that all recordings were conducted within the same month, the difference between T1 and T8 is quite remarkable. Andreas’ MLU varied throughout the study. He produced his lowest score at T6; that is 2.64, and his highest at T2; that is 4.06. Overall, however, it stayed around the 3+ mark, as his average MLU for all eight recording sessions combined is 3.34. It seems that at age 2;1 years, Andreas had already progressed past the two-word stage. Compared to other children at that age, his linguistic development appears to be quite advanced. Consequently, this should also reflect on his syntactic development, which will be analysed in the next section. Yet, as mentioned above, it should be kept in mind that CHILDES data obtained generally
stands out from other data due to the CHILDES children’s faster development since the parents are very interested in child language acquisition.

**Syntax**

This section contains an analysis of Andreas’ syntactic development. Table 6.2 below shows a summary of all his utterances. The first column on the left indicates the time of the recording session and the second column contains the total number of utterances for each recording session. The other columns show how many of Andreas’ utterances were one-word, two-word and multi-word utterances, as well as the overall ratio of the different word types. It should be noted that imitations are counted as one-word utterances, as they do not represent the child’s productive use of language.

<table>
<thead>
<tr>
<th>Time</th>
<th>Total number of utterances</th>
<th>One-word utterances (Ratio)</th>
<th>Two-word utterances (Ratio)</th>
<th>Multi-word utterances (Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>217</td>
<td>61 (.28)</td>
<td>80 (.37)</td>
<td>76 (.35)</td>
</tr>
<tr>
<td>T2</td>
<td>178</td>
<td>61 (.34)</td>
<td>59 (.33)</td>
<td>58 (.33)</td>
</tr>
<tr>
<td>T3</td>
<td>275</td>
<td>127 (.46)</td>
<td>76 (.28)</td>
<td>72 (.26)</td>
</tr>
<tr>
<td>T4</td>
<td>246</td>
<td>119 (.48)</td>
<td>72 (.29)</td>
<td>55 (.22)</td>
</tr>
<tr>
<td>T5</td>
<td>124</td>
<td>45 (.36)</td>
<td>38 (.31)</td>
<td>41 (.33)</td>
</tr>
<tr>
<td>T6</td>
<td>221</td>
<td>112 (.51)</td>
<td>72 (.33)</td>
<td>37 (.17)</td>
</tr>
<tr>
<td>T7</td>
<td>290</td>
<td>134 (.46)</td>
<td>70 (.24)</td>
<td>86 (.30)</td>
</tr>
<tr>
<td>T8</td>
<td>287</td>
<td>98 (.31)</td>
<td>86 (.34)</td>
<td>103 (.36)</td>
</tr>
</tbody>
</table>

Table 6.3 contains a breakdown of Andrea’s multi-word utterances. The first column on the left indicates the time of the recording session. The second and the third column indicate the number of SVX and SXV sentences produced by Andreas. The column ‘XP+VS’ contains all utterances in which the child correctly inserted the verb before the subject, after filling the focus position with a constituent other than the subject; that is an adjunct (ADV, NP or PP) or wh-word occupies the focus position of a sentence. The column ‘XP+SV’ shows the number of occurrences in each interview where he did not apply the sequence VS after XP-fronting, which represents an ungrammatical sentence in German. The third column from the right includes all utterances in which the child placed the verb before the subject without fronting another constituent of the sentence. The next column includes all multi-word utterances that neither contained a subject nor a verb, as well as utterances that contained a subject but not a verb and vice versa. The last column on the right lists
the total of all utterances for each recording session. Ambiguous utterances and utterances with missing parts fall also under the category “others”, unless otherwise indicated. Finally, it should be kept in mind that the focus of the analysis is on utterances in which a constituent other than the subject occupies the first position. Therefore, the following analysis concentrates mainly on the columns ‘XP+SV’ and ‘XP+VS’.

Table 6.3 Breakdown of Andreas’ multi-word utterances

<table>
<thead>
<tr>
<th>Time</th>
<th>SVX</th>
<th>SXV</th>
<th>XP+VS</th>
<th>*XP+SV</th>
<th>VS+</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>26</td>
<td>1</td>
<td>23</td>
<td>1</td>
<td>5</td>
<td>20</td>
<td>76</td>
</tr>
<tr>
<td>T2</td>
<td>23</td>
<td>3</td>
<td>18</td>
<td>-</td>
<td>3</td>
<td>11</td>
<td>58</td>
</tr>
<tr>
<td>T3</td>
<td>32</td>
<td>9</td>
<td>11</td>
<td>-</td>
<td>3</td>
<td>17</td>
<td>72</td>
</tr>
<tr>
<td>T4</td>
<td>23</td>
<td>5</td>
<td>11</td>
<td>-</td>
<td>4</td>
<td>12</td>
<td>55</td>
</tr>
<tr>
<td>T5</td>
<td>13</td>
<td>1</td>
<td>4</td>
<td>-</td>
<td>2</td>
<td>21</td>
<td>41</td>
</tr>
<tr>
<td>T6</td>
<td>6</td>
<td>-</td>
<td>10</td>
<td>1</td>
<td>6</td>
<td>14</td>
<td>37</td>
</tr>
<tr>
<td>T7</td>
<td>31</td>
<td>2</td>
<td>29</td>
<td>2</td>
<td>5</td>
<td>17</td>
<td>86</td>
</tr>
<tr>
<td>T8</td>
<td>35</td>
<td>12</td>
<td>28</td>
<td>1</td>
<td>7</td>
<td>20</td>
<td>103</td>
</tr>
</tbody>
</table>

*ungrammatical structure in German

Andreas produced a total of 76 multi-word utterances at T1, although 20 utterances were incomplete. There were 26 occurrences of the structure SVX, one of SXV and five of (VS+). There is only one occurrence in which Andreas did not place the verb before the subject after fronting an object-like element, see (1).

(1) (T1) mein Hubs(chr)auber ich halt fest

‘my helicopter I hold tight’

*I hold my helicopter tight*

In all other 23 instances in which an element other than the subject is fronted, subject and verb were correctly placed (i.e. VS sequence), regardless of whether an adverbial was placed in sentence-first position, see (2), or an object, see (3).

(2) (T1) Thorsten, gleich muß ich fahrn Thorsten

‘Thorsten, soon must I drive Thorsten’

*Thorsten, I must go soon*

(3) (T1) zwei Teddies hab(e) ich

‘two teddies have I’

*I have two teddies*

From T2 to T5, the majority of Andreas’ multi-word utterances had the structure SVX, followed closely by the structure XVS. Andreas always placed subject and verb correctly after either placing an object or an adverbial in sentence-initial
position. At T3, there was also one occurrence in which he placed a wh-word in sentence-first position followed by the verb in second, see (4).

(4)  (T3) was machst du?
    ‘what do you?’
    *what are you doing?*

At T6, Andreas produced a total of 37 utterances containing more than two words, although 14 fall under the category ‘others’, as they were incomplete. There were six occurrences of the structure SVX and six of the structure VS+. There were ten instances in which Andreas used the VS-sequence after fronting an element other than the subject, but there was also one in which Andreas produced an XP+SV sequence, see (5).

(5)  (T6) da Erde liegt
    ‘there soil lies’
    *there is soil*

At T7, Andreas produced 86 multi-word utterances. Seventeen of those cannot be analysed as they were incomplete sentences. There were 31 occasions where Andreas used the structure SVX, as well as two occurrences of the structure SXV and five of the structure VS+. Although there were 29 instances in which the verb was correctly placed in sentence-second position following an element other than the subject in the sentence-initial position, there were also two instances in which he applied XP+SV. In one of those instances, an adverbial was placed in sentence-first position, see (6), and in the other an object-like element, see (7).

(6)  (T7) da Autos d(r)auf fahr(e)n
    ‘there cars on drive’
    *cars drive on top of it there*

(7)  (T7) so ein (. ) alle beide ( .. ) Bounties ich hab(e)
    ‘this one ( . ) both of them ( .. ) Bounties I have’
    *I have both Bounties*

At T8, Andreas produced 103 multi-word utterances and less than a fifth of them were incomplete; that is only 20 in total. Similar to the other recording sessions, the vast majority of utterances in which an element other than the subject was fronted comply with adult German word order rules, as the verb was always placed correctly in second position followed by the subject in third. There were 28 instances of the structure XVS in total and only one in which the structure XSV was applied, see (8).
Based on the findings relating to Andreas’ MLU and vocabulary size, it was already suspected that his overall linguistic development had progressed relatively far when compared with other children aged 2;1 years. The findings in regards to his syntactic development seem to confirm those assumptions made previously, as his use of German word order structures appears quite advanced.

In summary:
- The four declarative word orders SVO, SOV, XP+SV and XP+VS had already emerged in Andreas’ L1 variety by the time of T1.
- It appears that Andreas preferred the word order SVO to SOV in utterances with the subject in sentence-first position.
- In utterances with an element other than the subject in sentence-initial position, XP+VS outweighed the occurrences of XP+SV. Yet, the latter structure was still found in Andreas’ data, although he did not use it as frequently as some of the other children whose linguistic development had not progressed as far as his.

6.1.2 Cosima

Cosima’s data were also obtained from the CHILDES database and as a result not much information about her is available, besides the fact that the eight recording sessions cover her linguistic development from 2;4.02 to 2;7.22 years. Compared to Andreas, she seems to develop at a normal pace, as her linguistic development is at a stage that is generally expected for a child of her age.

MLU and vocabulary size

This section contains an analysis of Cosima’s MLU and vocabulary size. Table 6.4 below shows a summarised description of the child’s speech data. It is laid out the same way as Table 5.2 in Chapter 5.
Cosima’s data show that her vocabulary grew significantly over a period of three months and twenty days. At T1, Cosima’s cumulative vocabulary consisted of only 121 types, but it had almost doubled at T2, that is 225 types. From then on, her vocabulary contained approximately 65-80 new types at each recording session up until T6 where it was made up of 497 types which is more than four times bigger than two months and eight days before. At T7, Cosima’s vocabulary had gained another 95 types; that is 592 in total, and it consisted of 678 types in total at T8. Cosima’s MLU varied only slightly in the first four recording sessions, that is, 2.24 (T1); 2.01 (T2); 2.10 (T3); and 2.26 (T4). Interestingly, at T5, her MLU dropped down to 1.67, which is rather unexpected. This, however, could be seen as an aberration in the data as at T6 it had increased significantly again, as it was then 2.82. At T7, Cosima’s MLU was 2.84, and at T8 it had increased to 3.16. Overall, it can be said that there is nothing unusual about Cosima’s speech development, as both, the size of her vocabulary and her MLU increased steadily from interview to interview.

Syntax
This section contains an analysis of Cosima’s syntactic development. Table 6.5 contains a summary of Cosima’s utterances. It is laid out the same way as Table 6.2 in this chapter and therefore can be read the same way.
Table 6.5  *Summary of Cosima’s utterances*

<table>
<thead>
<tr>
<th>Time</th>
<th>Total number of utterances</th>
<th>One-word utterances (Ratio)</th>
<th>Two-word utterances (Ratio)</th>
<th>Multi-word utterances Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>155</td>
<td>70 (.45)</td>
<td>55 (.35)</td>
<td>30 (.19)</td>
</tr>
<tr>
<td>T2</td>
<td>193</td>
<td>120 (.62)</td>
<td>55 (.28)</td>
<td>18 (.10)</td>
</tr>
<tr>
<td>T3</td>
<td>136</td>
<td>81 (.60)</td>
<td>41 (.30)</td>
<td>14 (.10)</td>
</tr>
<tr>
<td>T4</td>
<td>170</td>
<td>91 (.53)</td>
<td>52 (.31)</td>
<td>27 (.15)</td>
</tr>
<tr>
<td>T5</td>
<td>222</td>
<td>128 (.57)</td>
<td>67 (.30)</td>
<td>26 (.12)</td>
</tr>
<tr>
<td>T6</td>
<td>214</td>
<td>87 (.41)</td>
<td>82 (.38)</td>
<td>45 (.21)</td>
</tr>
<tr>
<td>T7</td>
<td>241</td>
<td>80 (.33)</td>
<td>74 (.31)</td>
<td>87 (.36)</td>
</tr>
<tr>
<td>T8</td>
<td>231</td>
<td>73 (.32)</td>
<td>64 (.28)</td>
<td>94 (.41)</td>
</tr>
</tbody>
</table>

Table 6.6 contains a breakdown of Cosima’s multi-word utterances. It is laid out the same way as Table 6.3 in this chapter and therefore can be read the same way.

Table 6.6  *Breakdown of Cosima’s multi-word utterances*

<table>
<thead>
<tr>
<th>Time</th>
<th>SVX</th>
<th>SXV</th>
<th>XP+VS</th>
<th>*XP+SV</th>
<th>VS+</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>18</td>
<td>29</td>
</tr>
<tr>
<td>T2</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>1</td>
<td>5</td>
<td>18</td>
</tr>
<tr>
<td>T3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>T4</td>
<td>3</td>
<td>1</td>
<td>7</td>
<td>1</td>
<td>-</td>
<td>15</td>
<td>27</td>
</tr>
<tr>
<td>T5</td>
<td>4</td>
<td>1</td>
<td>6</td>
<td>-</td>
<td>-</td>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>T6</td>
<td>17</td>
<td>1</td>
<td>9</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>45</td>
</tr>
<tr>
<td>T7</td>
<td>29</td>
<td>1</td>
<td>31</td>
<td>2</td>
<td>5</td>
<td>19</td>
<td>87</td>
</tr>
<tr>
<td>T8</td>
<td>25</td>
<td>3</td>
<td>18</td>
<td>2</td>
<td>5</td>
<td>41</td>
<td>94</td>
</tr>
</tbody>
</table>

*ungrammatical

At T1, Cosima produced 30 utterances containing three words or more, although the majority were still one-word (70) and two-word utterances (55). There were four occurrences of the structure SVX, as well as one occurrence of the structure SXV. There were no occurrences of the structure VS+ and 18 utterances fall under the category ‘others’. There was only one occasion where Cosima correctly placed the verb in front of the subject after XP-fronting, see (9).

(9)  (T1)  dahinter faellt Puppi

‘behind it falls Puppi’

*Puppi falls behind it*

Interestingly, the majority of multi-word utterances that contained a subject and a verb followed the structure XP+SV, which is ungrammatical. There were five occurrences of this structure in total, see, for instance, (10) and (11).
At T2, most of Cosima’s utterances still contained less than three words, as there were only 18 multi-word utterances. Those included one occurrence of the structure SVX, two occurrences of the structure SXV and five utterances that were incomplete. There were also five occurrences of the structure XP+SV, see examples (12) to (15).

(12) (T2) Aua Opa macht
‘ouch grandpa makes’
*grandpa hurt me*

(13) (T2) nein, da ich schau(keln) schaukeln
‘no, there I swing swing’
*no, I swing there*

(14) (T2) da ich Aua mach
‘there I ouch make’

(15) (T2) dann ich hab xxx
‘then I have xxx’
*then I have xxx*

Yet, there were also four occurrences where Cosima correctly placed the verb in front of the subject after XP-fronting, as in (16) to (18).

(16) (T2) so mach ich
‘so make I’
*I make (it) like this*

(17) (T2) so macht s(ie)
‘so makes she’
*she makes (it) like this*

---

3 Note that “da hin” is usually spelt as one word in German, that is “dahin”, but that it was left as it appeared that way in the original CHILDES transcript.
Interestingly, Cosima was able to place the verb ‘machen’ (‘to make’) correctly in sentence-second position in sentences without an object, see examples (16) and (17), but not in sentences that contain an object, see examples (12) and (14) above. There was also one occurrence of a VS-structure in a sentence that contained a finite and a non-finite verb, see example (19).

(19) (T2) musst du eins hochheben

‘must you one lift’

‘you must lift one’

As can be seen, the finite verb was placed before the subject, whereas the non-finite verb was correctly positioned at the end of the sentence. At T3, most of Cosima’s utterances still contained one or two words and there were only fourteen multi-word utterances. Eight of those fourteen utterances cannot be analysed as they are incomplete and are therefore listed under “others”. The remaining six utterances were made up of two utterances with the structure SVX, two utterances with the structure SXV, as well as one utterance with the structure XP+VS, example (20), but no occurrences of the structure XP+SV.

(20) (T3) Smacks holen Mama

‘Smacks [: type of cereal] get mum’

‘get Smacks, mum’

However, example (20) is an imperative and it is unclear whether Cosima actually inverted the subject and the verb or if she simply added ‘Mama’ (‘mum’) to reinforce her request. There was also one occasion where the subject and the verb of an utterance are inverted in order to produce a Y/N-question, see example (21).

(21) (T3) siehst du es?

‘see you it?’

‘do you see it?’

At T4, Cosima produced 27 multi-word utterances. Fifteen of the multi-word utterances cannot be analysed as they are incomplete sentences. There were three occasions where Cosima used the structure SVX, as well as one occurrence of the structure SXV. Additionally, there were seven occasions where she correctly placed
the verb before the subject after XP-fronting, see, for instance, examples (22) to (25), but no occurrences of the structure VS+.

(22) (T4) hier is(t) (ei)n (S)macks drin
‘here is a Smacks inside’

(23) (T4) hier faellt (e)s hin
‘here falls it down’

(24) (T4) weg is(t) er, aus(ge)leert
‘away is he, emptied’

(25) (T4) da kommt er
‘there comes he’

There was only one occasion in which she did not apply the sequence VS after XP-fronting, see (26), whereas in the previous interview most of her utterances with XP-fronting followed this pattern.

(26) (T4) zu (e)s geht
‘closed it goes’

At T5, Cosima produced 26 multi-word utterances, although fifteen of those utterances cannot be analysed, as they were incomplete. There were four occurrences of the structure SVX and one occurrence of the structure SXV. There were also six occasions where Cosima used the structure XP+VS, as in (27) and (28). There were no occurrences of the structure XP+SV.

(27) (T5) Gickel mach ich
‘rooster make I’

(28) (T5) so machen der das
‘so make (inf.) he this’

At T6, Cosima produced 45 multi-word utterances in total, although the majority of her utterances still contained two words or less. Yet, for the first time most of her multi-word utterances were actually complete sentences, as only 16 utterances were
incomplete. On seventeen occasions, Cosima produced utterances with the SVX-structure and there was also one occasion where she applied the structure SXV. There was only one occurrence of XP+SV, see (29), but nine occurrences where she correctly applied the sequence VS after XP-fronting, as in (30) and (31).

(29) (T6) da ich zumachen
   ‘there I close make’
   *there I close (it)*

(30) (T6) zu mach ich wieder
   ‘close make I again’
   *I close (it) again*

(31) (T6) wo is(t) er?
   ‘where is he?’
   *where is he?*

Example (31) is also the first occurrence of a complete question fronted by a question-word. Yet, it could be argued that ‘wo ist er?’ (*where is he?*) is a formulaic expression and therefore should be considered as a one-word utterance, rather than evidence for Cosima’s ability to formulate wh-questions at this stage. There was also one occasion where the subject and verb were inverted in order to form an Y/N-question, see (32).

(32) (T6) siehst (d)\[ [: du\] (e)s?  
   ‘see you it?’
   *do you see it?*

At T7, more than one third of Cosima’s utterances were multi-word utterances, that is 87 in total. As at T6, the majority of her multi-word utterances were complete sentences, with only 19 utterances being incomplete. Cosima produced 29 utterances that follow the structure SVX, one with the structure SXV and two utterances with the structure XP+SV, see (33) and (34).

(33) (T7) wo das is(t)?
   ‘where this is?’
   *where is this?*

(34) (T7) hier das is(t)
   ‘here this is’
   *here is this*
There were also 31 occasions where Cosima correctly applied the sequence VS after XP-fronting, as in (35) and (36).

(35) (T7) warum weint das?
‘why cries this?’
why is this one crying?

(36) (T7) Angst hab ich
‘fear have I’
_I am afraid_

Furthermore, there were five occurrences where Cosima used the structure VS+, as in (37) and (38).

(37) (T7) sag ich do(ch) nich(t)
‘say I however not’
_however I won’t say that_

(38) (T7) brauch ich die?
‘need I this?’
_do I need this?_

At T8, Cosima produced 94 multi-word utterances in total. There were 25 occurrences of the structure SVX, as well as three occurrences of the structure SXV. Forty-one utterances were incomplete and there were two occasions where Cosima did not place the verb before the subject after XP appears in initial position, see examples (39) and (40).

(39) (T8) da hinten der Mann guckt
‘over there the man looks’
_the man looks over there_

(40) (T8) immer is [: ich] ham [: haben] xx
‘always I have xx’
_I always have xx_

There were also 18 occurrences of the structure XP+VS, as in (41) and (42).

(41) (T8) hier ha(ben) mer [: wir] nich(t) fertig geguckt
‘here have we not finished looking’
_we have not finished looking here_

(42) (T8) jetz(t) hab ich zwei
‘now have I two’
_I have two now_
She also correctly produced Y/N-questions by inverting subject and verb, see (43) and (44).

(43) (T8) soll ich (e)s wegwerfen?
          ‘should I it away-throw?’
          should I throw it away?

(44) (T8) is(t) das ein Maus?
          ‘is this a mouse?’
          is this a mouse?

Overall, the data revealed that over a time period of three months and twenty days, that is from the age of 2;4.02 to the age of 2;7.22 years, Cosima went through various significant stages in her syntactical development as summarised below.

In summary:

- Similar to Andreas, the four declarative word orders SVO, SOV, XP+SV and XP+VS had already emerged in Cosima’s L1 variety by the time of T1.
- Like Andreas, Cosima also preferred the word order SVO to SOV in utterances with the subject in sentence-first position.
- In utterances with an element other than the subject in sentence-initial position, the use of XP+SV dominated over the use of XP+VS during the earlier recording session. However, later on it was replaced with XP+VS in most instances.

6.2 German L1 children (Clahsen)

This section contains a summary of the data of the German L1 siblings that were the informants in Clahsen’s (1982) study. It will only provide an overview of the main findings, rather than give a detailed insight of all the stages German L1 children go through in their development, as these data’s central function for the current study is to serve as a comparison for the other German L1 data. After taking a brief look at the children’s general development in terms of MLU and vocabulary growths throughout the study, this section will focus mainly on one aspect of their syntactic development in more detail. That is, its main focus is on utterances in which an element other than the subject is placed into sentence-first position. Further, it should be noted that the morphological development of those children was
excluded from the analysis, although certain aspects will occasionally be pointed out, if the need arises.

As mentioned in Chapter 4, the children observed by Clahsen (1982) were three siblings, namely the twins Mathias and Daniel and their younger sister Julia. Mathias and Daniel were aged 2;9.28 years at T1 and 3;6.28 years at T3, while Julia was aged 2;1.14 years at T1 and 2;5.28 at T3. Based on the re-analysis of the datasets, their linguistic development does not differ from that of other German L1 children their respective age, but rather seems to follow more or less the average path and pace.

6.2.1 MLU and vocabulary size

This section contains an analysis of the three siblings’ MLU and vocabulary size. Table 6.7 below shows a summarised description of the L1 learners’ speech data. The first column on the left shows the informant’s name and the time of the interview, while the second column indicates the age of the child at the time of the recording session. The third column displays the informant’s MLU for each interview and the following two columns list the number of the informants’ word tokens and types for each interview. The last column on the right shows the cumulative types for each informant after each interview.

Table 6.7 Summary description of L1 children’s speech samples: Mathias, Daniel and Julia

<table>
<thead>
<tr>
<th>German L1 learner and Interview</th>
<th>Time spent in Germany</th>
<th>MLU</th>
<th>Word Tokens</th>
<th>Word Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathias</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>2;9.7</td>
<td>2.26</td>
<td>354</td>
<td>143</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>3;2.14</td>
<td>2.68</td>
<td>83</td>
<td>54</td>
<td>177</td>
</tr>
<tr>
<td>T3</td>
<td>3;6.28</td>
<td>3.48</td>
<td>570</td>
<td>197</td>
<td>331</td>
</tr>
<tr>
<td>Daniel</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>2;9.28</td>
<td>2.15</td>
<td>133</td>
<td>71</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>3;2.14</td>
<td>2.95</td>
<td>168</td>
<td>70</td>
<td>127</td>
</tr>
<tr>
<td>T3</td>
<td>3;6.28</td>
<td>3.33</td>
<td>360</td>
<td>146</td>
<td>235</td>
</tr>
<tr>
<td>Julia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>2;1.14</td>
<td>1.60</td>
<td>136</td>
<td>42</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;3.21</td>
<td>1.92</td>
<td>263</td>
<td>94</td>
<td>124</td>
</tr>
<tr>
<td>T3</td>
<td>2;5.28</td>
<td>2.68</td>
<td>356</td>
<td>105</td>
<td>198</td>
</tr>
</tbody>
</table>

By looking at the data of the twins, it can be seen that at T1 (age: 2;9.28), Mathias’ MLU was around 2.26 and that his cumulative vocabulary consisted of roughly 143 types. Daniels’s MLU was slightly smaller, that is 2.15 and his cumulative
vocabulary contained only 71 words which is less than half the size of that of his brother at this stage. At T2 (age: 3;2.14), Mathias’ MLU had only grown slightly, that is 2.68 and his vocabulary had expanded by 34 types. Daniel’s MLU by then had expanded to 2.68 and his vocabulary had nearly doubled in size; that is 127 types. At T3, (age: 3;6.28), Mathias’ MLU had reached 3.48 and his vocabulary had nearly doubled in size, that is 331 types. Daniel’s MLU was 3.33 by then and as a consequence had nearly reached the same size as Mathias’ MLU. Yet, his vocabulary at this stage was considerably smaller than that of his brother, as it had only grown to 235 types in total. At T1 (age: 2;1.14), Julia’s MLU was 1.60 which is considerably smaller than that of her older brothers. Also, her cumulative vocabulary at this stage contained only 42 types. At T2 (age: 2;3.21), her MLU had only grown slightly (1.92), although her vocabulary had nearly tripled, as it comprised 124 types. At T3 (age: 2;5.28), Julia’s MLU had grown further, as it was then at 2.68. Her vocabulary, in contrast, did not expand as much, as it only contained 74 new types; that is 198 words in total.

6.2.2 Syntax

This section looks at the German L1 children’s syntactic development.

Mathias

This sub-section contains an analysis of Mathias’ syntactic development. Table 6.8 contains a summary of all his utterances. It is laid out the same way as Table 6.2 in this chapter and therefore can be read the same way.

Table 6.8 Summary of Mathias’ utterances

<table>
<thead>
<tr>
<th>Interview</th>
<th>Total number of utterances</th>
<th>One-word utterances (Ratio)</th>
<th>Two-word utterances (Ratio)</th>
<th>Multi-word utterances (Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>157</td>
<td>58 (.37)</td>
<td>38 (.24)</td>
<td>61 (.39)</td>
</tr>
<tr>
<td>T2</td>
<td>31</td>
<td>13 (.42)</td>
<td>4 (.13)</td>
<td>14 (.45)</td>
</tr>
<tr>
<td>T3</td>
<td>164</td>
<td>25 (.15)</td>
<td>22 (.14)</td>
<td>117 (.71)</td>
</tr>
</tbody>
</table>

Table 6.9 contains a breakdown of Mathias’ multi-word utterances. It is laid out the same way as Table 6.3 in this chapter and therefore can be read the same way.
At T1, Mathias produced 61 utterances containing three words or more. Out of those 61 utterances, seven fall under the category SVX and 37 fall under the category ‘others’. There were 15 instances in which Mathias produced a post verbal subject and placed another constituent into sentence-first position, regardless of whether there was an adverbial, as in (45), an object, as in (46), or a wh-word plus copula verb, as in (47), in sentence-first position.

(45) (T1) hier ist er
‘here is he’
he is here

(46) (T1) die Schere hat Julia
‘the scissors has Julia’
Julia has the scissors

(47) (T1) was ist da drauf?
‘what is there on?’
what is on there?

However, there were also two occurrences in which he failed to do so, see (48) and (49).

(48) (T1) hier ich sitze
‘here I sit’
I sit here

(49) (T1) hier wieder einer weggeflogen
‘here again one away-flown’
here one has flown away again

At T2, Mathias produced 14 multi-word utterances in total, but eight of them fall under the category ‘others’. However, there were also two instances of SVX, one of VS and three content questions including a copula in which Mathias applied the structure XP+VS, see (50).
(50)  (T2)  wo ist der Hard (= Herd) denn?
‘where is the stove then?’
where then is the stove?

There were no occurrences of the structure XP+SV at T2.

At T3, Mathias produced 117 multi-word utterances in total. However, 35 of those cannot be analysed, as they are incomplete sentences. There were 55 occurrences in which Mathias applied the structure SV and ten in which he applied VS. In the remaining 17 utterances the structure XP+VS was applied, regardless of what was placed into sentence-first position. That is, Mathias seemed to be able to correctly place subject and verb after fronting an adverbial, as in (51), or an object, as in (52), as well as in content questions including a copula, as in (53), or a lexical verb, as in (54).

(51)  (T3)  da kann man mit den auto hinfahr
‘there can one with the car to-drive’
you can go there by car

(52)  (T3)  die ham wir von den Christkind.
‘them have we of the infant Jesus’
we got them from Santa Claus

(53)  (T3)  was ist das?
‘what is it?’
what is it?

(54)  (T3)  was bedeutet das?
‘what means it?’
what does it mean?

There were no occurrences of the structure XP+SV at T3.

In summary:

• Only three different structures for multi-word declarative utterances were found in Mathias’ data; that is SVO, XP+SV and XP+VS.
• Interestingly, Mathias did not use the structure SOV.
• In utterances with an element other than the subject in sentence-initial position, Mathias used the ungrammatical structure XP+SV at T1, but correctly placed the subject post-verbal at T2 and T3.
• The use of XP+SV dominated over the use of XP+VS during the earlier recording session. However, later on it was replaced with XP+VS in most instances.

Daniel

This section contains an analysis of Daniel’s syntactic development. Table 6.10 contains a summary of all his utterances. It is laid out the same way as Table 6.2 in this chapter and therefore can be read the same way.

Table 6. 10 Summary of Daniel’s utterances

<table>
<thead>
<tr>
<th>Interview</th>
<th>Total number of utterances</th>
<th>One-word utterances (Ratio)</th>
<th>Two-word utterances (Ratio)</th>
<th>Multi-word utterances (Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>62</td>
<td>26 (.42)</td>
<td>16 (.26)</td>
<td>20 (.32)</td>
</tr>
<tr>
<td>T2</td>
<td>57</td>
<td>12 (.21)</td>
<td>11 (.19)</td>
<td>34 (.60)</td>
</tr>
<tr>
<td>T3</td>
<td>108</td>
<td>18 (.17)</td>
<td>21 (.19)</td>
<td>69 (.64)</td>
</tr>
</tbody>
</table>

Table 6.11 contains a breakdown of Daniel’s multi-word utterances. It is laid out the same way as Table 6.3 in this chapter and therefore can be read the same way.

Table 6. 11 Breakdown of Daniel’s multi-word utterances

<table>
<thead>
<tr>
<th>Interview</th>
<th>SVX</th>
<th>SXV</th>
<th>XP+VS</th>
<th>*XP+SV</th>
<th>VS+</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>1</td>
<td>-</td>
<td>5</td>
<td>1</td>
<td>-</td>
<td>13</td>
<td>20</td>
</tr>
<tr>
<td>T2</td>
<td>3</td>
<td>-</td>
<td>19</td>
<td>1</td>
<td>2</td>
<td>9</td>
<td>34</td>
</tr>
<tr>
<td>T3</td>
<td>21</td>
<td>-</td>
<td>15</td>
<td>10</td>
<td>21</td>
<td>67</td>
<td></td>
</tr>
</tbody>
</table>

*ungrammatical

At T1, Daniel produced 20 utterances containing more than two words, yet 13 of them fall under the category ‘others’. Nevertheless, there was one occurrence of the structure SVX, one of the structure XP+SV, see (55), and five of the structure XP+VS, see (56).

(55) (T1) da Tante machen
‘there auntie do’

there auntie does (it)

(56) (T1) da is Tisch
‘there is fish’

there is a fish
Four of the five instances in which XP+VS was used are copula sentences; whereas the remaining one includes a lexical verb, see (57).

(57)  (T1)  da reinspring Wauwau
       there in-jump doggy
       *there jumps doggy in*

At T2, the majority of Daniel’s multi-word utterances were complete sentences; that is 25 out of 34 in total. There were three instances of SVX, two of VS and one of XP+SV, see (58).

(58)  (T2)  da die schimpfen
       ‘there they cuss’
       *there they are cussing*

In the remaining 19 utterances the structure XP+VS was used, regardless of whether an adverbial was placed into sentence-first position, as in (59), or a wh-word plus a copula verb, as in (60). It should be noted, however, that there were no occurrences in which an object-like element was placed into sentence-initial position.

(59)  (T2)  jetzt geht er Tal
       ‘now goes he valley’
       *now he goes (into) the valley*

(60)  (T2)  wo ist der Onkel?
       ‘where is the uncle?’
       *where is the uncle?*

At T3, Daniel produced 69 multi-word utterances in total where 48 of them were complete sentences. There were 21 instances in which Daniel used the structure SV and ten in which he applied VS, as in (61).

(61)  (T3)  hamm wir Papa gegeben$^2$
       ‘have we daddy given’
       *we have given (it) to daddy*

$^2$ Note that “gegeben” is a ditransitive verb and therefore requires two objects. That is, the direct object is missing, although it is supposed to be placed in sentence-initial position.
In the remaining 17 utterances, Daniel correctly placed the verb before the subject after either fronting an adverbial, as in (62), a wh-word plus a copula verb, as in (63), or a wh-word plus a lexical verb, as in (64).

(62) (T3)  so machen wir das  
   ‘so make we it’  
   *we do it that way*

(63) (T3)  wo ist meine Tasche?  
   ‘where is my bag?’  
   *where is my bag?*

(64) (T3)  und warum essen die Stroh?  
   ‘and why eat they hay?’  
   *and why do they eat hay?*

As in T2, there were no occurrences in which an object-like element was fronted, nor any occurrences of the structure XP+SV.

In summary:

- Like his twin brother, Daniel only used three different structures for multi-word declarative utterances; that is SVO, XP+SV and XP+VS. He did not use the structure SOV.
- In utterances with an element other than the subject in sentence-initial position, XP+VS clearly dominated over XP+SV, as only two occurrences in total were found in Daniel’s data.

*Julia*

This section contains an analysis of Julia’s syntactic development. Table 6.12 contains a summary of all her utterances. It is laid out the same way as Table 6.2 in this chapter and therefore can be read the same way.

Table 6.12  Summary of Julia’s utterances

<table>
<thead>
<tr>
<th>Interview</th>
<th>Total number of utterances</th>
<th>One-word utterances (Ratio)</th>
<th>Two-word utterances (Ratio)</th>
<th>Multi-word utterances (Ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>85</td>
<td>52 (.61)</td>
<td>26 (.31)</td>
<td>7 (.08)</td>
</tr>
<tr>
<td>T2</td>
<td>120</td>
<td>35 (.29)</td>
<td>49 (.41)</td>
<td>36 (.30)</td>
</tr>
<tr>
<td>T3</td>
<td>133</td>
<td>34 (.25)</td>
<td>38 (.29)</td>
<td>61 (.46)</td>
</tr>
</tbody>
</table>
Table 6.13 contains a breakdown summary of Julia’s multi-word utterances. It is laid out the same way as Table 6.3 in this chapter.

Table 6.13  Breakdown of Julia’s multi-word utterances

<table>
<thead>
<tr>
<th>Interview</th>
<th>SVX</th>
<th>SXV</th>
<th>XP+VS</th>
<th>*XP+SV</th>
<th>VS+</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>(1)^</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>T2</td>
<td>5</td>
<td>-</td>
<td>1^^</td>
<td>9</td>
<td>-</td>
<td>21</td>
<td>36</td>
</tr>
<tr>
<td>T3</td>
<td>18</td>
<td>4</td>
<td>14</td>
<td>1</td>
<td>1</td>
<td>23</td>
<td>61</td>
</tr>
</tbody>
</table>

*ungrammatical ^complete two word utterance containing a subject and a verb ^ambiguous utterance

At T1, Julia only produced seven utterances in total that contain more than two words. All of those utterances were incomplete and therefore fall under the category ‘others’. Nevertheless, Julia produced one two-word utterance containing a subject and a verb, see (65), which is worth mentioning as it was the only complete utterance containing a subject and a verb at T1.

(65)  (T1)  Baby lafen (=schlafen)

‘baby sleep(inf.)’

baby sleeps

At T2, the majority of Julia’s multi-word utterances were still incomplete, as 21 out of 36 fall under the category ‘others’. Yet, there were five instances of the structure SVX and nine instances of the structure XP+SV. Eight of these nine utterances followed the pattern “da” (‘there’) + S + infinitive of the verb”, see (66) and (67), whereas in the remaining one an object-like element was placed into sentence-first position, see (68).

(66)  (T2)  da du sitzen

‘there you sit (inf.)’

there you sit

(67)  (T2)  da du machen

‘there you make (inf.)’

there you make (it)

(68)  (T2)  ein Rund ich machen

‘a round (= hole) I make (inf.)’

I make a hole

There was only one single occurrence where Julia placed the verb correctly in sentence-second position, see (69).
Yet, in this sentence the subject and the verb were both repeated which makes the sentence rather ambiguous, as it is unclear which part of it Julia tries to “repair”. At T3, 23 of Julia’s 61 multi-word utterances were incomplete and there were 18 occurrences of the structure SVX and four of the structure SXV. In this session, Julia seemed to have abandoned the structure XP+SV in copula-constructions since all utterances with a copula had the structure XP+VS, see (70), and in utterances fronted by an adverbial, see (71). In total, there were 14 instances in which she correctly used the structure XP+VS. In addition, there was one occurrence where Julia produced the structure VS in a Y/N-question, see (72).

(70) (T3) das ist Jens
‘this is Jens
this is Jens
(71) (T3) hier kann man anfassen
‘here can one touch’
you can touch it here
(72) (T3) kann Julia auch mal sehen?
‘can Julia also once see?’
can Julia see as well?

In utterances in which an object-like element was placed into sentence-first position, Julia either applied the structure XP+VS on some occasions, as in (73), but also fell back onto the structure XP+SV, see (74).

(73) (T3) das kann man anhäng
‘this can one on-add ’
you can add this on
(74) (T3) mein extra Tuch der Ti nimmt
‘my extra cloth the Ti takes’
the Ti takes my extra cloth
In summary:

- All four declarative word orders (SVO, SOV, XP+SV and XP+VS) were found in Julia’s data.
- Like Andreas and Cosima, she clearly preferred the word order SVO to SOV in utterances with the subject in sentence-first position.
- Utterances with an element other than the subject in sentence-initial position occurred for the first time at T2 where the use of XP+SV plainly dominated over the use of XP+VS. At T3, however, the latter structure had nearly completely replaced the former one.

6.3 German L2 learners

This section contains a summary of the three German L2 learners’ data sets. It will only provide an overview of the main findings, rather than give a detailed insight into all the stages German L2 learners go through in their development, as its main purpose is to enable a comprehensive comparison between German L1 and L2 acquisition. After taking a brief look at the L2 learners’ general development in terms of MLU and vocabulary growths throughout the study, this section will look at their syntactic development in more detail. Following that, this section will look into one aspect of the L2 learners’ morphological development, namely SV-agreement. As already summarised in Section 4.1.2 in Chapter 4, the three German L2 learners were two young Italian L1 men and one young Italian L1 woman who had all spent at least a year in Germany by the time of their first interview. That is, Marcello had lived 1;6 years in Germany at T1 and 2;9 years at T3. Tino had spent 1;2 years in Germany at T1 and 3;2 years at T3. Angelina had lived in Germany for 1;10 years at T1 and 3;2 years at T3. The data of the three L2 informants were obtained from a study that was conducted by the ZISA research project team in the early 1980s. The data were collected through semi-structured interviews with the informants which also involved some communicative tasks, such as the re-telling of a movie. Three interviews of each participant were chosen, that is nine interviews in total, in order to assess their language development at various stages in time. The average length of one session of data collection was around 90 minutes, but unfortunately not all data
were made publicly available. As a result, only 20-30 minutes of each session were analysed for the purpose of the current study.³

### 6.3.1 MLU and vocabulary size

This section contains an analysis of the German L2 learners’ MLU and vocabulary size at each session. Table 6.14 below shows a summary of the L2 learners’ speech data. It is laid out in the same way as Table 6.7 in this chapter with the exception that the second column on the left indicates the time spent in Germany at the time of the respective interview session.

**Table 6.14 **Summary description of L2 learners’ speech samples  

<table>
<thead>
<tr>
<th>German L2 learner and Interview</th>
<th>Time spent in Germany (years; months)</th>
<th>MLU</th>
<th>Word Tokens</th>
<th>Word Types</th>
<th>Cumulative Types</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Marcello</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>1;6</td>
<td>3.29</td>
<td>250</td>
<td>126</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>1;10</td>
<td>7.82</td>
<td>462</td>
<td>127</td>
<td>229</td>
</tr>
<tr>
<td>T3</td>
<td>2;9</td>
<td>14.56</td>
<td>1237</td>
<td>301</td>
<td>451</td>
</tr>
<tr>
<td><strong>Tino</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>1;2*</td>
<td>9.81</td>
<td>265</td>
<td>113</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>1;5*</td>
<td>5.83</td>
<td>233</td>
<td>105</td>
<td>189</td>
</tr>
<tr>
<td>T3</td>
<td>2;7*</td>
<td>6.68</td>
<td>1008</td>
<td>373</td>
<td>498</td>
</tr>
<tr>
<td><strong>Angelina</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>1;10</td>
<td>12.13</td>
<td>728</td>
<td>213</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2;2</td>
<td>5.30</td>
<td>281</td>
<td>81</td>
<td>263</td>
</tr>
<tr>
<td>T3</td>
<td>3;2</td>
<td>4.66</td>
<td>303</td>
<td>113</td>
<td>359</td>
</tr>
</tbody>
</table>

*Including the four months Tino spent in Italy.

The table shows that Marcello’s MLU increased steadily from interview to interview, that is 3.29 (T1); 7.82 (T2); and 14.56 (T3). This is in accordance with the growth of his vocabulary, which expanded to double the size at each interview. Tino’s MLU fluctuated from interview to interview with no detectable pattern, that is, 9.81 (T1); 5.83 (T2) and 6.68 (T3). His vocabulary, however, expanded from interview to interview. At T1, it consisted of 113 types, while at T2 it had expanded to 189 types. At T3, it had more than doubled and contained 498 words in total. Interestingly, Angelina’s MLU decreased from interview to interview, that is, 12.13 (T1); 5.30 (T2); and 4.66 (T3). Her vocabulary increased over the time, although to a lesser extent than that of the two other learners. Although she produced long utterances, ³

³ Please note that from hereon onwards the 20-30 minutes of data chosen for the current study will be referred to as one session, although in the original ZISA study they were only parts of data collection sessions that usually lasted around 90 minutes.
they did not contain coherent sentences and the decrease of her MLU seems to relate to the fact that her interlanguage appears to be ‘frozen’ at Stage 2, which will be discussed in more detail in the following section.

6.3.2 Syntax

This section contains an overview of the three German L2 learners’ syntactic development. The analysis is based on the developmental stages proposed by PT for German L2 learners (Pienemann, 1998a). PT was chosen as the theoretical framework for this study, as it can be used to determine and explain the developmental sequence in the acquisition of syntax. It is applicable to L2, as well as L1 acquisition so enables an easy comparison between the two.

Marcello

Table 6.15 shows Marcello’s application of German word order rules according to the developmental stages for German L2 learners proposed by PT. The numbers provided for each stage present the number of occurrences at a given time, while a negative number indicates that the context for the structure in question exists but the learner failed to produce it. For numbers that are separated by a slash (i.e. “/”), the number after the slash indicates the number of possible occurrences of a given structure and the number before the slash signifies the actual number of times that structure occurred. It should be noted that only clear examples were counted, that is ambiguous sentences, as well as utterances where parts of the sentence were missing, were not taken into consideration in this listing.

Table 6.15 Marcello: Application of German word order rules

<table>
<thead>
<tr>
<th>Stage</th>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>V-END: verb final in subordinate clauses</td>
<td>0</td>
<td>-1</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>INV(^{4}); verb second</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>SEP: split verbs</td>
<td>0</td>
<td>2/4</td>
<td>32</td>
</tr>
<tr>
<td>3</td>
<td>ADV: focus position</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>SVO: canonical word order</td>
<td>4</td>
<td>10</td>
<td>37</td>
</tr>
<tr>
<td>1</td>
<td>Single words</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

At T1, Marcello’s interlanguage already seemed to be on the verge of Stage 3. There

\(^{4}\) Note that INV and XP+VS describe the same phenomenon and are therefore used interchangeably.
were four occurrences of SVO and one of ADV, see (75), which is an ungrammatical word order in German main clauses.

(75)  (T1)  wann eine Person ist tot
       'when a person is dead'
       *when a person is dead*

There was also one occasion where he correctly used INV, see (76). Yet, it is very likely that this sentence is a formulaic expression and therefore does not count as evidence that the learner had acquired this structure at this point by itself.

(76)  (T1)  was is das?
       'what is that?’
       *what is that?*

The data from T2 show that at this stage Marcello used the structures SVO, ADV, SEP and INV. There were ten occurrences of SVO and he used ADV twice. He also correctly placed the verb before the subject in sentence-second position after ADV-fronting once, see (77).

(77)  (T1)  und dann in die selbe Moment eh komme eine ein Karr mit Pferde
       ‘and then at the same moment eh come a a carriage with horses’
       *and then at the same moment a horse carriage comes*

Yet, a single occurrence of the structure does not provide sufficient evidence to say that INV had emerged in his interlanguage at this stage. Although there were two occurrences of SEP, there were also two occasions where Marcello did not apply this structure, see (78) and (79). Nevertheless, according to the emergence criterion, two occurrences of a structure are sufficient to say that is has been acquired and therefore it can be said that Marcello had acquired SEP at that stage.

(78)  (T2)  ja Frau N. eh at gesehen at gesehn diese falsch ähm falsche Aktion
       ‘yes Mrs. N. eh has seen has seen this wrong uh wrong action’
       *yes, Mrs. N. has seen this mistake*

(79)  (T2)  und dann eh er abholen der Zug
       ‘and then eh he up-pick the train’
       *and then he picks up the train*
Further, there was also one instance of a subordinate clause in which the finite verb had not been placed into sentence-final position, see (80). According to the emergence criterion, a single occurrence of a structure is not sufficient to say that it has been acquired at that point. Thus, it appears that Marcello had not acquired V-Final at that stage.

(80) (T2) aber nischt gesehe die der Zug ist weg
‘but not seen the (fem.) the (masc.) train is away’

but (he) didn’t see that the train has gone

The data from T3 contain enough evidence in order to say that Marcello’s interlanguage had moved on to Stage 5. There were thirty-seven occurrences of SVO and thirty-seven of SEP, which shows that he had acquired those two structures.

Further, there were only two occurrences of ADV, see (81) and (82), as he correctly applied INV on the other four occasions in which ADV-fronting occurred. Thus, at T3, INV and ADV-fronting (ungrammatical) co-existed in Marcello’s utterances.

(81) (T3) und eh vor diese Baum es gibt eine Haus
‘and eh in front of this tree there is a house’

and there is a house in front of the tree

(82) (T3) so in eine Moment so eh diese Wagen fahren in die Stadt
‘so in a moment so eh this carriage go in the city’

so in a moment this carriage will go to the city

There were also three other instances in which he correctly used INV, as in (83). Therefore, it can be said that he had acquired this structure by then.

(83) (T3) wills du meine Apartment gesehen sehen
‘want you my apartment seen see

do you want to see my apartment

As there was no given context for V-End, it is not possible to say whether he had acquired this structure or not.

In summary:
Marcello’s syntactic development mainly followed the hierarchy proposed by PT throughout the three recording sessions.

There was enough evidence in order to say that his interlanguage progressed from being on the verge of Stage 3 up to Stage 5 from T1 to T3. Yet, there was insufficient evidence to determine whether he had acquired V-End in subordinate clauses or not.

**Tino**

Table 6.16 shows Tino’s application of German word order rules according to the acquisition hierarchy for German L2 learners proposed by PT. It is laid out in the same way as Table 6.15 in this section.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>V-END: verb final in subordinate clauses</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>INV: verb second</td>
<td>0</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>SEP: split verbs</td>
<td>0</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>3</td>
<td>ADV: focus position</td>
<td>6</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>SVO: canonical word order</td>
<td>11</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>1</td>
<td>Single words</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

At T1, Tino had spent 1:2 years (interrupted by a four months visit to Italy) in Germany and his data suggest that his interlanguage was at Stage 3 by then. There were eleven occurrences of the structure SVO and six occurrences of ADV, see, for instance, (84) and (85). This provides enough evidence to say that the learner had acquired those two structures.

(84) (T1) aber in der Straße eh er seh eine eine Mädschen
‘but in the street eh he see a a girl’

*but he sees a girl in the street*

(85) (T1) dann sie mache a Charlot ein Geschenke
‘then she make Charlot a presents (pl.)’

*then she gives Charlot a present*

At T2, Tino had spent an additional three months in Germany and his interlanguage seemed to have progressed to Stage 6. There were twenty occurrences of SVO and
four of ADV, as in (86).

\[(86)\quad \text{T2} \quad \text{in dem Momente er hat mite die Damen gesprochen}
\quad \text{‘at this moment he has with the ladies talked’}
\quad \text{he talked to the ladies at this moment}
\]

There were two other occasions in which he correctly used INV. On both occasions, the verb is placed before the subject after ADV-fronting, see (87) and (88). However, it should be noted that the sentence in (88) is a formulaic expression and therefore cannot be counted as evidence for INV by itself.

\[(87)\quad \text{T2} \quad \text{jetzt komme eine schwarze Dame mit seine Kind}
\quad \text{‘now come a black lady with his child’}
\quad \text{now comes a black lady with her child}
\]

\[(88)\quad \text{T2} \quad \text{wie sagt man}
\quad \text{‘how say you’}
\quad \text{how do you say}
\]

At T2, there were also three instances of SEP, as in (89).

\[(89)\quad \text{T2} \quad \text{er hate die die Wagen genommen und nisch die Zug}
\quad \text{‘he had the the carriage taken and not the train’}
\quad \text{he had taken the carriage and not the train}
\]

There is sufficient evidence in order to say that Tino had acquired the structures SEP and INV by then. Furthermore, there were two occasions where Tino used a subordinate clause and both times he correctly placed the finite verb into sentence-final position, see (90) and (91).

\[(90)\quad \text{T2} \quad \text{isch weiß es nischt wie isch sage}
\quad \text{‘I know it not how I say’}
\quad \text{I don’t know how to say (it)}
\]

\[(91)\quad \text{T2} \quad \text{er hat nischt ge eh gesehn das sie die das die Zug eh wegfahrt}
\]
‘he has not eh seen that she the(fem.)the(neut.)the(fem.) train eh left’

*he did not see that the train left*

This implies that the structure V-End had already emerged in his interlanguage at T2.

The data from T3 suggest that his interlanguage had indeed reached Stage 6. There were twenty-two occurrences of SVO, eight of ADV and eight of SEP. The evidence provided is sufficient to say that he had acquired those three structures at that time. There were nine other occasions where Tino used INV. However, five out of the nine occurrences were the same sentence, which is also a formulaic expression, see (92). Yet, the other four occurrences are valid examples of Tino correctly applying INV and thus provide sufficient evidence to say that he had acquired this structure; see, for instance, (93) and (94).

(92)  (T3)  *wie sagt man?*
‘how say you’

*how do you say?*

(93)  (T3)  *auch im Tarent sinde die zwei submarine russisch gekommen*
‘also in Tarent (Italian city) are the two submarines Russian came’

*in Tarent the two Russian submarines have come as well*

(94)  (T3)  *viel viel hab isch gemag*
‘lots lots have I done’

*I have done a lot*

There was only one occurrence of the use of a subordinate clause, but Tino placed the finite verb correctly in the final position, see (95).

(95)  (T3)  *du kanns auch nich verstehn was isch sage*
‘you can also not understand what I say’

*you cannot understand either what I am saying*

As mentioned above, there were also two instances at T2 in which Tino correctly applied the structure V-End in a subordinate clause. Therefore, it can be said that the structure had emerged in his interlanguage and that he had acquired Stage 6.
In summary:

- Tino was the most advanced of the German L2 learners in regards to syntactic development and his interlanguage development followed the stages proposed by PT.
- There was sufficient evidence to be able to say that his interlanguage progressed from Stage 3 up to Stage 6 from T1 to T3.

**Angelina**

Table 6.17 shows Angelina’s application of German word order rules according to the acquisition hierarchy for German L2 learners proposed by PT. It is laid out in the same way as Table 6.15 in this section.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>V-END: verb final in subordinate clauses</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>INV: verb second</td>
<td>0</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>SEP: split verbs</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>ADV: focus position</td>
<td>-2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>SVO: canonical word order</td>
<td>7</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>1</td>
<td>Single words</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

At T1, Angelina had already spent 1;10 years in Germany. The data of her first interview show that her interlanguage had reached Stage 3 of PT, as there were seven occurrences of SVO and two occurrences of ADV, see (96) and (97).

(96)  (T1)  zehn Tage später die Mädsch eh sache de in de Mann kome mit mir
'ten days later the girl eh say the in the man come with me'

(97)  (T1)  später de de Mädsch kuisen
'later the the girl kiss'

The data from T2 were collected four months later, but it does not seem that Angelina’s syntactic development made any progress at all. There were only four occurrences of SVO in total and no occurrences of ADV. Interestingly, there was one occurrence of INV, as she correctly placed the verb before the subject after the fronting of an adjunct, see (98).
(T2)  in eh diese Moment komme der Zug
‘in eh this moment come the train’

at this moment the train arrives

However, according to the acquisition criterion, at least one more occurrence of INV involving different lexical items is necessary in order to say that this structure had emerged in her interlanguage at this stage. At T3, there was still no evidence that would suggest that her interlanguage had moved on beyond Stage 3. There were eight occurrences of SVO and only one of ADV, see (99).

(99)  un jetzt un jetz isch weiß nix
‘and now and now I know nothing’

and now I don’t know

Overall, it can be said that Angelina’s interlanguage seemed to have stabilized at Stage 3. Although there was one occurrence where she correctly used the sequence VS after XP-fronting, it cannot be said that she had acquired INV yet. A single occurrence of the structure INV does not provide enough evidence to say that it had emerged in Angelina’s interlanguage.

In summary:
- Compared to the other two German L2 learners, Angelina progressed the least in her syntactic development throughout the recording session.
- Although there was one occurrence of INV (Stage 5) at T2, it appeared that her interlanguage stayed at Stage 3 without further progress during T1-T3.

6.3.3 Morphology

This section deals with the L2 learners’ grammatical development in regards to morphology. It looks at the adult learners’ SV-agreement including accuracy rate and error types, as this is the same aspect of feature unification analysed in the L1 learners’ data in the previous chapter. Following that, the findings obtained from the two learner groups will be compared with each other and discussed in Chapter 7.
Table 6.18 shows SV-agreement in Marcello’s data including accuracy rate for each interview in total numbers and in percentage. For each interview, the overall score for SV-agreement is shown in total numbers and percentage, as well as separate scores for declaratives and interrogatives. The table is laid out the same way as Table 5.11 in Chapter 5. That is, it shows the overall score for SV-agreement, as well as separate scores for declaratives and interrogatives. Each cell contains two numbers divided by a slash (i.e., “/”). The number before the slash signifies the frequency count of positive evidence for SV-agreement, while the number after the slash indicates the total occurrence of SV-like structures.

Table 6.18  Marcello: Accuracy rate in SV-agreement

<table>
<thead>
<tr>
<th>Time</th>
<th>MLU</th>
<th>Total (accuracy percentage)</th>
<th>Declaratives</th>
<th>Interrogatives</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>3.29</td>
<td>10/13 (76.9)</td>
<td>8/11</td>
<td>2/2</td>
</tr>
<tr>
<td>T2</td>
<td>7.82</td>
<td>15/31 (48.4)</td>
<td>15/31</td>
<td>-</td>
</tr>
<tr>
<td>T3</td>
<td>14.56</td>
<td>69/126 (54.8)</td>
<td>69/126</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>93/170</td>
<td>91/168</td>
<td>2/2</td>
</tr>
</tbody>
</table>

Marcello’s score for SV-agreement varied from interview to interview, while his MLU rose steadily. That is, at T1 his accuracy rate was 76.9% and his MLU was 3.29; at T2 his accuracy rate was 48.4% and his MLU was 7.82; and at T3 his accuracy rate was 54.5% and his MLU was 14.56. Rather surprisingly, his accuracy rate was the highest at T1, which, however, can be explained when looking at the different verb types that were found at each recording session, which are listed in Table 6.19 below. Note that the table is laid out the same way as Table 5.12 in Chapter 5.

Table 6.19  Marcello: SV-agreement based on verb type

<table>
<thead>
<tr>
<th>Time</th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T1</td>
<td>6/6</td>
<td>4/6</td>
<td>-</td>
<td>0/1</td>
</tr>
<tr>
<td>T2</td>
<td>8/8</td>
<td>3/15</td>
<td>4/8</td>
<td>-</td>
</tr>
<tr>
<td>T3</td>
<td>23/23</td>
<td>17/42</td>
<td>28/58</td>
<td>1/3</td>
</tr>
<tr>
<td>Total</td>
<td>37/37</td>
<td>34/63</td>
<td>32/66</td>
<td>1/4</td>
</tr>
</tbody>
</table>

Table 6.20 displays Marcello’s accuracy rate in SV-agreement for the different verb types based on person. It is laid out the same way as Table 5.13 in Chapter 5.

Table 6.20  Marcello: Analysis of SV-agreement based on person

<table>
<thead>
<tr>
<th></th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person SG</td>
<td>-</td>
<td>9/10</td>
<td>4/4</td>
<td>-</td>
</tr>
</tbody>
</table>
As can be seen, Marcello achieved full score with copulas at each recording session, while he struggled with SV-agreement for all three other verb types. Yet, a closer look at the different types of copulas shows that he only used two out of the possible twelve forms; that is, third person SG present, see (100), and third person PL present, see (101).

(100) (T3)   das ist alles
‘that is all’
*that is all*

(101) (T1)   sie sind eh famosi
‘they are uh famosi’
*they are famous*

With lexical verbs, in contrast, Marcello did not only inflect verbs for four different person types, but also used a greater variety of word types. It appears that he struggled most with the inflection for 3rd person SG, as in (102).

(102) (T3)   die Mädchen rufe die Chaplin
‘the girl (3rd person SG) call (1st person SG) the Chaplin’
*the girl calls Chaplin*

There were only 17 instances that required Marcello to inflect the verb for a person other than 3rd person SG, whereas there were 46 that required the use of 3rd person SG. Further, ten out of those 17 other utterances required the use of 1st person SG, as in (103) and Marcello used the right inflection for 1st person SG nine out of ten times. Note that this form is also coincidental with the wrong inflection mostly used for 3rd person SG, see (102) above.

(103) (M3)   isch habe kein Geld
‘I have no money’
*I don’t have money*
Marcello also produced 66 utterances with a VP that contained an auxiliary plus a lexical verb with the majority requiring the verb to be inflected for 3rd person SG. In most of those utterances Marcello usually used the right inflection on the finite verb, while he failed to supply the correct non-finite verb, see (104).

(104) (T3) \( \text{sie hat eine Brot genehm} \)  
‘she has a bread taken’  
\( she \) \( has \) \( taken \) \( some \) \( bread \)

Lastly, there were four occurrences where the context required the split of a VP that contained a finite verb and a particle, although Marcello only managed to do so on one occurrence, see (105).

(105) (T3) \( \text{alle laufen weg zusamme} \)  
‘everyone runs away together’  
\( they \) \( run \) \( away \) \( together \)

Table 6.21 summarises the types of errors made by Marcello in regard to SV-agreement, which can be divided into five categories: infinitive, wrong inflection, wrong aux, lexical verb not supplied and Italian verb supplied.

<table>
<thead>
<tr>
<th>Time</th>
<th>Infinitive</th>
<th>Wrong inflection</th>
<th>Wrong Aux supplied</th>
<th>Lexical verb not supplied</th>
<th>Italian verb supplied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
</tr>
<tr>
<td>T2</td>
<td>4</td>
<td>9</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>T3</td>
<td>6</td>
<td>48</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>57</td>
</tr>
<tr>
<td>Total</td>
<td>10</td>
<td>59</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>76</td>
</tr>
</tbody>
</table>

The most common error found in Marcello’s data in regards to SV-agreement is the inflection of verbs for the wrong person, as Marcello tended to use the inflection for 1st person SG for 3rd person SG as well, see (106).

(106) (T3) \( \text{Chaplin sage} \)  
‘Chaplin (3rd person SG) say (1st person SG)’  
\( Chaplin \) \( says \)

He also tended to overgeneralise the infinitive forms of verbs, see (107), although to
a lesser extent than the German L1 learners.

(107) (T2) ein Karr ein Kar mit eh Pferde kommen

‘a carriage a carr- wit uh horses come (inf.)’

*a horse carriage comes*

On four occurrences (T2 & T3), Marcello used the wrong auxiliary verb, see (108) and on two occasions (T1 & T3), he used an Italian verb instead of a German verb, see (109).

(108) (T2) ist er schon gesehn

‘is he already seen’

_he has already seen_

(109) (T3) der Polizist hat eh Chaplin eh in die Gefängene eh portato

‘the policeman has uh Chaplin uh in the prison uh portato (Italian)’

_the policeman has taken Chaplin to prison_

There was one occurrence where he did not supply a lexical verb after an auxiliary verb, although it is not quite clear what he was trying to say in this instance. It seems that he did not forget to supply a lexical verb, but rather changed his mind half way through the utterance and decided to say something else, see (110).

(110) (T2) er er muß gut mh in eh die selbe in die selbe Moment

‘he he must good mh uh in uh the same in the same moment’

In summary:

- Marcello’s accuracy rate in SV-agreement was at its highest at T1 (76.9%), whereas it stayed around the 50% mark during the other two recording sessions. However, the high accuracy rate at T1 is mainly due to the small number of utterances (13 at T1 as opposed to 126 at T3) with shorter MLU (3.29 at T1 as opposed to 14.56 at T3).
- Marcello seemed to mostly struggle with supplying the correct verb form in utterances with a lexical verb or an auxiliary verb plus a lexical verb.
- Marcello’s use of copula was limited to 3rd person singular and plural form.
- The most common type of error found in his data was the inflection of verbs
according to 1\textsuperscript{st}, 2\textsuperscript{nd} or 3\textsuperscript{rd} person.

\textit{Tino}

Tino’s data including accuracy rate for each interview is displayed in Table 6.22. It is laid out the same way as Table 5.11 in Chapter 5.

Table 6.22  \textit{Tino: Accuracy rate in SV-agreement}

<table>
<thead>
<tr>
<th>Time</th>
<th>MLU</th>
<th>Total (accuracy percentage)</th>
<th>Declaratives</th>
<th>Interrogatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>9.81</td>
<td>12/35 (34.3)</td>
<td>12/35</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>5.83</td>
<td>13/36 (36.1)</td>
<td>12/35</td>
<td>1/1</td>
</tr>
<tr>
<td>T3</td>
<td>6.68</td>
<td>79/115 (68.7)</td>
<td>75/111</td>
<td>2/4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>104/186</td>
<td>99/181</td>
<td>3/5</td>
</tr>
</tbody>
</table>

Tino’s score for SV-agreement did not vary much between T1 and T2, but had nearly doubled at T3. That is, at T1 his accuracy rate was 34.3%; at T2 it was 36.1%; and at T3 it was 68.7%. Unlike Marcello’s MLU, Tino’s did not rise steadily, but rather fluctuated from interview to interview. That is, at T1 his MLU was the highest with 9.81, but dropped to 5.83 at T2, before it slightly rose again to 6.68 at T3.

A summary of the different verb types found at each recording session is listed in Table 6.23, whereas Table 6.24 includes Tino’s accuracy rate in SV-agreement for the different verb types based on person. The tables are laid out the same way as Table 5.13 and Table 5.14 in Chapter 5.

Table 6.23  \textit{Tino: SV-agreement based on verb type}

<table>
<thead>
<tr>
<th>Time</th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2/3</td>
<td>8/26</td>
<td>1/3</td>
<td>1/3</td>
</tr>
<tr>
<td>T2</td>
<td>-</td>
<td>6/25</td>
<td>7/9</td>
<td>0/2</td>
</tr>
<tr>
<td>T3</td>
<td>43/47</td>
<td>26/41</td>
<td>10/27</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>45/50</td>
<td>40/92</td>
<td>18/39</td>
<td>1/5</td>
</tr>
</tbody>
</table>

Table 6.24  \textit{Tino: Analysis of SV-agreement based on person}

<table>
<thead>
<tr>
<th></th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1\textsuperscript{st} person SG</td>
<td>5/6</td>
<td>9/12</td>
<td>8/13</td>
<td>-</td>
</tr>
<tr>
<td>2\textsuperscript{nd} person SG</td>
<td>-</td>
<td>3/11</td>
<td>0/3</td>
<td>-</td>
</tr>
</tbody>
</table>
As can be seen, Tino did not achieve a full score with any of the four verb types. He used the correct copula in 45 out of 50 occurrences. Yet, unlike Marcello, Tino used eight out of the twelve copula forms in German. That is, he supplied not only the present tense for 1st and 3rd person SG & PL, but the past tense as well, see (111) and (112).

(111) ich war in Sardinien
‘I was in Sardinia’
*I was in Sardinia

(112) wir waren auf eine oh Schiff
‘we were on a uh ship’
*we were on a ship

The majority of utterances with a lexical verb required the inflection for 3rd person SG, although all other person features except for 2nd person PL occurred as well. Like Marcello, Tino mainly failed to supply the correct inflection for 3rd person SG, see (113), but he also struggled with the correct inflection for 2nd person SG, see (114).

(113) (T1) er seh ein Mädchen
‘he (3rd person SG) see (1st person SG) a girl’
*he sees a girl

(114) (T3) weiß du?
‘know (1st person SG) you (2nd person SG)?’
*you know?

In utterances with a VP consisting of two verbs, two types of error made up the majority of mistakes in SV-agreement. That is, Tino inflected the auxiliary verb for the wrong person, see (115), or used a wrong inflection on the lexical verb, as in (116).

(115) eh du muß eh (sch)lafen
‘uh you (2nd person SG) must (1st person SG) uh sleep’
*you have to sleep
There were five occurrences where Tino needed to split a VP that contained a finite verb and a particle. While he separated the particle and verb in all five instances, he failed to use the correct inflection on three occasions, see (117).

(117) (T2)  die Zug eh fahrt weg
            ‘the train (3rd person SG) uh drive (2nd person PL) off’
            *the train leaves*

Table 6.25 summarises the types of errors made by Tino in regard to SV-agreement.

<table>
<thead>
<tr>
<th>Time</th>
<th>Infinitive</th>
<th>Wrong inflection</th>
<th>Wrong Aux supplied</th>
<th>Lexical verb not supplied</th>
<th>Italian verb supplied</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>3</td>
<td>20</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>23</td>
</tr>
<tr>
<td>T2</td>
<td>2</td>
<td>21</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>23</td>
</tr>
<tr>
<td>T3</td>
<td>-</td>
<td>35</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>36</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>76</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>82</td>
</tr>
</tbody>
</table>

The most common error type found in Tino’s data is the inflection of the verb according to the person feature, that is, he failed to unify information between the subject and verb in terms of the feature PERSON. Similar to Marcello, he tended to use the inflection for 1st person SG for 3rd person SG as well, see (118).

(118) (T2)  die Papa sage
            ‘the dad (3rd person SG) say (1st person SG)
            *the dad says*

Further, there were five instances where Tino used an infinitive form, see (119), and one occurrence in which he used a wrong auxiliary verb, as in (120).

(119) (T1)  isch die Brote nehmen
            ‘I the breads take (inf.)’
            *I took the bread*

(120) (T3)  un wir haben immer we eh weggelaufen
            ‘and we have always aw- uh away-running’
There were no instances in which Tino failed to supply a lexical verb in a required context, nor were there any instances in which he supplied an Italian verb instead of a German verb.

In summary:

- Tino’s accuracy rate in SV-agreement was only around 35% during the first two recording sessions, although it had more than doubled at T3 (64.95%).
- Similar to Marcello, Tino also struggled with supplying the correct verb form in utterances with a lexical verb or an auxiliary verb plus a lexical verb.
- Tino used a wide variety of copulas; that is, eight of the twelve German copula forms were found in his data.
- The most common type of error found in his data was the inflection of verbs according to the person feature.

Angelina

This section looks at SV-agreement in Angelina’s data including accuracy rate. Table 6.26 displays her accuracy rate in SV-agreement for each recording session in total numbers and in percentage. It is laid out the same way as Table 5.11 in Chapter 5.

Table 6.26  Angelina: Accuracy rate in SV-agreement

<table>
<thead>
<tr>
<th>Time</th>
<th>MLU</th>
<th>Total (accuracy percentage)</th>
<th>Declaratives</th>
<th>Interrogatives</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>12.13</td>
<td>9/52 (17.3)</td>
<td>9/52</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>5.3</td>
<td>4/18 (22.2)</td>
<td>4/18</td>
<td>-</td>
</tr>
<tr>
<td>T3</td>
<td>4.66</td>
<td>8/12 (66.7)</td>
<td>8/12</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>21/82</td>
<td>21/82</td>
<td>-</td>
</tr>
</tbody>
</table>

Angelina’s score in SV-agreement grew only slightly from T1 and T2, but had tripled by the time of T3. That is, it was 17.3% at T1, 22.2% at T2 and 66.7% at T3. Her MLU, in the meantime, decreased rapidly from T1 to T2 and then again slightly from T2 to T3. That is, it was 12.13 at T1, 5.3 at T2 and only 4.66 at T3. At first
glance, it appears that Angelina’s rate in SV-agreement improved significantly over the course of the three recording sessions. Yet, a closer look at the actual number of utterances containing a subject and predicate reveals that she produced 52 complete utterances at T1, 18 at T2 and only 12 at T3, which partly explains her rapid improvement.

Table 6.27 displays Angelina’s SV-agreement including accuracy rate based on verb type and Table 6.28 breaks down SV-agreement for the different verb types based on the feature PERSON. Note that the tables are laid out the same way as Table 5.13 and Table 5.14 in Chapter 5.

### Table 6.27 Angelina: SV-agreement based on verb type

<table>
<thead>
<tr>
<th>Time</th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>5/7</td>
<td>4/40</td>
<td>0/5</td>
<td>-</td>
</tr>
<tr>
<td>T2</td>
<td>2/2</td>
<td>2/16</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>T3</td>
<td>6/6</td>
<td>2/6</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>13/15</td>
<td>8/62</td>
<td>0/5</td>
<td>-</td>
</tr>
</tbody>
</table>

### Table 6.28 Angelina: Analysis of SV-agreement based on person

<table>
<thead>
<tr>
<th></th>
<th>Copula</th>
<th>Lexical verb</th>
<th>Aux + verb</th>
<th>Split verb</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st person SG</td>
<td>1/1</td>
<td>1/2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2nd person SG</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3rd person SG</td>
<td>11/13</td>
<td>6/58</td>
<td>0/5</td>
<td>-</td>
</tr>
<tr>
<td>1st person PL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2nd person PL</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3rd person PL</td>
<td>1/1</td>
<td>1/2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>13/15</td>
<td>8/62</td>
<td>0/5</td>
<td>-</td>
</tr>
</tbody>
</table>

The majority of Angelina’s complete utterances contained a lexical verb that had to be inflected for 3rd person SG. That is, out of 82 utterances in T1-T3 that contained a subject and a predicate only three required the verb to be inflected for 1st person SG and three for 3rd person PL, while the remaining 76 utterances required the verb to be inflected for 3rd person SG. In regards to copulas, Angelina used the correct copula form 13 out of 15 times. Yet, there were two occurrences, in which Angelina used a wrong copula form, see (121).

(121) nix keine de Mann is de Mädsche  
‘not nobody the man is the girl’ 
*it wasn’t the man it was the girl (who took the bread)*
Note that while she used the right copula for 3\textsuperscript{rd} person present on both occasions, the context required her to use the past tense instead. Her accuracy rate with lexical verbs is significantly lower, as there are only eight instances out of 62 where she used the right inflection, as in (122).

\begin{align*}
(122) \quad \text{(T1)} & \quad \text{isch habe ein Hause} \\
& \quad \text{‘I have a house’} \\
& \quad \text{I have a house}
\end{align*}

Further, there were five occurrences where Angelina produced an utterance containing an auxiliary plus a lexical verb and on all five occasions she failed to provide the right inflection, that is 3\textsuperscript{rd} person SG, see (123).

\begin{align*}
(123) \quad \text{(T1)} & \quad \text{die Mädsch che che habe nehmen de Brot} \\
& \quad \text{‘the girl che che have (1\textsuperscript{st} person SG) take (inf.) the bread’} \\
& \quad \text{the girl has taken the bread}
\end{align*}

There were no instances in which Angelina was required to split a VP containing a finite verb and a particle.

Table 6.29 summarises the types of errors made by Angelina in regard to SV-agreement.

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|}
\hline
Time & Infinitive & Wrong inflection & Wrong Aux supplied & Lexical verb not supplied & Italian verb supplied \\
\hline
T1 & 8 & 30 & - & - & 5 \\
T2 & 3 & 9 & - & - & 2 \\
T3 & - & 4 & - & - & - \\
Total & 11 & 43 & - & - & 7 \\
\hline
\end{tabular}
\caption{Angelina: Types of error in SV-agreement}
\end{table}

The most common type of error found in Angelina’s data was the inflection of the verb according to the person feature. That is, more than two thirds of all the errors made by her fall under that category, see (124).

\begin{align*}
(124) \quad \text{(Angelina, T1)} & \quad \text{gucke die Frau} \\
& \quad \text{‘look (1st person SG) the women’} \\
& \quad \text{the woman looks}
\end{align*}

At T1 and T2, she also used the infinitive form eleven times in total, see (125), and
on seven occasions, she supplied an Italian verb instead of a German one, see (126).

\[(125) \text{ und ein Junge Junge eh eh nehmen eh nehmen de Zug} \]
\[\text{‘and a boy boy uh uh take (inf.) uh take (inf.) the train’} \]
\[\text{and a boy takes the train} \]

\[(126) \text{ die Polizei prende eh de de Mädsch} \]
\[\text{‘the police prende (Italian) uh the the girl’} \]
\[\text{the police takes the girl} \]

There were no occurrences in which she used a wrong auxiliary or failed to supply a lexical verb in a context that required the use of an auxiliary plus a lexical verb. However, this was mostly due to the fact that her linguistic development appeared not to have progressed that far, as she only produced five utterances with a VP that contained an auxiliary plus a lexical verb.

In summary:

- Angelina’s accuracy rate in SV-agreement improved significantly over the three recording sessions (from 17.3% at T1 to 66.7%). Yet, it should be noted that her MLU and the utterances that contained a subject and predicate decreased drastically at the same time.
- She mainly struggled with supplying the right verb form in utterances with a lexical verb and she failed to provide the right inflection in all five instances in which the VP contained more than one verb.
- Angelina’s use of copula was limited to 3rd person singular and plural form, except for one occurrence of a 1st person singular form.
- Similar to Marcello’s and Tino’s data sets, the most common type of error found in her data was also the inflection of verbs according to the person feature.

6.4 Summary

This chapter presented the results of two data pools consisting of data obtained from five additional German L1 children (Andreas, Cosima, Mathias, Daniel and Julia) and the data of three German L2 learners (Marcello, Tino and
Angelina). While the analysis of the L2 data sets revealed no major surprises, the examination of the L1 data sets backed up the findings from the data analysed in Chapter 5. That is, the non-target-like structure XP+SV was found in the data of all five children, although it is typically only associated with L2 learning. In Chapter 7, a detailed analysis of the key research findings from this chapter and the preceding one (Chapter 5) is presented in which they are compared and discussed with reference to each of the research questions and in relation to previous research studies.
Chapter 7
Analysis & Discussion

7.0 Introduction

This chapter provides a detailed analysis of key research findings presented in Chapter 5 and Chapter 6. The findings are discussed with reference to the research questions and in relation to previous research studies. In Section 7.1, the data will be discussed in regards to German L1 children’s word order preference once their utterances contain more than one word. It also investigates how they develop a differentiation between declaratives and interrogatives. Section 7.2 looks at the differences and similarities found in the syntactic development of German L1 and L2 learners. It examines whether those two learner groups follow a similar route in their syntactic development and whether there are other areas of differentiation between German L1 and L2 learning. Section 7.3 provides a brief summary of the chapter.

7.1 Syntactic development of German L1 children

This section looks at the acquisition of declaratives and interrogatives by German L1 children by comparing the key findings presented in the two previous chapters. In order to fill the gaps left by previous research concerned with German L1 acquisition, it focuses particularly on the time in the children’s linguistic development when they start to produce utterances containing three words or more, as word order takes on a more important role at this stage. According to Chomsky (1988), children learn their L1 rapidly, effortlessly, without instruction and corrective feedback and in a uniform way (that is, they follow the same developmental pattern though timing may vary). Let us see, if that is also the case for the three German L1 children that were observed specifically for this study and the five CHILDES children. The following discussion will show that even in the
relatively brief time period of four months, there were a lot of developmental issues and that the children fluctuated in their order of acquisition.

7.1.1 German L1 children’s syntactic development of declaratives

The results of this study differ significantly from those of Clahsen’s (1982) original study in which he proposes the following four stages for the acquisition of German by L1 children: (1) variable word order; (2) SOV; (3) V2nd; and (4) the error-free positioning of the finite verb in sentence-final position in subordinate clauses, as soon as L1 children start to use embedded clauses. My findings instead show that German L1 children actually rely much more on SVO, rather than SOV, as their basic order. Secondly, they suggest that there seems to be an additional stage between Clahsen’s (1982) proposed stages (2) and (3).

The findings from Chapters 5 and 6 suggest that there are five basic word order structures that German L1 children make use of once their utterances contain two words or more. These structures are SV, SVO, SOV, XP+SV, and XP+VS. Table 7.1 a.-d. summarises the overall usage of these structures by all eight German L1 children found in their respective data sets, Table 7.2 displays Mia’s use of these structures throughout the longitudinal study in more detail. The following discussion will first look at those utterances that have a subject-like constituent in first position, before turning to utterances in which a constituent that does not have subject-like characteristics is placed into sentence-first position.
### Table 7.1  
*a-d. L1 children's overall usage of the structures SVO, SOV, XP+SV, and XP+VS*

<table>
<thead>
<tr>
<th></th>
<th>Mia</th>
<th>Karl</th>
<th>Emma</th>
<th></th>
<th>Andreas</th>
<th>SOV</th>
<th>17</th>
<th></th>
<th></th>
<th>Cosima</th>
<th>SOV</th>
<th>6</th>
<th></th>
<th></th>
<th>Mathias</th>
<th>Daniel</th>
<th>Julia</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOV</td>
<td>3</td>
<td>21</td>
<td>5</td>
<td></td>
<td>SOV</td>
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</tr>
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</tr>
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<td></td>
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<td></td>
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<td>SV</td>
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<td>Total</td>
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<td>354</td>
<td></td>
<td>Total</td>
<td>328</td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>191</td>
<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>103</td>
<td>77</td>
</tr>
</tbody>
</table>

### Table 7.2  
*Mia: Word order in declaratives with two or more constituents*

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOV</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>XP+VS</td>
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<td>0</td>
<td>0</td>
<td>1*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2*</td>
</tr>
<tr>
<td>XP+SV</td>
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<td>0</td>
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<td>0</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2*</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SVO</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>6</td>
<td>1</td>
<td>5</td>
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<td>9</td>
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<td>3</td>
<td>23</td>
</tr>
<tr>
<td>SV</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>8</td>
<td>7</td>
<td>15</td>
<td>3</td>
<td>7</td>
<td>2</td>
<td>11</td>
<td>4</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>26</td>
<td>20</td>
</tr>
</tbody>
</table>

*XP is the object in all other occurrences it is an adjunct*
SV versus SVO versus SOV word order

The findings displayed in Table 7.1 a.-d. above suggest in the first place that when there are three word strings SVO seems to be the preferred word order utilized by all eight German L1 children, as it clearly exceeds the use of all the other structures and also precedes the emergence of the structure SOV. That is, the majority of utterances have a subject-like constituent placed in sentence-first position followed by the verb in sentence-second with all the remaining constituents behind that. Secondly, the structure SOV can be found in a considerably lesser amount in all eight data sets or, in the case of the twins Mathias and Daniel, not at all.

These findings are rather unexpected, considering that a lot of previous research studies (e.g. Clahsen 1982; Mills 1985; and Clahsen & Muysken 1986) claim that SOV is in fact the underlying word order of German. Therefore, one would expect that the children would show a preference towards SOV rather than SVO, which, however, is not the case. More surprisingly, the structure SOV was found less frequently in the data sets of the children from Clahsen’s (1982) study. That is, Julia only used it four times in total at T3, while the twins Mathias and Daniel did not use it at all.\footnote{It must be kept in mind, however, that only a small part of Clahsen’s (1982) data was re-analysed for the current study and that one should therefore not rush to conclusions solely based on the findings of those three data sets. That is, any assumptions about them must be made with the reservation that it is necessary to look at earlier dated data by the three children in order to be able to back up those claims or dismiss them.}

A closer look at Mia’s overall development of word order (Table 7.2) further shows that SV and SVO are also the very first structures used by her once her utterances contain two words or more. The structure SOV cannot be found in her data until T9, which makes it the last of the four structures to emerge since XP+SV first occurred at T5, followed by XP+VS at T6. The findings suggest that SV(O) is the first structure used by German L1 children. This is further backed up by the data of the two other children (Karl and Julia) that are closest in age to Mia and, more importantly, were also at the very early stages of their linguistic development at the start of the study.\footnote{The reader should keep in mind, however, that Karl is in fact a German/Polish L1 bilingual and therefore findings from his data needs to be treated with caution, as they do not necessarily represent the linguistic development of a German monolingual child.}
Table 7.3 shows Karl’s usage of SV, SVO and SOV utterances throughout the study, whereas Table 7.4 displays Julia’s usage of the three structures.

Table 7.1 Karl: Word order in declaratives with two or more constituents

<table>
<thead>
<tr>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>12</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>SVO</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>0</td>
<td>4</td>
<td>13</td>
<td>5</td>
<td>9</td>
<td>8</td>
<td>11</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>SV</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>1</td>
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<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>9</td>
<td>12</td>
<td>10</td>
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<td>7</td>
<td>32</td>
<td>11</td>
<td>11</td>
<td>9</td>
<td>12</td>
<td>6</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 7.2 Julia: Word order in declaratives with two or more constituents

<table>
<thead>
<tr>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOV</td>
<td>1</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SVO</td>
<td>0</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>SV</td>
<td>1</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td></td>
<td>22</td>
</tr>
</tbody>
</table>

As can be seen, the findings from Karl’s data and Julia’s data show that both children start out with the structure SV(O), while SOV does not emerge until later on. Another notable thing is that all eight German L1 children generally inflect the verb correctly in regards to the corresponding subject in SVO utterances, whereas in SOV utterances it is mostly left in its infinitive form, see (1) or, on some rare occasions, occurs in the past participle form, see (2).

(1) Karl (T10) Karl Milch haben
   ‘Karl milk have (inf.)’

   Karl (wants to) have milk

(2) Andreas (T3) Mama Nikolaus gefunden
   ‘mum Saint Nicholas found (past participle)’

   mum (has) found Saint Nicholas

Based on the context in which those utterances occur, it appears that they generally represent some kind of request for something, which entails the auxiliary verb in sentence-second position simply being omitted by the children. Thus, the structure SOV might serve as a preliminary stage in the acquisition of utterances that contain a non-finite verb and a finite verb. This would also explain why the structure SOV is

Note that the drastic increase in T9 is due to Karl repeating the same utterance ‘Karl Bonbon haben’ (Karl candy have) over and over, as he wants to have another piece of candy.
not found in the data of the twins, as they seem to be past that stage in their development as they are already able to produce utterances that contain an auxiliary plus a lexical verb.

To sum up this section, it seems, based on the findings of this study, that (1) SVO is the canonical word order preferred by German L1 children in utterances containing three words or more; (2) SVO is the first structure used by German L1 once their utterances start to contain three words and more; and (3) the use of the structure SOV might be a preliminary stage in German L1 children’s acquisition of utterances containing a non-finite and a finite verb.

*XP in initial position in utterances containing three words or more*

The two other word orders in utterances containing three words or more found in the data sets of all eight German L1 children are the structures XP+SV and XP+VS. Table 7.5 a.-d. presents a partial reduplication of Table 7.1 a.-d. in this chapter displaying only the German L1 children’s overall usage of utterances with another element than the subject in first position.
Table 7.5  

<table>
<thead>
<tr>
<th></th>
<th>Mia</th>
<th>Karl</th>
<th>Emma</th>
<th></th>
<th>Andreas</th>
<th></th>
<th>Cosima</th>
<th></th>
<th>Mathias</th>
<th>Daniel</th>
<th>Julia</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. XP+VS</td>
<td>10</td>
<td>13</td>
<td>60</td>
<td>b. XP+VS</td>
<td>134</td>
<td>c. XP+VS</td>
<td>77</td>
<td>d. XP+VS</td>
<td>35</td>
<td>49</td>
<td>15</td>
</tr>
<tr>
<td>XP+SV</td>
<td>7</td>
<td>4</td>
<td>3</td>
<td>XP+SV</td>
<td>5</td>
<td>XP+SV</td>
<td>17</td>
<td>XP+SV</td>
<td>2</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>17</td>
<td>63</td>
<td>Total</td>
<td>139</td>
<td>Total</td>
<td>94</td>
<td>Total</td>
<td>37</td>
<td>51</td>
<td>25</td>
</tr>
</tbody>
</table>
As can be seen, the findings from the data of all eight German L1 children suggest that the overall usage of the structure XP+VS exceeds that of the structure XP+SV. Yet, the actual occurrence of XP+SV is a rather surprising finding by itself since previous research takes the view that German L1 children do not actually use said structure since it is not in accordance with German grammar rules and is typically only associated with SLA.

Table 7.6 displays Mia’s overall usage of the structures XP+SV and XP+VS throughout the study.

Table 7.1  

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
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<td>2</td>
<td>0</td>
<td>3</td>
<td>0</td>
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<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>XP+SV</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

As can be seen, XP+SV occurs for the first time at T5 in Mia’s data, whereas XP+VS appears for the first time at T6. That is, the ‘ungrammatical’ structure XP+SV emerges actually before the child starts using the ‘grammatical’ structure XP+VS. Throughout the study, it seems, however, that the usage of XP+SV decreases, while the usage of XP+VS increases over time.

The data sets of the other eight children reveal a similar developmental pattern. The data sets of the three older German L1 children (Emma, Mathias and Daniel) and Andreas, who despite his age (2;1 years) has progressed much further in his linguistic development than Mia, confirm that the structure XP+SV seems to be replaced in favour of XP+VS over time with the use of the latter swiftly increasing, see Tables 7.7 to 7.10.

Table 7.2  

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
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<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>13</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>XP+SV</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
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<td>3</td>
<td>1</td>
<td>12</td>
<td>9</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 7.3  

<table>
<thead>
<tr>
<th>Time/structure</th>
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<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
<td>15</td>
<td>3</td>
<td>17</td>
</tr>
<tr>
<td>XP+SV</td>
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<td>0</td>
</tr>
<tr>
<td>Total</td>
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<td>3</td>
<td>17</td>
</tr>
</tbody>
</table>
Table 7.4  Daniel: Word order in utterances with XP in initial position

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
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<td>19</td>
<td>15</td>
</tr>
<tr>
<td>XP+SV</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>20</td>
<td>15</td>
</tr>
</tbody>
</table>

Table 7.5  Andreas: Word order in utterances with XP in initial position

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
<td>23</td>
<td>18</td>
<td>11</td>
<td>11</td>
<td>4</td>
<td>10</td>
<td>29</td>
<td>28</td>
</tr>
<tr>
<td>XP+SV</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>18</td>
<td>11</td>
<td>11</td>
<td>5</td>
<td>12</td>
<td>30</td>
<td>29</td>
</tr>
</tbody>
</table>

The data sets of the three younger children (Julia, Cosima and Karl) also show a clear decrease in the use of XP+SV, while the use of XP+VS continually increases, see Tables 7.11 to 7.13.

Table 7.6  Julia: Word order in utterances with XP in initial position

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
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<td>1*</td>
<td>14</td>
</tr>
<tr>
<td>XP+SV</td>
<td>0</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>0</td>
<td>10</td>
<td>15</td>
</tr>
</tbody>
</table>

* ambiguous sentence

Table 7.7  Cosima: Word order in utterances with XP in initial position

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
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<td>5</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>XP+SV</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>7</td>
<td>6</td>
<td>9</td>
<td>31</td>
<td>18</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>9</td>
<td>1</td>
<td>8</td>
<td>6</td>
<td>10</td>
<td>33</td>
<td>20</td>
</tr>
</tbody>
</table>

Table 7.8  Karl: Word order in utterances with XP in initial position

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP+VS</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>XP+SV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

On top of that, the data sets of the two younger girls show that they, like Mia, seem to favour XP+SV over XP+VS once utterances with XP in initial position start to emerge.

Julia, who is best comparable with Mia since they are very similar in terms of age and actual stage of development, also shows a clear preference for XP+SV over XP+VS
in the first occurrences of utterances that have a constituent other than the subject in sentence-first position. At T2, Julia almost exclusively relies on XP+SV, whereas she seems to clearly favour XP+VS at T3. Although the change from XP+SV to XP+VS appears to be more abrupt compared to Mia’s data, it must be kept in mind that Mia was recorded on a weekly basis while there is a two months gap between T2 and T3 in Julia’s data. Similarly, Cosima’s data, which was collected on a fortnightly basis, indicates her clear preference for XP+SV at the beginning that decreases overtime, while the usage of XP+VS rapidly increases.

The findings from Karl’s data, in contrast, seem to contradict the findings above at first glance since the structure XP+VS occurs for the first time at T1, while XP+SV does not appear until T6. However, by taking a look at his actual distribution of XP in initial position, see Table 7.14, it can be seen that the utterance with the structure XP+VS at T1 is a copula sentence fronted by ‘da/hier’ (there/here). In all other utterances that do not contain a copula and are fronted by any other XP, he retreats to XP+SV until T10.

Table 7.9  Karl: Distribution of XP in initial position (reproduction of Table 5.33 in Chapter 5)

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJ + VS</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJ + VS(O)</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OBJ + SV</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADJ + SV(O)</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>da/hier + lex. S</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>da/hier + cop. S</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>5</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>da/hier + SV</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A comparison with Mia’s and Emma’s distribution of XP in initial position, see Tables 7.15 and 7.16, reveals that the first occurrence of XP+VS in their respective data sets is also in the form of a copula sentence fronted by ‘da/hier’ (there/here).
Table 7.10  Mia: Distribution of XP in initial position (reproduction of Table 5.6 in Chapter 5)

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJ + VS</td>
<td>0</td>
<td>(1)*</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ADJ + VS(O)</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>OBJ + SV</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ADJ + SV(O)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>da/hier + lex. S</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>(3)^</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>da/hier + cop. S</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>da/hier + SV</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

*formulae: das darfst du nicht ^da anmach Mia (3x; utterance does not conform to German grammar rules)

Similarly to Karl, Mia does not apply the structure XP+VS in utterances fronted by another XP until T10, whereas Emma does not apply it until T4, which suggests that the correct word order in utterances with an XP in initial position is first acquired in copula sentences fronted by ‘da/hier’ (there/here). It also implies that the findings from Karl’s data do not contradict the other findings, but rather indicate that he had progressed a bit further than Mia in his syntactic development in regards to XP in initial position.

However, a closer look at the data further reveals that the use of the two structures does not solely depend on the XP that is placed in sentence-first position, but also on the predicate itself. Tables 7.17 to 7.19 display Mia’s, Emma’s and Karl’s use of XP+SV and XP+VS based on verb type.

Table 7.11  Emma: Distribution of XP in initial position (reproduction of Table 5.19 in Chapter 5)

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>OBJ + VS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ADJ + VS(O)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>OBJ + SV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>ADJ + SV(O)</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>da/hier + lex. S</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>da/hier + cop. S</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>da/hier + SV</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>
Table 7.12  \textit{Mia: Use of the structures XP+SV and XP+VS based on verb type}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline
\textbf{Time/structure} & \textbf{T5} & \textbf{T6} & \textbf{T7} & \textbf{T8} & \textbf{T9} & \textbf{T10} & \textbf{T11} & \textbf{T12} & \textbf{T13} & \textbf{T14} & \textbf{T15} & \textbf{T16} & \textbf{T17} & \textbf{T18} \\
\hline
\hline
\end{tabular}
\end{table}

Table 7.13  \textit{Emma: Use of the structures XP+SV and XP+VS based on verb type}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline
\textbf{Time/structure} & \textbf{T1} & \textbf{T2} & \textbf{T3} & \textbf{T4} & \textbf{T5} & \textbf{T6} & \textbf{T7} & \textbf{T8} & \textbf{T9} & \textbf{T10} & \textbf{T11} & \textbf{T12} & \textbf{T13} & \textbf{T14} \\
\hline
XP+ lex. S & - & - & 1 & 3 & 4 & 3 & - & 1 & 1 & 1 & 2 & 7 & 4 & 1 \\
\hline
\end{tabular}
\end{table}

Table 7.14  \textit{Karl: Use of the structures XP+SV and XP+VS based on verb type}

\begin{table}[h]
\centering
\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline
\textbf{Time/structure} & \textbf{T1} & \textbf{T2} & \textbf{T3} & \textbf{T4} & \textbf{T5} & \textbf{T6} & \textbf{T7} & \textbf{T8} & \textbf{T9} & \textbf{T10} & \textbf{T11} & \textbf{T12} & \textbf{T13} & \textbf{T14} & \textbf{T15} \\
\hline
\hline
\end{tabular}
\end{table}

As can be seen, none of the three children seems to have a problem with applying the correct word order in sentences that contain a copula verb. A quick scan of all the utterances with an XP in initial position (see Appendix C) further exposes that this holds true for any utterance with a copula regardless of which XP is placed in sentence-first position. However, as mentioned above, it appears that copula sentences fronted by ‘\textit{da/hier}’ (there/here) emerge first and are the most frequent. Although they occur less frequently than copula sentences, utterances that contain an auxiliary do not seem to cause problems either. Only one occurrence of XP+SV can be found in Emma’s data while on all other occasions all three children place the subject correctly post-verbal. It appears that the greatest difficulty is posed by utterances that contain a lexical verb, which, unlike copulas and auxiliaries, belong to an open word class and therefore the inflection for each verb needs to be learned separately. Mia, Emma and
Karl all use the ‘ungrammatical’ structure XP+SV at first in utterances that contain a lexical verb, see (1). Only after the different person forms are learned are they able to place the verb correctly in sentence-second position, which is illustrated in (2).

(1) Emma (T2) so Mia saubermachen
   ‘this way Mia clean-make (inf.)’
   Mia cleans this way

(2) Emma (T8) das mach ich gleich
   ‘this make I soon’
   I make it soon

In summary of this section, it can be said that the findings imply that (1) the structure XP+SV can be found in the L1 variety of German L1 children, although it is typically associated with second language acquisition; (2) XP+SV seems to emerge before XP+VS; (3) once the correct word order XP+VS for XP in initial position is acquired German L1 children will not retreat back to XP+SV. However, they seem to acquire this rule separately for utterances containing different verb types. That is, the correct word order seems to be acquired first in utterances with a copula then with an auxiliary and last with utterances containing a lexical verb.

7.0.1 German L1 children’s syntactic development of interrogatives

The analysis presented in Chapter 5 revealed that Mia and Karl are both still at the early stages in their acquisition of interrogatives, while Emma has progressed a bit further which is mainly due to the age difference between her and the other two children. Due to the limited amount of questions produced by the three children, the findings are not completely conclusive regarding their actual developmental path in the acquisition of interrogatives. Yet, they provide an insight into how German L1 children start to differentiate between declaratives and interrogatives. That is, it appears that especially at the early stages they rely heavily on intonation, rather than word order.

Y/N questions

Based on the analysis of the results presented in Chapter 5, it appears that German L1 children go through four stages in their development of Y/N questions: (1) single constituent Y/N questions; (2) incomplete Y/N questions; (3) Y/N questions
following canonical word order; and (4) Y/N questions with SV-inversion. The findings suggest that none of the three children have fully mastered all four stages yet. Y/N questions in which subject and verb are correctly inverted occur the least in each of the children’s data sets and Emma is the only child that has already mastered SV-inversion in Y/N questions that contain an auxiliary plus a lexical verb (see also Section 5.3.4 in Chapter 5).

Tables 7.20 to 7.22 summarise the results analysed in Chapter 5 relating to the children’s acquisition of Y/N questions with the findings displayed having already been described in detail in said chapter (see Sections 5.1.4; 5.2.4; & 5.3.4).

Table 7.15  **Mia: Full distribution of Y/N questions**

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T3</th>
<th>T5</th>
<th>T6</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV-inversion</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>5</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Canonical order</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Constituent missing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>13</td>
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<td>1</td>
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<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Single constituent</td>
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<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table 7.16  **Karl: Full distribution of Y/N questions**

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV-inversion</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Canonical order</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>9</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Constituent missing</td>
<td>4</td>
<td>13</td>
<td>0</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>26</td>
<td>10</td>
<td>18</td>
<td>10</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Single constituent</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 7.17  **Emma: Full distribution of Y/N questions**

<table>
<thead>
<tr>
<th>Time/structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
</tr>
</thead>
<tbody>
<tr>
<td>SV-inversion</td>
<td>(1)</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Canonical order</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Constituent missing</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Single constituent</td>
<td>0</td>
<td>1</td>
<td>7</td>
<td>3</td>
<td>12</td>
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<td>3</td>
<td>0</td>
<td>3</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

The majority of the Y/N questions produced by all three children contain either a single constituent or are incomplete. A comparison of the same utterance(s) in two different speech environments (please refer to Sections 5.1.4, 5.2.4 and 5.3.4 in Chapter 5) showed that at the beginning the children did not differentiate
interrogatives from declaratives based on word order, but solely marked them by a change in intonation. This was also the case for most complete Y/N questions, as they followed the structure SVO. Note that this is considered the canonical word order in declaratives but not in interrogatives, as German grammar rules require the subject and verb to be inverted in Y/N questions. It appears that all children heavily relied on intonation, although, unlike one-word utterances, multi-word utterances can be marked as questions by a reordering of the constituents. Thus, this lends support to the assumption that in the early stages of their acquisition of Y/N questions German L1 children differentiate between declaratives and interrogatives through a change in prosody, rather than word order.

Constituent questions

The findings from Chapter 5 (see Sections 5.1.4; 5.2.4; & 5.3.4) suggest that German L1 children go through various stages in their acquisition of constituent questions that seem to be similar to those found in the acquisition of declaratives. Yet, due to the limited amount of constituent questions produced by two of the three children (Mia and Karl), it is not possible to draw any firm conclusions and it would be premature to define the developmental path of German L1 children in general solely based on the data from one child. Therefore, the following assumptions are temporary and made with the reservation that it is necessary to look at more data before coming to a final conclusion.

As mentioned above, Mia and Karl only produced a limited amount of constituent questions, which makes it difficult to draw any definite conclusions about the actual path of development for German L1 children in general. One thing the data suggest, however, is that constituent questions appear to be acquired after declaratives and Y/N questions. This is further backed up by Emma’s data since she does not appear to have fully acquired constituent questions, despite the age difference and her overall more progressed linguistic development. Another assumption that can be made based on the data available is that after the one-word stage German L1 children go through a stage in which they produce mainly incomplete constituent questions with variable word order. Following that, there appears to be a stage in which the children correctly apply SV-inversion, but neglect to place a wh-word in sentence-first position, which results in incomplete constituent questions, such as the one shown in (3).
After that, the findings become less conclusive since Mia and Karl have not progressed much further in their linguistic development and all assumptions are therefore drawn from Emma’s data set alone. Based on Emma’s data, it seems that at the next stage, German L1 children are able to produce complete constituent questions in which subject and verb are inverted after the wh-word is placed into sentence-first position. Yet, there is one occurrence of the structure wh-word + SV at T13, see (4), which implies that there might be another preliminary stage German L1 children go through in their acquisition of constituent questions.

Based on the findings for the acquisition of declarative utterances fronted by an XP (see Section 7.1.1), it is very plausible that German L1 children also first retreat to the canonical word order SV after placing a wh-word in first position, before being able to correctly invert subject and verb in constituent questions as well. However, as outlined in the emergence criterion, one occurrence of a structure does not provide sufficient evidence to determine whether the structure represents a separate stage in Emma’s development or not and therefore it is not possible to draw any conclusions from it.

Nevertheless, one thing that becomes apparent when looking at the data sets of all three children is that constituent questions containing a copula verb seem to occur first in their complete form and with subject and verb correctly inverted after the wh-word. That is, all complete constituent questions produced by Mia and Karl contain a copula, as well as the majority (that is, 21 out of 27) of Emma’s complete constituent questions in which subject and verb are inverted. This is also in agreement with the findings relating to the acquisition of declarative utterances (see Section 7.1.1), which suggest that subject-verb inversion after XP-fronting is first acquired in utterances containing a copula verb. In addition, Emma actually applied the structure wh-word + SV in an utterance with a lexical verb, although at the same time she had already mastered the correct structure for constituent questions containing a copula.
To summarise this section, it can be said that the results of the study suggest that (1) German L1 children rely solely on intonation in order to differentiate between declaratives and interrogatives at first; (2) German L1 children follow a similar developmental path in their acquisition of declaratives and interrogatives; although (3) the acquisition of interrogatives appears to occur in a time-delayed manner after the acquisition of declaratives has already started; and (4) the acquisition of Y/N questions seems to precede the acquisition of constituent questions.

7.0.2 Discussion of results in regard to other studies concerned with the syntactic development of German L1 children

The findings from this study differ significantly from those of previous research concerned with German L1 children’s syntactic development, at least in regards to declaratives.

As reviewed in Chapter 2, much previous research relies on the assumption that Clahsen’s (1982) developmental sequence for the acquisition of German declarative word order is an accurate representation of German L1 children’s syntactic development. Yet, even Clahsen (1986) acknowledged that the four-stage developmental sequence he proposed in 1982 might be incomplete and other studies (e.g. Gawlitzek-Maiwald et al. 1992; Müller 1992; Penner 1994; and Tracy 2008) have already confirmed those suspicions. While Penner (1994) has already shown that the last stage in Clahsen’s (1982) developmental sequence is more of an ‘idealization’ than an undisputed truth, the findings of this study question some of the earlier stages of the developmental sequence.

First, the findings of the current study do not support the claim that German L1 children’s initial hypothesis of German is SOV, as assumed by Clahsen (1982), Mills (1985) and Clahsen and Muysken (1986). Although the structure SOV can be found in the data sets of all eight children, it makes up only 5.9% (that is, 56 out of 949 tokens) of all utterances in which a subject-like constituent occurs in sentence-first position, with the bulk following SVO structure. Further, the data sets of Mia, Karl and Julia imply that SOV is the last structure acquired in utterances containing three words or more, as it emerges only after the children have already moved from XP+SV towards XP+VS. Thus, the current study does not provide strong evidence for the assumption that SOV is the canonical word order used by children. Based on the
findings, it is not possible to say that SOV is the initial word order, nor that German children use variable word order at the beginning. That is, SOV is not an alternative to SVO in the early stages when German L1 children start to produce utterances with three words or more. There is not only strong quantitative evidence against this assumption, but the very few occasions on which SOV was used were actually very late and therefore it is difficult to see how SOV could be proposed as one of the initial word orders. Second, the findings of this study suggest that German L1 children go through an additional stage in their acquisition of word order, not unlike L2 learners. The data sets of all eight L1 children contained the structure XP+SV, which is generally linked to German L2 acquisition, but not L1 acquisition. Moreover, the data of the three German L1 girls (Mia, Cosima and Julia) whose linguistic development was still at a very early stage also show that the structure XP+SV emerges before XP+VS in their L1 variety. The reader might note that Julia is actually one of the children from Clahsen’s (1982) study and her data showed that at the age of 2;3.21 years (T2), she nearly exclusively applied the structure XP+SV. Yet, Clahsen (1982) does not mention the structure in his proposal of the four stages. By taking a closer look at his data collection it can be seen that he counted all multi-word utterances, except for utterances with the structure da + X/X + da (‘there + X/X + there’) when looking at the position of the verb in the sentence (Clahsen, 1982, p. 59). Yet, it remains unclear why Clahsen (1982) excluded this structure from his analysis and whether X represents only one constituent of the sentence or more. Collings (1990) notes that the structure XP+SV occurs at Stage 3 in the syntactic development of German L1 children, which, however, he dismisses as a transitional stage where no significant grammatical changes happen. According to Collings (1990), L1 learners limit themselves to word orders that are possible in the German language at Stage 3, although they might not apply them in the correct context. That is, German L1 children might place the finite verb into sentence-final position in the main clause after fronting an XP, even though this specific syntactic construction is only permitted in embedded clauses. While this seems a plausible explanation for the occurrence of the structure XP+SV in the L1 data, the question that consequently arises is why the same argument does not apply to/hold true for adult L2 learners? In German SLA (see, for instance, Clahsen & Muysken 1986; Clahsen & Felser 2006a&b), the very same structure is called ‘ungrammatical’ and dismissed as not permissible in terms of
UG, as it stems from the L2 learner’s initial ‘wrong’ hypothesis of German word order, which is said to be SVO.

Studies from other languages focusing on the acquisitional path of L1 children from other V2-languages, such as Swedish (Håkansson 2005) and Dutch (Wijnen and Verrips 1998), have also reported the occurrence of the structure XP+SV in the children’s data, yet it usually has not been dealt with more specifically or has been dismissed as an aberration.

Håkansson’s (2005) study of the development of Swedish word order in L1 (normal and impaired) and L2 learners, for instance, serves as a good comparison to the current study, as it also analysed the interlanguage of the L1 and L2 learners on the basis of processability. Although Håkansson (2005) reported only one single occurrence of non-inversion after an initial adverb by one out of the five Swedish L1 children and dismissed it as an aberration in the data, it does not contradict the findings of this study but rather strengthens them. The child in Håkansson’s (2005) study was aged 3;0 years when the structure XP+SV was used. However, according to the data of the current study, the German children were mostly using XP+SV during the very early stages of their linguistic development; that is, roughly around the age of 2;3 to 2;4 years, while it was replaced later on in their development with XP+VS. The data of the Swedish L1 children date around the time when the youngest was around 2;7 years and the oldest 3;1 years. As can be seen, even the youngest child was three months older than Mia, Julia and Cosima at the time the structure XP+SV was found in their L1 variety most frequently and therefore the Swedish children’s data may have been collected a little late to compare it with theirs. However, Håkansson (2005) mentions that the L1 children were recorded regularly on a monthly base from the age of two years. Therefore, it would be interesting to look at the L1 children’s data from the first six months, that is age 2;2 to 2;6 years, to find out whether XP+SV occurs at all.

Another study that looks into the acquisition of word order in another V2-language is Wijnen and Verrips’ (1998) study of the syntactic development of Dutch L1 children. Wijnen and Verrips (1998, p. 11) conclude that the acquisition of Dutch verb placement can be divided ‘by and large’ into three phases at a descriptive level, whilst also pointing out that “the onset of the second phase is marked by the appearance and subsequent numerical increase of finite verb forms in ‘V2’ (i.e., first or second)”.

A ‘subsequent numerical increase of finite verb forms in V2’, however, does not
necessarily mean that the finite verb is correctly placed in sentence-second position from the beginning. Indeed, it may rather imply the contrary. Therefore, Wijnen & Verrips’ (1998) findings by their current description cannot be counted as evidence to rule out the possibility that children acquiring a V2-language other than German also favour the structure XP+SV over XP+VS at least in the early stages in their linguistic development.

In regards to interrogatives, the overall developmental path of Mia, Karl and Emma appears to correspond more or less with that observed by researchers, such as Felix (1980); Penner (1994); and Tracy (1994 & 2008), rather than with the one proposed by Clahsen (1982). According to Clahsen (1982), German L1 children start out with one-word questions that are marked by a rise in intonation at the end to distinguish them from declaratives. At Stage 2, they begin to produce multi-word Y/N and constituent questions, but the wh-word is omitted in constituent questions and Y/N questions mostly follow canonical word order. At this stage, the children still rely mainly on intonation to differentiate interrogatives from declaratives. Finally, at Stage 3, the children are able to apply SV-inversion in Y/N questions and place a wh-word in sentence-first position in constituent questions, while also simultaneously inverting subject and verb. It should also be noted that Clahsen (1982) does not distinguish between Y/N questions and constituent questions, which suggests that they appear to be acquired more or less at the same time.

At first glance, the findings of the current study appear to correspond with Clahsen’s (1982) proposed stages. That is, Mia, Emma and Karl start out by solely relying on prosody to distinguish interrogatives from declaratives, then they go through a phase in which they use both prosody and word order to differentiate between the two utterance types, before moving on to marking interrogatives simply by a change in the order of the constituents. Yet, taking into consideration the development of declarative utterances with an XP in initial-position, it seems a bit too much for children to acquire all of this at the same time. A closer look at the findings reveals, that first of all Y/N questions actually emerge before constituent questions in the syntactic development of the three German L1 children. Secondly, there is also one occurrence of the structure wh-word + SV in Emma’s data set, which equates with the structure XP+SV in the acquisition of declarative utterances. While one occurrence of a structure does not provide sufficient evidence by itself to conclude that the use of wh-word + SV presents a separate stage in the syntactic development of
interrogatives, it is also in agreement with the findings of other studies (e.g. Felix 1980; Penner 1994; and Tracy 1994 & 2008) that showed that other German L1 children also applied this structure before acquiring SV-inversion in constituent questions. Whilst Collings (1995) makes a good point by asking why German L1 children should go through any additional stages in their acquisition of interrogative structures to the stages they go through in their overall syntactical development, the findings of this study showed that the children actually appear to go through an additional stage in both their acquisition of declarative structures as well as in their acquisition of interrogatives. Overall, it appears that in German L1 acquisition declaratives and interrogatives essentially follow the same developmental path, although they develop in rather independent manners.

7.1 Differences between German L1 and L2 acquisition

This section looks at the differences and similarities between German L1 and L2 acquisition. It discusses the key findings presented in the two previous chapters in order to find out whether the two learner groups follow a similar route in their syntactic development. It also investigates whether there are other areas of differentiation between German L1 and L2 learning.

7.1.1 German L1 children’s versus adult German L2 learners’ syntactic development

As we saw in Chapters 2 and 3, the use of the structure XP+SV has been typically associated with second language acquisition. According to earlier research (Clahsen 1982; Clahsen & Muysken 1986) German L1 learners do not have to resort to XP+SV, as their initial hypothesis corresponds with the underlying word order of German and they are therefore able to invert subject and verb correctly from the start. However, the discussion of the findings from this study (see Section 7.1) implies that German L1 children in fact do go through a stage in their syntactic development in which they use the structure XP+SV.

The question that therefore consequently needs to be addressed is whether it is possible to postulate a ‘fundamental’ difference between FLA and SLA on the basis of syntactic development? In Chapters 5 and 6, a quantitative representation of the
findings concerned with the syntactic development of German L1 and L2 learners was already displayed in tables that were based on PT’s acquisition hierarchy for German L2 learners. In this section, the quantitative numbers from 5.7; 5.21; 5.36; 6.4; 6.8; 6.12; 6.15; 6.18; 6.20; 6.21 & 6.2 are converted to a representation using implicational scaling which will simplify the direct comparison of the developmental paths of all learners. Following that, they are compared with each other, as well as with the findings from earlier studies and discussed. Note that the hierarchy for L2 learners was chosen, as it contains stages not found in PT’s hierarchy for German L1 learners, but which nevertheless represent structures found in the L1 learners’ data (see Section 7.1.1).

In Table 7.23, the quantitative numbers from Table 6.20 to 6.22 are converted to a representation using implicational scaling which will simplify the direct comparison of the developmental paths of all learners. A “+” sign indicates that a structure was acquired and a “-“ sign that a structure was not acquired, whereas a “/” implies that there was no context given for a specific structure and “( )” means that a form occurred less than two times. It should be noted that according to the emergence criterion employed in this study (see Section 4.2.1), at least two occurrences of a syntactical structure involving different lexical items are necessary in order to say that this structure has emerged.

Table 7.18  
*German L2 learners: Application of German word order rules (implicational scaling)*

<table>
<thead>
<tr>
<th>Stage</th>
<th>Structure</th>
<th>Marcello</th>
<th>Tino</th>
<th>Angelina</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>T1</td>
<td>T2</td>
<td>T3</td>
</tr>
<tr>
<td>6</td>
<td>V-END</td>
<td>/</td>
<td>-</td>
<td>/</td>
</tr>
<tr>
<td>5</td>
<td>INV</td>
<td>(+)</td>
<td>(+)</td>
<td>(+)</td>
</tr>
<tr>
<td>4</td>
<td>SEP</td>
<td>/</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3</td>
<td>ADV</td>
<td>(+)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>2</td>
<td>SVO</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>1</td>
<td>Single words</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

The qualitative representation of the L2 learners’ development of German word order rules contains no major surprises. Marcello, on the one hand, starts out with a multi-word utterance following the structure SVO at T1 and from then gradually develops further to Stage 5 (INV) throughout the course of the recording sessions. There is one single occurrence of the structure XP+VS at T1 in the first interview, which by itself,
however, cannot be counted as sufficient evidence to say that at this point Marcello has acquired SV-inversion after an element other than the subject is placed into sentence-first position. Interestingly, there are no more than two occurrences of the structure XP+SV in each interview, as Marcello tends to place the verb in sentence-second position after fronting an XP. Thus, in this respect, he resembles an L1 learner more than an L2 learner, as L2 learners do not tend to apply SV-inversion before reaching Stage 5 (INV). On the other hand, Tino’s interlanguage is a typical representation of the developmental stages in the acquisition of German word order rules by L2 learners. He starts out at Stage 3, as he does not invert subject and verb after placing an XP into sentence-first position at T1. From there on, he gradually goes through all the higher stages with each stage building upon the previous one. By the time of T3, his interlanguage has reached Stage 5 (INV) and is on the verge of Stage 6 (V-end). Lastly, Angelina’s data provide a good example of the stabilisation of an L2 learner’s interlanguage, as she does not develop any further than Stage 3 (ADV) over the duration of the three recording sessions.

Tables 7.24 to 7.29 display the German L1 children’s application of German word order rules based on the hierarchical stages for German L2 acquisition. The quantitative numbers from the corresponding tables in Chapters 5 and 6 (please refer to Tables 5.7; 5.21; 5.36; 6.4; 6.8; 6.12; 6.15 & 6.18) are converted to a representation using implicational scaling. Further, the tables are laid out the same way as Table 7.23 and therefore can be read in a similar fashion.
### Table 7.24  
**Mia: Application of German word order rules (implicational scaling)**

<table>
<thead>
<tr>
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<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
<th>T16</th>
<th>T17</th>
<th>T18</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>V-END</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
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<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
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<td>(+)</td>
<td>(+)</td>
<td>/</td>
<td>/</td>
</tr>
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<td>/</td>
<td>/</td>
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<td>/</td>
<td>/</td>
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<td>/</td>
<td>(+)</td>
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<td>(+)</td>
<td>-</td>
<td>+</td>
<td>/</td>
</tr>
<tr>
<td>3</td>
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<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
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<td>(+)</td>
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<td>(+)</td>
<td>(+)</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>2</td>
<td>SVO</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>(+)</td>
<td>/</td>
<td>+</td>
<td>+</td>
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<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>+</td>
</tr>
<tr>
<td>1</td>
<td>Single words</td>
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<td>+</td>
<td>+</td>
<td>+</td>
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<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td></td>
<td><strong>Legend:</strong> + acquired/supplied - not acquired/supplied / no context ( ) less than two occurrences</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

### Table 7.25  
**Karl: Application of German word order rules (implicational scaling)**

<table>
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<tr>
<th>Stage</th>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
<th>T8</th>
<th>T9</th>
<th>T10</th>
<th>T11</th>
<th>T12</th>
<th>T13</th>
<th>T14</th>
<th>T15</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>V-END</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
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<td>/</td>
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<td>4</td>
<td>SEP</td>
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<td><strong>Legend:</strong> + acquired/supplied - not acquired/supplied / no context ( ) less than two occurrences</td>
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Table 7.26  *Emma: Application of German word order rules (implicational scaling)*

<table>
<thead>
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<th>Stage</th>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
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<th>T10</th>
<th>T11</th>
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<td></td>
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<tr>
<td>5</td>
<td>INV</td>
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Legend: + acquired/supplied - not acquired/supplied / no context ( ) less than two occurrences

Table 7.27  *Andreas (CHILDES): Application of German word order rules (implicational scaling)*

<table>
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<tr>
<th>Stage</th>
<th>Structure</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
<th>T7</th>
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<tr>
<td>5</td>
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<td>(+)</td>
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</table>

Legend: + acquired/supplied - not acquired/supplied / no context ( ) less than two occurrences
Table 7.28  
**Cosima (CHILDES): Application of German word order rules (implicational scaling)**

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<th>T3</th>
<th>T4</th>
<th>T5</th>
<th>T6</th>
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<th>T8</th>
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<tbody>
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<td>INV</td>
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<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<tr>
<td>4</td>
<td>SEP</td>
<td>(+)</td>
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<td>-</td>
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<td>-</td>
<td>+</td>
<td>(+)</td>
</tr>
<tr>
<td>3</td>
<td>ADV</td>
<td>+</td>
<td>-</td>
<td>-</td>
<td>(+)</td>
<td>(+)</td>
<td>-</td>
<td>-</td>
<td>(+)</td>
</tr>
<tr>
<td>2</td>
<td>SVO</td>
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<td>+</td>
<td>+</td>
<td>+</td>
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</table>

+ acquired/supplied - not acquired/supplied / no context ( ) less than two occurrences

Table 7.29  
**Mathias, Daniel & Julia (Clahsen): Application of German word order rules (implicational scaling)**

<table>
<thead>
<tr>
<th>Stage</th>
<th>Structure</th>
<th>Mathias</th>
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<th>Daniel</th>
<th>Density</th>
<th>Julia</th>
<th>Density</th>
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<td>T3</td>
<td>T1</td>
<td>T2</td>
<td>T3</td>
</tr>
<tr>
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<td>V-END</td>
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</tr>
<tr>
<td>5</td>
<td>INV</td>
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<td>+</td>
</tr>
<tr>
<td>4</td>
<td>SEP</td>
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<td>+</td>
<td>(-)</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
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<td>-</td>
<td>(+)</td>
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</tr>
<tr>
<td>2</td>
<td>SVO</td>
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<td>(+)</td>
<td>+</td>
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</tr>
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</tbody>
</table>

+ acquired/supplied - not acquired/supplied / no context ( ) less than two occurrences

As discussed in Section 7.1.1, the structure XP+SV was found in the data sets of all eight children, although it is generally assumed that this structure is only part of the syntactic development of German L2 learners, but not employed by German L1 children. The qualitative representations of the children’s application of German word order rules displayed in Tables 7.24 to 7.29 further show that the structure does not appear to be used randomly, but is rather used in a similar fashion to L2 learners, see Table 7.23.

A closer look at Mia’s data (Table 7.24) in the light of PT’s proposed acquisitional stages for German L2 learners shows that she is already past the one-word stage by the time of T1, as she is producing several multi-word utterances. As discussed in Section 7.1, all of her early multi-word utterances follow the pattern SVO, although a lot of previous research (e.g., Clahsen & Muysken 1986; Pienemann 1998a&b) considers that the underlying canonical word order in German L1 acquisition is SOV, whereas it is SVO in German L2 acquisition. Further, the data sets of the other seven children reveal similar findings to Mia’s, which therefore questions the assumption
made by previous research even more. As the discussion in Section 7.1 has already shown, all of them prefer SVO to SOV overall and the tables above further show that, with the exception of two children (Andreas and Cosima), none of them uses the structure SOV until later on in their respective developments. Moreover, even Andreas’ and Cosima’s use of SOV only occurs once at T1 and infrequently after that, which again does not lend support to the assumption that SOV is an initial word order of German L1 children.

The first time a constituent that is not the subject occurs in Mia’s data is at T5 on three occasions and on all those occasions the word order is XP+SV rather than the expected (and required) XP+VS. That is, Mia uses the non-target-like structure XP+SV before the target-like structure XP+VS, which is also the case for German L2 learners. As already discussed in Section 7.1 above, the two German L1 girls (Julia and Cosima) who are closest to Mia in regards to age and overall linguistic development, also start out with XP+SV instead of XP+VS once XPs start to emerge in sentence-first position. In the data sets of the other children, the structure XP+SV is not found before XP+VS, yet, all of them contain more than two occurrences of it and therefore it can be said that the structure has emerged in their interlanguage as well. Further, all of the remaining children have progressed further in their linguistic development than Mia, which suggests that they started placing XPs in sentence-first position before their respective first recording session. As discussed in the previous section, it appears that the structure XP+SV is eventually replaced in favour of XP+VS with the use of the latter structure swiftly increasing, which the analysis of the children’s data in light of PT’s stages for German L2 learners supports.

The next stage proposed by PT for German L2 learners is SEP at which L2 learners are able to finally ‘split’ verbal elements that contain a finite and a non-finite part. L2 learners are said to acquire SEP before they are able to invert subject and verb after XP-fronting, which is Stage 5 in PT’s hierarchy. Surprisingly, this is the first time Mia’s syntactic developmental path differs from that of the adult German L2 learners, although it does not match the one proposed for German L1 learners either. It appears that she acquires SEP after INV, which corresponds with the assumptions about neither L1 nor L2 acquisition. L1 children are said to acquire SEP and INV at the same time, while L2 learners are said to acquire them in two different moves with SEP preceding INV. The data sets of the other children show a similar pattern; that is, except for Andreas, all of them seem to acquire INV before SEP. Moreover, even the
findings of Andreas’ data do not directly contradict the others, since by the time of T1 both SEP and INV have already emerged in his interlanguage, which makes it impossible to say which one has emerged first.

Lastly, the findings imply that Mia had not yet acquired subordinate clauses and therefore it is not possible to say whether she makes mistakes in the positioning of the verb or not. A look at the remaining children’s data shows that Mathias and Daniel are in fact the only two children that have started to produce subordinate clauses. On all occasions, both of them are able to place the verb correctly into sentence-last position, which is in accordance with predictions made by previous German L1 research. However, in neither data set, do subordinate clauses emerge before T3, at which point the twins are already 3;6.28 years old, while at T2, they were both 3;2.14 years old. Due to the four and half months gap between the two recording sessions, it is not possible to draw any firm conclusions about this stage based on the present data alone.

To sum up this section, it can be said that the findings of the current study relating to the acquisition of German word order by German L1 and L2 learners imply that (1) German L1 children follow a developmental path that is more similar to that of adult German L2 learners than previously thought; although (2) German L1 children go through an additional stage where they use the non-target-like structure XP+SV before moving on to XP+VS; (3) German L1 children seem to acquire SEP after INV; and (4) German L1 children seem to abandon ‘ungrammatical’ German word order structures in favour of the grammatical ones somewhat quicker than L2 learners. This suggests that the difference between them is in the rate of development, but not in the route.

7.2.2 Morphological development in German L1 and L2: a comparison

The results from Chapters 5 and 6 reveal that all three children display an overall higher rate of accuracy than the three L2 learners with regard to SV-agreement, as can be seen when comparing the bar charts in Figures 7.1 and 7.2 with each other. However, the reader should note that those numbers are a very rough estimation only since the actual numbers of the L1 and L2 learners are difficult to compare due to various reasons, such as actual amount of production, input, time between recording sessions and total number of recordings. Thus, taking all this into
account, one has to look at the results of accuracy with some precaution and not face value as they only represent a very rough overview of overall production.

Figure 7. 1  *German L1 children: overall accuracy rate in SV-agreement (percentage)*

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mia</td>
<td>76.27</td>
</tr>
<tr>
<td>Karl</td>
<td>72.53</td>
</tr>
<tr>
<td>Emma</td>
<td>85.52</td>
</tr>
</tbody>
</table>

Figure 7. 2  *German L2 learners: overall accuracy rate in SV-agreement (percentage)*

<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marcello</td>
<td>47.62</td>
</tr>
<tr>
<td>Tino</td>
<td>40.45</td>
</tr>
<tr>
<td>Angelina</td>
<td>33.51</td>
</tr>
</tbody>
</table>
The L1 learners outperform the L2 learners in their overall accuracy regarding SV-agreement. That is, Mia’s overall score is 76.27%, Karl’s is 72.53% and Emma’s is 85.52%, whereas Marcello’s score is 47.62%, Tino’s is 40.45% and Angelina’s is 33.51%. Yet, the analysis in Chapter 5 and Chapter 6 showed that the L1 learner’s SV-agreement fluctuated a lot throughout their respective data sets, while that of the L2 learners stayed relatively stable (Marcello) or increased continuously (Tino and Angelina). However, it must be noted again that the time period in between recording sessions is much shorter for the L1 children than for the L2 learners. Thus, although the German L1 children’s scores fluctuated throughout, it can be said that they acquired a higher accuracy rate in SV-agreement over a shorter amount of time. Overall, it appears that the L1 learners are more accurate, but too many other things are factoring in to come to a certain conclusion.

There also appears to be a difference between L1 and L2 acquisition when looking at the actual errors in SV-agreement made by the learners, see Tables 7.30 and 7.31.

Table 7.30  German L1 children: Types of errors in SV-agreement

<table>
<thead>
<tr>
<th></th>
<th>Non-target verb form supplied</th>
<th>Lexical verb not supplied</th>
<th>Non conjugated form supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mia</td>
<td>41</td>
<td>7</td>
<td>(29)*</td>
</tr>
<tr>
<td>Karl</td>
<td>61</td>
<td>0</td>
<td>(54)*</td>
</tr>
<tr>
<td>Emma</td>
<td>51</td>
<td>0</td>
<td>(34)*</td>
</tr>
</tbody>
</table>

*Infinitive supplied

Table 7.31  German L2 learners: Types of errors in SV-agreement

<table>
<thead>
<tr>
<th></th>
<th>Non-target verb form supplied</th>
<th>Lexical verb not supplied</th>
<th>Non conjugated form supplied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marcello</td>
<td>75</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Tino</td>
<td>74</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Angelina</td>
<td>62*</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

*in four of the 62 cases the Italian verb form is supplied instead of the German

At first glance, it appears that both learner groups struggle with supplying the correct verb-form. However, the more detailed analysis in Chapters 5 and 6 showed that the two groups used different strategies to arrive at accurate verb production. The L2 learners are more likely to inflect the verb for the wrong PERSON and TENSE, while the L1 learners tend to provide the infinitive form instead. As discussed in Section 7.1.1, the findings seem to imply that the high numbers of infinitives found in the L1 learners’ data are due to the children omitting the auxiliary verb in most contexts.
where a verb in its infinitive form occurs. It appears that it is part of their strategy, as they might not yet be able to process a VP that contains an auxiliary and a lexical verb. Moreover, the L1 children seem to struggle more with supplying the correct tense, whereas the adult L2 learners have more problems supplying the correct grammatical person. For the adult L2 learners, the relationship between grammatical PERSON and verb form is conceptually opaque, while the concept of past tense is readily acquired. It is conceptually transparent to them since they can rely on their already existing knowledge regarding TENSE from their L1. The L1 children, on the other hand, are faced with an entirely new concept, which could explain why they do not mark verbs for the past at the early stages but retreat to the infinitive form of the verb instead. However, the findings do not provide firm evidence for this assumption and it therefore requires further investigation.

To sum up this part, it can be said that the findings of the current study relating to morphology suggest that (1) the two learner groups use different strategies towards achieving SV-agreement; (2) German L1 children acquire a higher accuracy rate in SV-agreement over a shorter amount of time compared to adult German L2 learners; and (3) the actual errors made in SV-agreement by German L1 children seem to relate more to TENSE, whereas the L2 learners struggle more with the concept of PERSON.

7.2.3 Discussion of results in regard to other studies concerned with the ‘fundamental’ difference between FLA and SLA

Previous research studies concerned with the fundamental difference in FLA and SLA, as mentioned in Chapter 2, showed that the issue has been discussed for 20 years and this thesis has tried to make a contribution to this discussion. Even after twenty years the issue is still discussed and fuels countless debates among linguists. Although nowadays the focus has shifted away from the accessibility of UG in SLA towards more general process mechanisms involved in language acquisition, proponents of the FDH still base their claims on an assumption made by Clahsen and Muysken (1986) over two decades ago. That is, researchers, such as Clahsen & Felser (2006a&amp;b), maintain the view that the interlanguage grammar from L2 learners is fundamentally different from that of L1 learners, even though this theory has been strongly criticized and refuted in other studies (e.g. Du Plessis et al. 1987; Tomaselli
first proposed it. The results discussed in Sections 7.1 and 7.2 are not compatible with the proposition that there is a fundamental difference between L1 and L2 acquisition at least in terms of the syntactic developmental paths. Clahsen and Muysken (1986) argued that, on the one hand, L1 learners’ initial hypothesis of German is SOV but that L2 learners’ initial hypothesis of German word order, on the other hand, is SVO and the rules they have to apply in order to obtain the proposed sequence for L2 acquisition are not permissible grammars in terms of UG. Clahsen and Muysken (1986) assumed that the underlying word order of German is SOV. However, from a processing point of view, it is difficult to imagine an underlying word order, because it would imply a derivational approach to grammar construction online, which, according to Pickering, Branigan & McLean (2002) is not compatible with the formulation of constituent structure. (Di Biase and Kawaguchi 2012)

The results of the current study suggest that German L1 learners use SVO as their default word order, which opposes the assumption that they start out with a different initial hypothesis from L2 learners. Moreover, the findings suggest that the actual developmental paths of the two learner types are also more alike than previously assumed, as they imply that German L1 children go through additional stages in their acquisition of German word order which resemble those of L2 learners. It appears that previous research basically overlooked those additional stages. That is, the use of the structure XP+SV by German L1 children may have been missed due to the time gap between recordings of most longitudinal studies or it may have occurred between recordings.

Thus, the findings of this study directly question the claim that the rules applied in L2 acquisition are not permissible grammars in terms of UG, since so claiming would otherwise imply that the same must hold true for L1 acquisition as well.

While the findings of the current study do not support the claims made by Clahsen & Muysken’s (1986) about the syntactic developmental paths in German L1 and L2 acquisition, they are nevertheless in agreement with those proposed in regards to morphology. That is, they seem to point to a possibly faster achievement of accuracy in L1 learning when compared to L2 learning. Although none of the L1 children reached an overall accuracy rate of 100% and their scores fluctuated greatly throughout the study, it appears that they performed with a higher accuracy over a shorter amount of time than the adult L2 learners. However, this requires further
studies with more comparable data. A difference in rate of development was also observed in terms of the syntactic development of both learner groups. That is, the L1 learners seemed to go through the developmental stages much faster and they only used the structure XP+SV in a very small time window. Further, once they had acquired the correct word order for XP-fronting they did not reverse to XP+SV, but instead placed the finite verb correctly into sentence-second position every time. Overall, the findings imply that a difference could be found between L1 and L2 based on the rate of development, but not in terms of the route. The current study, however, would like to refrain from calling this particular difference ‘fundamental’, but it does by no means contest the fact that it presents a clear distinction between the two types of acquisition. Although the results are not compatible with calling this difference ‘fundamental’, there may be better candidates in other areas, such as ultimate attainment.

Bley-Vroman (2009) points out that more than two decades after he first proposed the FDH in its most radical form, there are still two irrefutable aspects that represent a ‘fundamental’ difference between L1 and L2 acquisition; that is, SLA is unreliable and non-convergent. Bley-Vroman (2009) uses those two terms following Pullum and Scholz’s (2002) terminology to define FLA. They suggested FLA is reliable since “children always succeed at language learning”, while on the other hand, it is convergent, because “children end up with systems that are so similar to those of others in the same speech community” (Pullum & Scholz, 2002, p. 12).

Yet, while this might hold true for the final state of children’s linguistic development, it is not the case for the actual path of acquisition which turns out to be as ‘unreliable’ and ‘non-convergent’ as that of adult L2 learners. As already discussed above, the findings of this study show that in terms of path of development, L1 learners do not differ as much from L2 learners as previously thought. However, that does not mean that all the learners follow the exact same path. A closer look at the data reveals that there is actually great variation amongst the learners that is not only found between the two learner types, but also within each of the respective learner groups. In regards to the L2 learners, this does not come as a surprise since Bley-Vroman (2009) is referring to exactly this when he calls SLA ‘unreliable’ and ‘non-convergent’.

Moreover, Bley-Vroman (1989 & 1990) also included this concept in his original proposal of the FDH and Meisel (2007 & 2008) mentions the remarkable differences between L2 learners themselves in his listing of the five uncontroversial differences
between L1 and L2 acquisition. Yet, it must be pointed out that there are actually SLA learners that reach native-like attainment, which questions the statement that it is ‘always unreliable’. In regards to the L1 learners, the findings show that variation, if not ‘remarkable differences’, can be found within the group of the L1 learners as well. Andreas, for instance, who is the youngest child in the study and only got recorded over a one month period at the age of 2;1 years, is one of the most advanced learners in terms of overall linguistic development. His interlanguage resembles more that of the older children than that of the children that are closest to him in age. Further, a comparison of Mia’s, Cosima’s, Julia’s and Karl’s data sets shows that there is great variation between those four learners as well, although they are not only similar in age but also in terms of actual stage of development. Yet, even disregarding Karl’s data (who is actually a German/Polish L1 bilingual and not a German L1 monolingual), none of them behaves exactly like the others in their language acquisition. Likewise, the same holds true for Mathias and Daniel, although one might expect them to be very similar in terms of linguistic development due to the fact that they are twins. Thus, it can be said that there is great variation among the L1 learners themselves as well. Overall, those findings do not come as a major surprise, since they agree with the findings of pretty much any other study concerned with FLA. That is, there are no FLA studies that claim that all children with the same L1 are exactly the same in terms of linguistic development. Most of them even point out that any proposed acquisitional sequence is more of a guideline that permits variation between learners, instead of an outline of the exact linguistic path followed by all children. Yet, this fact tends to get overlooked by studies that are not specifically looking at FLA itself, but comparing it to SLA instead. While it is true that all children ultimately gain attainment of their L1, it does not mean that they all achieve it by following the exact same developmental path as seems to be generally assumed by previous research studies.

The question that therefore remains is whether the difference between L1 and L2 acquisition can truly be called ‘fundamental’, or is this difference in fact a variation that can be found amongst all language learners?
7.3 Summary

In this chapter, the key findings of the current study were discussed with reference to each of the research questions and in relation to previous research studies. The results relating to German L1 acquisition showed that declaratives and interrogatives were found to develop in a rather independent manner, although it appears that they follow the same developmental path. In regards to the differences between L1 and L2 acquisition, the findings do not support the claim that there is a ‘fundamental’ difference in terms of the developmental paths. Yet, there seems to be a difference in actual rate of development, as the German L1 children seem to go through the developmental stages much faster than adult L2 learners.

The following chapter concludes this study with a summary of its major findings and its implications for other studies. It also outlines its limitations and offers some suggestions for further research.
Chapter 8

Conclusion

8.0 Introduction

This chapter concludes the present study on the syntactic development of German L1 children and its differences and similarities compared to adult German L2 acquisition. Section 8.1 summarises the major findings of the study in conjunction with the research questions, while Section 8.2 summarises the implications of the study as determined from the research findings as well as its contribution to clarifying a specific area of German L1 acquisition and its relationship to L2 acquisition. Finally, Section 8.3 concludes this chapter by discussing some limitations of the study and offering some suggestions for further research.

8.1 Summary of major findings of the study

The aim of this study was to investigate the developmental path of German L1 children in regard to the order of element in speech and what is signalled by the ordering of the constituents in a specific way at the time when their syntax is assumed to take shape. It also intended to contribute to the ongoing debate about the fundamental differences between FLA and SLA. To achieve those aims, a four months longitudinal study was carried out with two German L1 children and one German/Polish L1 bilingual child between the ages of 2;1 and 2;4 years. Two additional data pools comprising published data (CHILDES and ZISA) were also examined to help answer the research questions. The study adopted current Processability Theory as its theoretical framework and the results were empirically examined and discussed based on research studies concerned with German L1
acquisition with specific reference to the hypothesised fundamental difference between FLA and SLA.

8.1.1 Syntactic development of German L1 children

The first research question (Q1) in this study was concerned with the word order preference German L1 children develop once their utterances contain more than one word. The rigid V2 sentence organisation of German and the key role of word order in the placement of topics and adjuncts as well as question formation call for a detailed investigation of how children may learn to link word order to those organisational rules and meanings. Two sub-questions were asked in order to identify whether there is a certain word order favoured by German L1 children in multi-word utterances and how they develop a differentiation between declaratives and interrogatives.

Q1a: What is the preferred word order in utterances containing three words or more?

Results show that German L1 children start out with SVO as their initial word order once they begin producing utterances that contain three words or more. The next word order that emerged was the non-target-like structure XP+SV followed by XP+VS. The last structure that emerged was SOV. The findings regarding the use of XP+SV are compatible with the hypothesis proposed in Chapter 3, which was based on the PT Topic Hypothesis (Pienemann, Di Biase & Kawaguchi 2005) applied to German by Wirbatz (2008) and supported by her findings. This stated that German L1 children, like German L2 learners, will initially use the ungrammatical structure XP+SV, before learning the structure XP+VS as is required by German word order rules.

The fact that the structure SOV emerged last in the children’s syntactic development of declaratives was unexpected since previous research (e.g. Clahsen 1982; Clahsen & Muysken 1986; and Pienemann 1998a&b) assumed that it is an initial word order variably alternating with SVO which German L1 children were believed to use once they start producing utterances containing three words or more.
Q1b: How do German L1 children develop a differentiation between declaratives and interrogatives?

Results show that German L1 children at first do not rely on word order arrangement but solely on intonation in order to differentiate between interrogatives and declaratives. Once their utterances contain three words or more, they slowly start to arrange constituents in a different order to distinguish between the two utterance types. These two stages are compatible with the hypothesis made in Chapter 3 which stated that German L1 children will first solely rely on prosody to distinguish between the two utterance types and then later on also mark them through a change in word order. These two stages are also compatible with the findings of other studies, such as Felix (1980) and (Tracy 1994 & 2008). Due to the limited amount of questions produced by the children, the findings were inconclusive regarding the next hypothesised stage which was also reported by Felix (1980) and Tracy (1994 & 2008). That is, at first German L1 children will not place the verb in sentence-second position followed by the subject, when a wh-word is placed into sentence-first position. This would line up with the PT current Discourse Functions Hypothesis. However, only one occurrence of the structure wh+SV was found in Emma’s data set and it is therefore not possible to draw any conclusion regarding the use of this structure. Lastly, the results indicate that Y/N questions emerge before constituent questions in the children’s syntactic development. That is, one-word Y/N questions emerge before one-word constituent questions and alternative word order is also first occurs in Y/N questions.

8.1.2 Fundamental difference between FLA and SLA

The second research question in this study was whether a fundamental difference between L1 and L2 acquisition could be postulated on the basis of syntax. Two sub-questions were posed in order to identify whether German L1 children follow a developmental sequence in their syntactic development that is similar to that of adult German L2 learners and to investigate if there are other areas of differentiation between FLA and SLA.
Q2a: Do German L1 children and adult L2 learners follow a similar acquisitional sequence in their syntactic development?

The answer is yes. Results indicate that German L1 children and adult L2 learners do follow a similar acquisitional path in their syntactic development. The non-target-like structure XP+SV was used by both learner groups. This result is in contrast to previous research which labelled this as a characteristic step that is typical of German SLA, but is ‘skipped’ in FLA.

Q2b: Are there areas of differentiation between German L1 and L2 learning?

Again the answer is yes. Results indicate that although German L1 and L2 learners follow a similar acquisitional sequence in their syntactic development, they do differ in other areas. First, it appears that there is a difference in the rhythm of acquisition. That is, German L1 learners go through the stages in their syntactic development much faster than L2 learners. Second, German L1 children do not retreat back to a non-target-like structure, such as XP+SV, once the target-like equivalent has been acquired. Third, following from the above, German L1 children also appear to achieve accuracy faster in their morphological development when compared to L2 learners. Further, there is also a difference in the actual types of errors made. Specifically, German L1 learners seem to struggle more with the marking of TENSE, whereas German L2 learners have greater problems with the marking of PERSON. However, it must be noted that the results for accuracy should be looked at with some caution, as the figures given in this work are only rough estimates.

This study contributes to the field by showing that the actual developmental paths regarding the acquisition of syntactic structures in FLA and SLA do not differ from each other as much as previously hypothesised. On the contrary, German L1 children follow developmental sequence not unlike that of adult German L2 learner in their acquisition of word order. That is, they go through a non-target-like stage once they begin to place another constituent than the subject in sentence initial position and they also unambiguously start out with SVO, not SOV, as their initial word order.
8.2 Theoretical contribution and implications of the study

This study has some implications for German FLA research, as well as research concerned with the so-called ‘fundamental difference’ between FLA and SLA. First, the findings of the study indicate that German L1 children go through an additional stage in their syntactic development that has been overlooked in previous research. Particularly, the analysis of the younger children’s data showed that the non-target-like structure XP+SV did emerge before the target-like structure XP+VS once a constituent other than the subject started to appear in sentence-initial position. Although the use of XP+SV prevailed over XP+VS for a very brief time period of about two weeks, it was found in the data sets of all eight German L1 children and also occurred in the German/Polish L1 child. This fact makes it difficult to simply dismiss XP+SV as an aberration in the data. Thus, previous hypotheses concerned with the syntactic development of German L1 children need to be adjusted accordingly, as well as the stages proposed for German L1 acquisition proposed by PT (Pienemann 1998a&b). If both L1 and L2 learners go through similar paths, albeit with considerably different rhythms, there is no need to posit two different acquisitional sequences.

Second, German declaratives and interrogatives were found to develop independently, although it appears that they follow the same developmental path. This also calls for a revision of previous German FLA hypotheses which held that the two types of utterances are acquired in the same way by German L1 children.

Third, the findings of the current study also call into question the claim that the hypothesised ‘fundamental difference’ may be based on different interlanguage grammars. These findings suggest that German L1 children start off with SVO as their initial hypothesis and essentially follow a developmental path similar to adult L2 learners in their acquisition of German word order. Thus, it can be said that the underlying grammar is not different, that is, there is no fundamental difference between FLA and SLA in terms of the actual path of syntactic development. Yet, this does not reject the possibility that there might be other areas in which FLA and SLA differ from each other, though it calls for caution before calling such differences ‘fundamental’. These seem to be more a matter of rhythm than course of acquisition.
8.3 Limitations of the study and suggestions for further studies

This study exhibits some limitations. One such limitation is the fact that it does not reflect the acquisition of interrogatives by German L1 children very well. Unfortunately, the three main informants of this study (Mia, Emma and Karl) did not produce a sufficient amount of questions during the four months of recording, which made it difficult to draw any firm conclusions. Although it appears that German L1 children follow a similar developmental sequence to that found for declaratives, further research is necessary to confirm, or reject, this assumption.

Further, the analysis of the L1 data sets revealed that most of the children appeared to acquire SEP before INV, whereas previous research (e.g. Clahsen 1982; Clahsen & Muysken; and Pienemann 1998a&b) assumed that those two steps occur at the same time. Unfortunately, these findings were mentioned in the current study, but could not be investigated further. This was mainly due to limitations of space. Future research may want to expand on this theme. Another limitation is that the study did not obtain sufficient evidence for a thorough analysis of the morphological development of the two learner types investigated. Since the main focus was on the syntactic development of German L1 children and German L2 adults, not enough attention was paid to check whether the data would also be compatible with a morphological analysis. As it turned out, that was not the case as the data sets were difficult to compare for various reasons, such as actual amount of production, input, time between recording sessions and total number of recordings. The findings of this study in regards to morphology can only be considered a very rough estimation, leaving the area wide open for future research projects.

Nevertheless, I believe that this study helped shed light on a previously overlooked stage in the acquisition of syntactic structures by German L1 children. Likewise, this thesis made a constructive contribution to the continuing debate around the differences between L1 and L2 acquisition.
9. References


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Appendix A

Linguistic characteristics of German

This section contains a brief description of the key linguistic aspects of German that are relevant in regard to this study. First, I will give an overview of German syntax focusing on the order of constituents in declarative sentences, before moving on to interrogative sentences. Then, I will summarise the main characteristics of the German inflection system for nouns and verbs.

Syntax

At first glance, the German language appears to have a relatively free word order, as the constituents of a sentence can be arranged in various ways, see (1).

(1) a. Der Junge wollte vorher das Mädchen küsse.
    ‘the boy(Nom)wanted before the girl(Acc) kiss

    Subject   V (AUX)   Adverb Object   Verb (lexical)

    The boy wanted to kiss the girl before.

b. DER JUNGE wollte vorher das Mädchen küsse.

c. VORHER wollte der Junge das Mädchen küsse.

d. DAS MÄDCHEN wollte der Junge vorher küsse.

e. KÜSSEN wollte der Junge vorher das Mädchen.

In German, the assigned role of each constituent is not determined by its placement, but it is governed by “factors such as definiteness, phonological weight, and discourse ‘packaging’ considerations” (Butt, King, Niño, and Segond, 1999, p. 20). Functional assignment is necessary, before ‘freedom’ can be exercised. Moreover, by changing the word order of a sentence, its pragmatic meaning changes as well, as contrast, focus and perspective are usually given to the constituent in sentence-first
position. Thus, German word order is actually not as free as it might seem at first glance.

By taking a look at the so-called topological model of German grammar (e.g. Erdmann 1986, Höhle 1986), it becomes apparent that German sentence structure can be divided into two basic word orders. According to this model, a sentence consists of three fields; that is the Vorfeld (pre-field), the Mittelfeld (middle-field) and the Nachfeld (post-field). Those fields are separated by the Satzklammer (the sentential bracket, which surrounds the Mittelfeld). The structure of a sentence according to the topological model is illustrated in (2).

(2) \[ S \rightarrow (\text{Vorvorf} \mid \text{Vorfeld} \mid \text{left Satzklammer} \mid \text{Mittelfeld} \mid \text{right Satzklammer} \mid \text{Nachfeld}) \]

In a V2 clause, the left Satzklammer contains a finite verb, but in a V-final clause it contains a complementizer. The Vorfeld can only ever be occupied by one constituent, whereas any number of constituents can occupy the Mittelfeld. The content of the right Satzklammer is once again determined by the sentence type. In a V-final clause, it is occupied by a finite verb that can be preceded by a sequence of non-finite verbs. In a V2 clause, ‘it contains either a non-finite verb, a sequence of non-finite verbs, or a separable verbal prefix’ (Berman, 2003, p. 27). The Nachfeld can contain a variety of right-dislocated constituents or extraposed sentences. Left-dislocated phrases occur in the Vorvorfeld (pre-pre-field), which precedes the Vorfeld. (Berman, 2003) An illustration of the topological model is shown in Table A.1.
Table A.1 *The Topological Model of Traditional German Grammar (after: Berman, 2003, p.28)*

<table>
<thead>
<tr>
<th>Sentence Type</th>
<th>VVF</th>
<th>VF</th>
<th>LSK</th>
<th>MF</th>
<th>RSK</th>
<th>NF</th>
</tr>
</thead>
<tbody>
<tr>
<td>V2-declarative clause</td>
<td>Hans</td>
<td>kann</td>
<td>im Internet</td>
<td>nachprüfen</td>
<td>ob Plätze frei sind.</td>
<td>(Hans) (can) (on the web) (check) (if there are seats)</td>
</tr>
<tr>
<td>V2-declarative clause</td>
<td>Hans</td>
<td>prüft</td>
<td>im Internet</td>
<td>nach</td>
<td>ob Plätze frei sind.</td>
<td></td>
</tr>
<tr>
<td>V2-interrogative clause</td>
<td>Wann</td>
<td>kann</td>
<td>Hans im Internet</td>
<td>nachprüfen</td>
<td>ob Plätze frei sind?</td>
<td>(when)</td>
</tr>
<tr>
<td>V2-declarative clause with left-dislocated DP</td>
<td>Hans</td>
<td>der</td>
<td>kann</td>
<td>im Internet</td>
<td>nachprüfen</td>
<td>ob Plätze frei sind.</td>
</tr>
<tr>
<td>V2-declarative clause with left-dislocated clause</td>
<td>ob Plätze frei sind.</td>
<td>das</td>
<td>kann</td>
<td>Hans im Internet</td>
<td>nachprüfen</td>
<td></td>
</tr>
<tr>
<td>V1-interrogative clause</td>
<td>Kann</td>
<td>Hans im Internet</td>
<td>nachprüfen</td>
<td>ob Plätze frei sind?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VL-Satz</td>
<td>Ob</td>
<td>Plätze frei sind?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thus, based on the basic properties of German word order outlined by the topological model of German grammar (e.g. Erdmann 1986, Höhle 1986), it can be

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1 Abbreviations:
LSK: left Satzklammer
MF: Mittelfeld
NF:: Nachfeld
RSK: right Satzklammer
VF: Vorfeld
VVF: Vorvorfeld
said that sentence structure can be divided into two basic word orders. In unembedded declarative, as well as wh-interrogative clauses, the finite verb is always placed into sentence-second position, see (3).

(3)  
   a. Hanna fährt Fahrrad.  
       'Hanna rides bike'  
       \textit{Hanna rides (her) bike.}  
   b. Was fährt Hanna?  
       'what rides Hanna?'  
       \textit{What does Hanna ride?}

In those types of clause, the finite verb can only be preceded by one other constituent, regardless of whether it is a lexical, modal or auxiliary verb, see (4).

(4)  
   a. Hanna \textbf{fährt} Fahrrad.  
       'Hanna rides bike'  
       \textit{Hanna rides (her) bike.}  
   b. Hanna \textbf{kann} Fahrrad fahren  
       'Hanna can bike ride‘  
       \textit{Hanna can ride (a) bike.}  
   c. Hanna \textbf{ist} Fahrrad gefahren.  
       'Hanna is bike ridden‘  
       \textit{Hanna has ridden her bike.}

In regards to constituent questions, it should also be noted that German is a simple-fronting language. That is, one question phrase is placed in sentence initial position, while the others remain in-situ (Mycock, 2007). The structure of single constituent questions is shown in (5) and that of multiple constituent questions in (6).

(5)  
   was \hspace{1em} macht \hspace{1em} Georg \hspace{1em} in \hspace{1em} der \hspace{1em} Stadt?  
   what-FOC/OBJ \hspace{1em} do-3sgPRES \hspace{1em} George-SUBJ \hspace{1em} in \hspace{1em} the \hspace{1em} city-OBLLOC  
   ‘what does George do in the city today?’

(6)  
   was \hspace{1em} macht \hspace{1em} wer \hspace{1em} wo?  
   what-FOC/OBJ \hspace{1em} do-3sgPRES \hspace{1em} who-SUBJ \hspace{1em} where-ADJ?  
   \textit{what does who do where?}
The second basic word order applies to embedded clauses. That is, in clauses introduced by either a complementizer or a wh-phrase, the finite verb is always placed at the end of the clause, see (7).

(7)  
a. ... dass Hanna Fahrrad gefahren ist.  
    ... ‘that Hanna bike ridden is’  
    ... *that Hanna has ridden (her) bike.*  
b. ... warum Hanna Fahrrad gefahren ist.  
    ... ‘why Hanna bike ridden is’  
    ... *why has Hanna ridden (a bike).*  
c. *... dass Hanna ist Fahrrad gefahren.  
    ... ‘that Hanna is bike ridden’  
d. *... warum Hanna ist Fahrrad gefahren.  
    ... ‘why Hanna is bike ridden is’

For embedded clauses that are not introduced by a complementizer or wh-word the same rule as for unembedded clauses applies; that is, the finite verb is placed into sentence second position, see (8). (Berman, 2003)

(8)  
a. Er sagt, dass Hanna Fahrrad gefahren ist.  
    ‘he says that Hanna bike ridden is’  
    *He says that Hanna has ridden (her) bike.*  
b. Er sagt, Hanna ist Fahrrad gefahren.  
    ‘he says Hanna is bike ridden’  
    *He says Hanna has ridden (her) bike.*  
c. *Er sagt, dass Hanna ist Fahrrad gefahren.  
    ‘he says that Hanna is bike ridden’  
d. *Er sagt, Hanna Fahrrad gefahren ist.  
    ‘he says Hanna bike ridden is’

Imperatives and y/n-questions are the only exception to this rule, as the verb actually occupies the first position in those types of sentences (Boase-Beier & Lodge, 2003), see (9).
Morphology

This section contains a brief description of the morphological aspects of the German language that are relevant in regards to this study. That is, it provides an overview of noun and verb inflection.

Noun inflection

‘The noun phrase as a whole distinguishes separate case inflections for nominative, accusative, genitive and dative in both singular and plural’ (Comrie, 1990, p. 113). Besides being inflected for case and number, German noun phrases are also classified according to their inherent gender (masculine, feminine or neuter). Those distinctions are mostly marked on preceding determiners and adjectives, rather than the noun itself, see (10) and (11). (König and Van Der Auwera, 1994, p. 359-367)

(10) der Vater mag den alten Hund
‘the (nom.) father (nom.) likes the (acc.) old (acc.) dog (acc.)’

*the father likes the old dog*

(11) der alte Hund gehorcht dem Vater
‘the (nom.) old (nom.) dog (nom.) obeys the (dat.) father (dat.)’

*the old dog obeys the father*

Table A.2 gives an overview of the morphological varieties of the German noun phrase in regard to gender, number and case.
Table A.2  Definite Article and Noun Inflections

<table>
<thead>
<tr>
<th>Case</th>
<th>Singular (Masculine)</th>
<th>Singular (Feminine)</th>
<th>Singular (Neuter)</th>
<th>Plural (All genders)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominative</td>
<td>der Vater</td>
<td>die Mutter</td>
<td>das Kind</td>
<td>die Kinder</td>
</tr>
<tr>
<td></td>
<td>‘the father’</td>
<td>‘the mother’</td>
<td>‘the child’</td>
<td>‘the children’</td>
</tr>
<tr>
<td>Accusative</td>
<td>den Vater</td>
<td>die Mutter</td>
<td>das Kind</td>
<td>die Kinder</td>
</tr>
<tr>
<td>Genitive</td>
<td>des Vater</td>
<td>der Mutter</td>
<td>des Kind</td>
<td>der Kinder</td>
</tr>
<tr>
<td>Dative</td>
<td>dem Vater</td>
<td>der Mutter</td>
<td>dem Kind(e)</td>
<td>dem Kindern</td>
</tr>
</tbody>
</table>

The four cases of German (that is, nominative; accusative; genitive; and dative) are illustrated by means of the noun phrase ‘der Vater’ (the father) in (12) to (15).

(12) Nominative: der Vater mag den Hund

‘the father (nom.) likes the dog (acc.)’

*the father likes the dog*

(13) Accusative: der Hund mag den Vater

‘the dog (nom.) likes the dad (acc.)’

*the dog likes the father*

(14) Genitive: der Hund des Vaters ist alt

‘the dog (nom.) the father’s (gen.) is old’

*the father’s dog is old*

(15) Dative: der Hund gehorcht dem Vater

‘the dog (nom.) obeys the father (dat.)’

*the dog obeys the father*

Verb inflection

German verbs, as the verbs in all Germanic languages, are classified into two categories; that is ‘regular’ and ‘irregular’ verbs. The difference between those two classes is that irregular verbs, on the one hand, undergo vowel alterations in the stem (so called ‘ablaut’) and take inflectional affixes for person and number agreement. Regular verbs, on the other hand, do not undergo vowel alteration in the stem. Further, the inflectional affixes they take for person and number agreement are also partially different from irregular verbs. Table A.3 gives an overview of all the
possible conjugations in German for the regular verb ‘machen’ (to make) and the irregular verb ‘sehen’ (to see).
### Table A.3  Possible conjugations in German for regular and irregular verbs

<table>
<thead>
<tr>
<th></th>
<th>Regular</th>
<th>Irregular</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infinitive</strong></td>
<td>mach(en) 'to make'</td>
<td>seh(en) 'to see'</td>
</tr>
<tr>
<td><strong>Participles</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present</td>
<td>mach(end)</td>
<td>seh(end)</td>
</tr>
<tr>
<td>Past</td>
<td>ge+mach(t)</td>
<td>ge+seh(en)</td>
</tr>
<tr>
<td><strong>Imperative</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2nd person singular (familiar)</td>
<td>mach(e)</td>
<td>seh(e)</td>
</tr>
<tr>
<td>2nd person plural (familiar)</td>
<td>mach(e) Sie</td>
<td>seh(e) Sie</td>
</tr>
<tr>
<td>Polite form</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Present</strong></td>
<td>Indicative Subjunctive</td>
<td>Indicative Subjunctive</td>
</tr>
<tr>
<td>ich (1st person singular)</td>
<td>mach(g)</td>
<td>seh(g)</td>
</tr>
<tr>
<td>du (2nd person singular)</td>
<td>mach(st)</td>
<td>seh(st)</td>
</tr>
<tr>
<td>er, sie, es (3rd person singular)</td>
<td>mach(t)</td>
<td>seh(t)</td>
</tr>
<tr>
<td>wir (1st person plural)</td>
<td>mach(en)</td>
<td>seh(en)</td>
</tr>
<tr>
<td>ihr (2nd person plural)</td>
<td>mach(en)</td>
<td>seh(en)</td>
</tr>
<tr>
<td>sie (3rd person plural)</td>
<td>mach(en)</td>
<td>seh(en)</td>
</tr>
<tr>
<td>Sie (2nd person singular, polite form)</td>
<td>mach(en)</td>
<td>seh(en)</td>
</tr>
<tr>
<td><strong>Past</strong></td>
<td>Indicative Subjunctive</td>
<td>Indicative Subjunctive</td>
</tr>
<tr>
<td>ich (1st person singular)</td>
<td>mach(te)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>du (2nd person singular)</td>
<td>mach(te)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>er, sie, es (3rd person singular)</td>
<td>mach(test)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>wir (1st person plural)</td>
<td>mach(test)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>ihr (2nd person plural)</td>
<td>mach(test)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>sie (3rd person plural)</td>
<td>mach(test)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>Sie (2nd person singular, polite form)</td>
<td>mach(test)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>mach(ten)</td>
<td>seh(h)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>mach(ten)</td>
<td>seh(h)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>mach(ten)</td>
<td>seh(h)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>mach(ten)</td>
<td>seh(h)</td>
<td>seh(h)</td>
</tr>
<tr>
<td>mach(ten)</td>
<td>seh(h)</td>
<td>seh(h)</td>
</tr>
</tbody>
</table>
German has only two simple tenses, that is present and past, while compound tenses are formed from combinations with the auxiliary verbs haben ‘to have’, sein ‘to be’ and werden ‘to be/become’ plus the past participle or infinitive form of the verb. For instance, the present perfect in German is formed with the auxiliary verb haben ‘to have’ (or, respectively, sein ‘to be’) plus the past participle, see (16).

(16) Present perfect: ich habe den Film gesehen
‘I have (aux) the movie seen (V)’

I have seen the movie

The future tense is formed with the auxiliary verb werden ‘to be/become’ plus the infinitive of the verb, see (17). It should also be noted that objects and prepositional phrases are placed in between the auxiliary verb and the lexical verb. (Comrie, 1990, pp. 118-119)

(17) Future: ich werde den Film sehen
‘I will (aux mod) the movie see (V)’

I will see the movie
Appendix B

Transcription Conventions

(After Di Biase, 2000, pp. 25-26)

1. Decide first the speaker notation (or code) for each participant in the conversation e.g.:
   C = facilitator/researcher.
   T = your informant (keep confidentiality by giving him/her a fictitious name/code)

   Use upper case (capital letters) for the speaker codes which are UNLIKELY to appear in the actual production text e.g., avoid using 'I' as code for a speaker in an English text, as it will be confused with the first person pronoun. Avoid 'A' because it may be confused with articles etc.

2. After typing in the speaker code enter only a tab (i.e. press the <tab> key on the computer’s keyboard). No other characters (only a tab character) should be written between the speaker code and the beginning of turn for that speaker. This allows the computer to identify unambiguously each turn and speaker. After the first speaker notation and tab are entered, start transcribing what you hear on the tape player. Continue writing on a linear basis from left to right until the end of turn of that speaker.

But what is a turn?
**Turn** here refers to a normally continuous (including pauses) utterance of a speaker, until the Interlocutor (i.e. the other participant in the interaction) either takes his/her turn where he/she judges to be the end of the first speaker's utterance or interrupts the first speaker's utterance in order to take his/her turn.

3. At the end of the turn press the **return key**. Then, again (new speaker) write **speaker notation**, `tab key`, write turn and hit the **return key** at the end of the turn.
   e.g.:
   C what did you say your name was? I did not hear what you said the first time
   T it's difficult to spell

4. There should be **no punctuation marks except for question marks** when the speaker appears to indicate a question (e.g. by rising intonation) as in example above.

5. **No capital letters** except for **proper names** of people and places and the pronoun for the first person singular “I” and the expression OK. e.g.
   C are you OK now?
   (notice that there is no capital letter at the beginning of turns and no full stop at the end)

6. **Pauses** are indicated by one dot (corresponding roughly to a hesitation pause or a pause usually represented by a comma in ordinary writing) or two dots if it is a longish pause (corresponding roughly to a full stop pause in ordinary writing). If there is a pause longer than those two, just write (long pause) in brackets. e.g.
   T um . he um want to buy a .. computer but he lost money and . um
   (long pause) I don’t know

7. Standardise **discourse/feedback sounds marking** (i.e. assign the same string of characters to the same marking) e.g. hesitation (um, uh, er), confirmation and back channelling cues (mhm), clarification requests (mm?), mild surprise
(oh). In general it is best to use strings of characters that are NOT likely to be part of the text, such as 'a'.

8. Write **numerals** in words (not figures).

9. Syllables which cannot be transcribed because the transcriber cannot hear or understand them are placed inside round brackets with an (X) for the unclear syllable or word and three Xs for longer stretches (XXX). Also any other **comment by the transcriber** or any element that does not belong to the text produced by the informant or the interviewer will be enclosed in brackets e.g.:

   T this one? (informant points to a picture on the wall)

10. Avoid any special formatting or special characters whatever (e.g. do not use diacritics, avoid accented vowels) in your transcript and make one copy of it (SAVE AS) Text Only (for analysis) and one with numbered turns (for reference, after you paste it on X-cel – see the section on 'Processing your transcript' below).

   N.B. It is a good idea to **make a backup copy** of all your research files in a different disk.

   The following is a short example of a transcription:

   \[(T = \text{Informant}; \ C = \text{Researcher})\]

   \[
   \ldots
   \]

   C OK so er the first thing we'll do this morning is look at some pictures

   T mhm

   C and I'm going to ask you to tell me a story .. about the pictures here we have uh some pictures from a store .. with

   T a store ?

   C a shopkeeper

   T oh

   C and we have some things that he does .. everyday and I'd like you to tell me the story
of what he does.. in a day
T    (long pause) first hes . he clean er . her shop his shop er before open .. mm.
and then
he . mm look (X) goods or things
C    mhm
...


## Appendix C
Mia’s, Emma’s and Karl’s usage of the structures XP+SV & XP+VS throughout the study

### Appendix C-1: Mia’s usage of the structures XP+SV & XP+VS throughout the study

<table>
<thead>
<tr>
<th>time</th>
<th>age</th>
<th>XP+SV</th>
<th>XP+VS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;2.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>2;3.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>2;3.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4</td>
<td>2;3.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T5</td>
<td>2;3.30</td>
<td>hier du machst (2x)</td>
<td>da ist Mami</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('here you make')</td>
<td>('there is mommy')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>da Mia puller(n)</td>
<td>das darfst du nicht nicht</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('there Mia pee')</td>
<td>('this allowed you not not')</td>
</tr>
<tr>
<td>T6</td>
<td>2;4.06</td>
<td>da ich gefunden</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>('there I found')</td>
<td></td>
</tr>
<tr>
<td>T7</td>
<td>2;4.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T8</td>
<td>2;4.16</td>
<td>das Mia essen (2x)</td>
<td>da anmach Mia (3x)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('this Mia eat')</td>
<td>('there turn on Mia')</td>
</tr>
<tr>
<td>T9</td>
<td>2;4.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T10</td>
<td>2;4.27</td>
<td>an ist das</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>('on is this')</td>
<td></td>
</tr>
<tr>
<td>T11</td>
<td>2;4.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T12</td>
<td>2;5.06</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T13</td>
<td>2;5.07</td>
<td>eine . eine Häuser hatte Mia macht</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>('a . a houses had Mia made')</td>
<td></td>
</tr>
<tr>
<td>T14</td>
<td>2;5.13</td>
<td>Oma x heute ist Mia Kindertag</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>('grandma x today is Mia children’s day')</td>
<td></td>
</tr>
<tr>
<td>T15</td>
<td>2;5.18</td>
<td>gleich Mia packt weg</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>('immediately Mia puts away')</td>
<td></td>
</tr>
<tr>
<td>T16</td>
<td>2;5.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T17</td>
<td>2;6.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T18</td>
<td>2;6.13</td>
<td>das macht Mia</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>('this makes Mia')</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>ein Eis und hier ist mein Eis xx</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>('an ice-cream and here is my ice-cream xx')</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix C-2: Emma’s usage of the structures XP+SV & XP+VS throughout the study

<table>
<thead>
<tr>
<th>Time</th>
<th>Age</th>
<th>XP+SV</th>
<th>XP+VS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2,7.20</td>
<td>oh da ist der Levin</td>
<td>('oh there is the Levin')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>2,8.11</td>
<td>so Mia saubermachen</td>
<td>da ist eine Dusche</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('this way Mia clean-make')</td>
<td>('there is a shower')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>da ist deine x</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('there is your x')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>hier ist deine Toilette</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('here is your toilette')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>hier ist eine Raupe</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('there is a caterpillar')</td>
</tr>
<tr>
<td>T3</td>
<td>2,8.17</td>
<td>da(s) da ess ich</td>
<td>da ist Andy hingepullert</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('this/there there eat I')</td>
<td>('there is Andy peed')</td>
</tr>
<tr>
<td>T4</td>
<td>2,8.25</td>
<td>da sitz ich (3x)</td>
<td>hier ist ein Doktor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('there sit I')</td>
<td>('here is a doctor')</td>
</tr>
<tr>
<td>T5</td>
<td>2,9.02</td>
<td>da ist ihh (3x)</td>
<td>da ist Andy (3x)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('there is ihh')</td>
<td>('there is Andy')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>da sitz ich da (2x)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('there sit I')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>jetzt sitzt du da</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('now sit you there')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>da ist kein Platz (3x)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('there is no space')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>jetzt darfst du</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('now are allowed you')</td>
</tr>
<tr>
<td>T6</td>
<td>2,9.08</td>
<td>ein Auto holen Levin</td>
<td>das mag ich nicht</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('a car get Levin')</td>
<td>('this make I soon')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>da sitz ich (2x)</td>
<td>da schimpft gleich wer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('there sit I')</td>
<td>('there complain soon someone')</td>
</tr>
<tr>
<td>T7</td>
<td>2,9.14</td>
<td>hier das gehört</td>
<td>das mach ich gleich</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('here this belongs')</td>
<td>('this make I soon')</td>
</tr>
<tr>
<td>T8</td>
<td>2,9.22</td>
<td></td>
<td>da schimpft gleich wer</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('there complain soon someone')</td>
</tr>
<tr>
<td>T9</td>
<td>2,9.23</td>
<td>da ist die Spinne lassen</td>
<td>da schlaf ich</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>('there is the spider leave')</td>
</tr>
<tr>
<td>T10</td>
<td>2,9.29</td>
<td>da hast du (ge)macht</td>
<td>da schlaf ich</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('there have you done')</td>
<td>('there sleep I')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>das mag ich nicht</td>
<td>nur das hier mag ich</td>
</tr>
<tr>
<td></td>
<td></td>
<td>('this I like not')</td>
<td>('only this here like I')</td>
</tr>
<tr>
<td>T11</td>
<td>2,10.18</td>
<td>da Mia hat nicht gemacht</td>
<td>das hab ich (ge)macht (2x)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T12</td>
<td>2,10.24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

297
<table>
<thead>
<tr>
<th>T13</th>
<th>2;10.25</th>
<th>nen Gummibär hab ich noch ('a gummi-bear have I still')</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>da ist die . da ('there is she . there')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>da steht mein Holzroller da ('there stands my wooden scooter there')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>da ist mein Holzroller ('there is my wooden scooter')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>so haben wir nicht ('this way have we not')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mein Roller .. muss ich rausholen ich . x ('my scooter ... must I get out I . x')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>jetzt reicht es ('now is enough it')</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>T14</th>
<th>2;11.03</th>
<th>da ist die Pizza noch ('there is the pizza still')</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>immer muss ich Milchreis essen ('always must I rice pudding eat')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kindergarten hab ich aber gegessen ('Kindergarten have I really eaten')</td>
</tr>
<tr>
<td></td>
<td></td>
<td>eine Pelle mag ich nicht ('a skin like I not')</td>
</tr>
</tbody>
</table>
## Appendix C-3: Karl’s usage of the structures XP+SV & XP+VS throughout the study

<table>
<thead>
<tr>
<th>time</th>
<th>age</th>
<th>XP+SV</th>
<th>XP+VS</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>2;1.24</td>
<td>da ist Hammer ('there is hammer')</td>
<td></td>
</tr>
<tr>
<td>T2</td>
<td>2;2.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3</td>
<td>2;2.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4</td>
<td>2;2.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T5</td>
<td>2;2.21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T6</td>
<td>2;2.28</td>
<td>da auch Karl haben ('there also Karl have')</td>
<td>da ist Harke ('there is rake')</td>
</tr>
<tr>
<td>T7</td>
<td>2;3.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T8</td>
<td>2;3.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T9</td>
<td>2;3.19</td>
<td>den Tisch Karl holen . den Tisch ('the table Karl gets, the table')</td>
<td>da ist Wasser ('there is water')</td>
</tr>
<tr>
<td>T10</td>
<td>2;3.28</td>
<td>da Laurie weint ('there Laurie cries')</td>
<td>nein Karl das will ich haben ('no Karl this want I have')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>das will ich ('this want I')</td>
</tr>
<tr>
<td>T11</td>
<td>2;4.03</td>
<td>jetzt Karl kackern ('now Karl poos')</td>
<td>hier ist der Koffer (4x) ('here is the suitcase')</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>hier ist er runter xx ('here is he down xx')</td>
</tr>
<tr>
<td>T12</td>
<td>2;4.16</td>
<td>da setzt sich Fabian (hin) ('there sits himself Fabian')</td>
<td>da war der Bagger ('there was the excavator')</td>
</tr>
<tr>
<td>T13</td>
<td>2;4.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T14</td>
<td>2;4.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>T15</td>
<td>2;5.06</td>
<td>so Fabian aufräumen ('this way Fabian tidies up')</td>
<td>da fährt er weg ('there drives he away')</td>
</tr>
</tbody>
</table>