Discovering Syntax

AN EMPIRICAL STUDY IN DUTCH LANGUAGE ACQUISITION

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Chapter 1

Introduction

1.1 THE PURPOSE OF THIS STUDY

1.1.1 The common route

The purpose of this study is twofold: to discover some aspects of syntactic development in Dutch children, and to present a methodology for doing so. The aspects of syntactic development studied are the one-word-sentence, the multi-word-sentence, ranging from two-word sentences to the first multi-clause sentences, and the verb phrase. The method for describing the one-word-sentence is a traditional design for this type of study, using parental reports. The method for describing the sequences of development of the multi-word sentence and the verb phrase is a newly designed yardstick for syntactic development, using the clause element as its basic unit.

There is strong evidence that in normal syntactic development there is a common route in the order in which syntactic structures are acquired, as reported by Brown (1973), Clahsen (1982), Slobin (1985c) and Wells (1985). This route, by which children discover the syntax of their language, needed to be described for Dutch, both for theoretical and applied purposes. In theoretical child language research, the focus is often on a particular structure, which may be studied without any relation to other structural aspects of the child's syntactic system at the relevant stage of development. The age of the subjects or their Mean Length of Utterance are often given as the sole linguistic context of the structures studied. This is especially of importance when some aspects of acquisition are claimed to be interdependent, such as the acquisition of the verb-fronting rule, which is purported to be related to subject-verb agreement (Clahsen and Muysken 1986). For this type of study an overall description of the developmental sequence of syntactic structures can provide useful data. Bowerman argues that "particularly valuable would be investigations that analyse the emergence of a broad range of structures in the same children, so as to reveal possible links in acquisition across structural domains" (Bowerman 1979: 303). In TARSP, *Taal Analyse Remediëring en Screening Procedure* (Schlichting 1993), I described this sequence of syntactic structures acquired by Dutch children, thus providing a background for theoretically oriented investigations. The three aspects of syntactic development discussed in the present study were briefly reported on in TARSP.

TARSP is a developmental scale describing syntactic structures of children in the ages 1;3 - 4;0, intended for children with language delay. It is modelled on

British LARSP *Language Assessment Remediation and Screening Procedure* (Crystal, Fletcher and Garman 1976) and analyses speech on four syntactic levels: multi-clause structure, clause structure, phrase structure and morphological structure. The structures are presented in six developmental stages and a preliminary seventh stage (see Appendix 1). The speech pathologist uses this scale to assess children with language delay. The assessment results in an age-equivalent score and a syntactic profile. The profile indicates what structures are used and what structures are in the zone of approximate development. The latter form the remedial goals of syntactic therapy.

The main group of children with language delay is the group of children with specific language impairment (SLI). Characteristic of these children, according to Morehead and Ingram (1973: 340), are the later emergence of language, its slower acquisition time and its less frequent and less creative use. After a review of the literature, Crystal, Fletcher and Garman (1989: 29) came to the same conclusion. One of the areas in which language delay clearly comes to the fore in these children is syntax. Clahsen (1988: 232), Stark and Tallal (1992), and Curtiss, Katz and Tallal (1992) reported that normal and SLI children generally follow the same route in their acquisition of syntactic structures, but the rate of development of the latter is slower. Other groups showing a delay in their language development are mentally retarded children, children with hearing loss and SLI children acquiring a second language.

In the last decades language-remediation experts have pointed out that the sequence of acquisition of syntactic structures in normal development should be the guide in setting up the order of remedial goals in syntactic structure (for SLI see Crystal, Fletcher and Garman 1976, Bloom and Lahey 1978, Clahsen 1988, Gutfreund, Harrison and Wells 1989, for mentally handicapped children see Miller and Yoder 1974, for children with hearing disorders see Williams and Dennis 1979, for SLI children acquiring a second language see Schlichting 1995). For these groups TARSP can be used as a guide to the remedial goals.

To find out what structures are used by Dutch children under four a cross-sectional study was set up for which spontaneous language samples of 100 children were collected. The method for stratifying language samples to developmental stages is a fundamental problem in this type of research (Wells 1985: 136, Derwing and Baker 1986). An index was designed by which the language samples in the cross-sectional study, as well as smaller language samples collected in the clinic could be allocated to sequential developmental stages: the Clause Element Index. In the present study this index will be validated. I hope to show that as children are indexed to a higher Syntactic Stage their use of sentence structures and verb phrase structures increases qualitatively and quantitatively.

1.1.2 Three aspects of syntax

The first aspect of syntactic development dealt with is the one-word-stage. Early vocabulary acquistion is a major topic in the language acquisition literature (Barrett 1995). In a longitudinal study the acquisition of the description of the first 50 words of Dutch children is described with discussions on the use of phrases in these early vocabularies and on the differences between individual

styles.

The clause structure in Dutch child language is a subject on which very little research has been done (Schaerlaekens and Gillis 1987). Beside the sequence of clause structures emerging in Dutch child language, a number of theoretical issues is dealt with in this domain. These focus on the various word orders in the early sentence and on null first clause elements.

The acquisition of the verb phrase in Dutch, and especially in German, has been the subject of many, mostly generative, studies (Meisel 1992). In this study the verb phrase use of children is also investigated. The sequence of verb phrase structures in Dutch children is described and the problem of the acquisition of finite forms is investigated. The approach is cognitive rather than generative.

1.2 THE ACQUISITION OF LANGUAGE

1.2.1 Some notions in language acquisition

In setting up a study of language acquistion, the investigator does not start out as a 'tabula rasa', but has some preconceived theoretical notions. This may be a complete theoretical framework, but it may also be a number of presuppositions that cannot be found in a single existing framework, which is the case in the present study. In this section I present some of my presuppositions concerning first language acquisition.

- The important theoretical issues in the study of language acquisition revolve to a great extent around the question of what is innate and what is learned. This study does not start out with these questions, but it does address related theoretical issues, viz. the differences between child and adult speech. If language is innate to a large extent in the sense that the child needs to adapt her innate universal knowledge to the input language, we can expect children to differ substantially from adults. If language is innate to a smaller extent we may expect smaller differences between children and adults, because children model themselves on adults. The reasons for the differences in the latter case will be found in the natural constraints of a developing social, cognitive and linguistic system and a restricted knowledge of the world.
- Language is a system in which messages are coded for communicative ends. Consequently, language is always language in context. The acquisiton of language is dependent on cognition. By cognition I understand the conceptualizations underlying a message (Levelt 1989). This implies that cognitive development in specific domains forms a prerequisite for the acquisition of comprehension and expression of syntactic structures in that domain (Weist 1986). For example, plural subjects are not understood or expressed by the child when she has no concept of plurality, though she may understand and use some stereotyped phrases with a plural meaning.
- In developing her language the child adapts to the environment. The environment also adapts to the communicative needs of the child. Cultures show variations in the way and the degree in which they adapt to children's communicative needs. In western countries the input will often be in a speech

register which is specially attuned to the level of the child, commonly named Child Directed Speech.
- Children learn to associate meaning and form in a particular context or scene. The first expressions of these associations are often still tied to this context. For example, the imperative may at first only be used in a stereotyped 'come in' with domestic pets. Gradually its use is decontextualized: it is generalized to humans, to new verbs and to new contexts. During this process its syntactic structure also becomes more varied. For example, imperatives with verbs taking objects come to be used. Initially, children mainly focus on the lexical categories or content words of the messages, and their speech mainly consists of these categories; the functional categories gradually take their place in the child's sentences.
- There is generally a common route in the acquisition of syntactic structures of a particular language (see section 1.1.1). This route is determined by a number of factors. One factor is the cognitive prerequisites of particular structures, another is the complexity of structures. It is by no means clear how complexity can be defined, but we know that the level of development in a system predetermines, within certain limits, which linguistic elements of that system can be acquired. For example, the child must have acquired simple sentences before she can learn passive ones. This implies that the passive sentence is more complex. The frequency and salience of a structure in the child's input is yet another factor in determining the route of the acquisition of structures.
- More so than adults, children are under performance constraints which limit their production of sentences at a given moment. One is the constraint on the length of a sentence. These constraints may have to do with general cognitive systems, such as short term memory, or with linguistic systems. The overloading of one linguistic system may diminish the production which is possible in another system. For example, the syntactic complexity of an utterance may be restricted by a relatively complex phonological structure in that utterance.
- A major factor in the acquisition of language is the child's motivation to understand and speak the language of her environment. Language acquisition is a joyful, but lengthy and laborious process. It takes years of communicative interaction, and a great deal of effort and much practice on the part of the child to acquire a first language. Children vary in their learning potential and in their motivation. In the research literature there may well be a preponderance of studies of linguistically gifted children. This has obscured the effort required for the acquisition of language.

1.2.2 Errors in language acquisition

In the study of language acquisition the deviations of child language from adult language have been investigated widely. In the present study various types of these deviations, commonly called errors, are distinguished. Bowerman distinguished two main types: errors of commission and errors of ommission (Bowerman 1985:1265). Errors of commission are non-adult forms like *foots* (=feet) or *goed* (=went). Errors of omission are either omissions at sentence level, e.g. an auxiliary or an article, or are restricted uses of the distributional range of forms. This double interpretation of errors of omission makes the

distinction less workable. In this study the latter meaning is used as the only meaning of the errors of omission. The remaining errors are distinguished as follows:

A. Errors of Deletion

1. Error of Deletion 1 (ED 1): forms and structures occurring in child language and in informal everyday adult speech. An example in English is the use of null subjects as in *(I) don't know.*

2. Error of Deletion 2 (ED 2): deletions occurring mainly in child language, for example the article in *I want (a) book.* Most of these errors may also occur in adult language in special registers, e.g. when using a shortened register for shouting out of a window, or in newspaper headlines.

B. Errors of Context

1. Errors of Context (EC 1): word orders or affixes used in the wrong syntactic context, but occurring in child language and in regional everyday adult speech. An English example is *I says* and the analogous Dutch *ik loopt* I walks.

2. Errors of Context (EC 2): word orders or affixes used in the wrong context and not acceptable in adult speech. Many of these may be considered (syntactic) overextensions. An example in English is the order of the dependent question used in an independent question as in: *why kitty can't stand up?* (Quoted in De Villiers and De Villiers 1985: 85). An example in Dutch verb structure is the overgeneralization of the regular past participle formation, as in *gegeefd* 'gived'.

C. Deviancies: deviant forms and word orders, often performance errors. Examples of Deviancies are the following:

a. Unfinished utterances, as in (1), where the infinitive has not been expressed.

(1) *zal ik even spulletjes ...*
shall I just things ...

b. Word order errors, as in (2), where an infinitive has been put in sentence-initial position.

(2) *wassen die moet e beetje (die moet e beetje wassen)*
wash that must a little (that must a little wash)

c. The expression of the negation in the wrong position, as in (3), where the negation is placed in the main clause, instead of in the subordinate clause.

(3) *het lijkt niet of het daar past (het lijkt of het daar niet past)*
it seems not if it there fits (it is as if it doesn't fit there)

d. Double coding of an element in the two possible positions, as in (4).

(4) *zal ik even 't kleed even doen?*
shall I just the carpet just do?'

e. Double coding of an element with different lexical items, as in (5), in which 'there' and 'that other horse' code the same object.

(5) *ik gaat erop die andere paard*
I goes thereon that other horse

f. Substitution of a lexical item for another, as in (6), where the subordinator has been substituted by a verb form.

(6) *effe kijke is (=waar) e gieter is*
just look is (=where) the watering can is

g. Exchange of two elements, as in (7).

(7) *moet badje in Mirjam doen (moet Mirjam in badje doen)*
must bath in Mirjam put (must Mirjam in bath put)

h. The change of an impersonal to a personal verb, as in (8).

(8) *ik heb lukt (het is mij gelukt)*
I have worked (it has worked)

i. Neologisms, as in (9), a noun converted to a verb by adding an *-en* suffix.

(9) *kom eens nagel-en (kom eens nagels knippen)*
come just nail (cut just cut nails)

j. Spoonerisms, as in (10).

(10) *keisje mindje (=meisje kindje)*
chirl gild (=girl child)

1.3 CLASSES AND CATEGORIES IN THE FIRST STAGES OF LANGUAGE ACQUISITION

This section addresses the use of the form classes noun, verb and adverb for the description of the utterances in the one-word stage and the use of the syntactic categories for the description of the early word combinations.

1.3.1 Awareness

In the literature we often find functionally, semantically and cognitively based descriptive categories in the one-word stage and the stage of the early word combinations (see e.g. Brown 1973, Schaerlaekens 1973, Dromi 1987). In the one-word stage, the terms noun and verb are avoided and replaced with terms like object name and action word. In the early word combinations less abstract terms like agent and action are used rather than subject and verb phrase. The latter terms are said to have no psychological reality for the children; the children are not 'aware' of their characteristics, so it is not realistic to impose the adult structure on their utterances. However, at some point during the first stages of language acquisition the child must acquire the formal form classes of noun, verb, preposition etc, and the syntactic relational categories like subject

and verb in order to be able to be productive in her propositions in later stages. Why then the reluctance to use the syntactic terms for the analysis of the propositions in the first stages?

In the one-word stage the child speaks single words appropriate to non-linguistic contexts. Before this she has already acquired the concepts these words express as is manifested by her comprehension of these words, which precedes production in many instances (Benedict 1979). Snow noted a development within the one-word stage:

> It seems that all the first 15-25 words are within one system, a system in some ways closely related to babbling, and that only somewhat later does the process of lexical acquisition really change, with some systematization of the sound representation and production and the introduction of stable referentiality.
> (Snow 1988: 348)

This view of a gradual development is in agreement with current theories about the cognitive development of the infant and the very young child (Flavell 1985). Gradually the child learns to use the same words in different communicative functions. Bretherton (1988: 250) reported that the word 'ball' is used for instance to label real balls, drawings of balls and circles in books, but also when the child has a ball in her hands, is looking at it, or looking for it. The use of different functions indicates a wider semantic scope of the use of the word ball. The child acquires the structure of the language in contingency with the development of meaning (Maratsos and Chalkley 1980, for reference see Maratsos 1982, Slobin 1985: 1160). In the following section I will set out that this diverse labelling is related to the child's beginning use of language structure.

1.3.2 The use of form classes in the one-word stage

The use of the term 'noun'. Evidence of the form class knowledge of the noun cannot - as far as I know - be found in the single-word period. However, in the earliest two-word combinations in Dutch the noun is used as an argument, and a little later a further development of the noun phrase can be noted in the use of the indefinite article and of morphological endings (Schlichting 1993). I assume that before the child can actually produce utterances in which the noun is used in a recognizable syntactic function, a gradual development of awareness of its syntactic notion must take place. I therefore argue that there must be a development of syntactic awareness of the form class 'noun' in the one-word stage. My reasoning is that the different functions in which the word ball is used in Bretherton's study may be seen as precursors of the use of the noun in the different arguments in the two-word combinations, and that therefore they can be denoted as 'nouns'. With regard to the use of the term 'verb' and 'adjective/adverb' in the analysis of the utterances in the one-word stage the same line of reasoning is defended.

The use of the term 'verb'. Unlike the English-speaking child the Dutch child has a fairly high proportion of verbs in her first-50-word vocabulary. In her earliest word combinations, verbs take subjects, objects, complements and

words denoting actions, events and states have the syntactic qualities of the verb, must develop before the child can use the verb in the earliest word combinations with verbs. This awareness may develop a little later than the awareness of the noun. Cross-linguistic evidence for this later development can be found in the fact that not all languages have a distinct verb category. Conceptually too, the link between verb and action, event or state is not so clear as that between noun and person or object (see Goldfield 1993).

The use of the term 'adverb'. In Dutch the class of adjective and adverb has two major subclasses, which must be distinguished at this point. One set of words denoted here as adjective/adverb may serve the syntactic function of predicative and premodifiying adjective as well as of adverb. For example, *mooi* 'beautiful' in *dat lied is mooi* ADJECTIVE:PREDICATIVE 'that song is beautiful ', *het mooie* ADJECTIVE:PREMODIFYING *lied* 'the beautiful song' and *zij zingt mooi* ADVERB 'she sings beautifully'. A second set refers to the 'pure' adverb that cannot be used as a premodifying adjective. For example, *buiten* 'outside' in *hij woont buiten* 'he lives outside' (=he lives in the country). This type of adverb has one form only.

In the Dutch first-50-word vocabulary the 'pure' adverbs outnumber the adjective/adverbs (see chapter 2). In the two-word stage, one of the very first combinations of two elements in Dutch combines a 'pure' adverb with another word. The adjective/adverb is still rare in the early two-word sentences as a premodifying or predicative adjective and completely absent as an adverb. It is only at the stage that children begin to combine three elements that we see the emergence of words like *mooi* 'beautiful' and *vies* 'dirty' used as predicative and premodifying adjectives. This indicates that the syntactic awareness of the 'pure' adverb is probably developed during the single-word stage, but that that of the adjective/adverb is not. Therefore only the invariable, 'pure' adverbs used by the children in the single-word stage will be classed as adverbs in the description of the one-word stage (see chapter 2). The words that are adjective/adverbs according to adult categorization will be classed as 'Other'. Conceptually, the semantic equivalent of an adjective/adverb is more difficult for the child to grasp than the location or recurrence of an object or action, denoted by the 'pure' adverb. In short, apart from Formulae like 'hello', 'yes' and other social expressions, and stereotyped sentences, the single-word utterances in the one-word stage will be classified as Noun, Verb, Adverb and Other (adjective/adverb in the adult system).

Support for this terminology can be found in Dromi (1987: chapter 10). In her study the 276 words acquired by her daughter Keren in the one-word stage were classified in the syntactic categories of the adult system in Hebrew, as well as in the categories of Object words, Action words, Modifiers, Social Expressions and Indeterminant words. Dromi's conclusion is that there is a high correlation between the child's category of reference and the adult part of speech categories and that words were not often completely misidentified.

1.3.3 The use of syntactic terms in early word combinations

The description of the early two- and three-word combinations in syntactic terms in this study denotes that the child is using word combinations and forms which indicate the beginning of the knowledge of a particular structure,

probably restricted to a limited number of lexical items and to a limited number of setting. Later these structures will be used more abstractly: in a more generalized way, with greater awareness, greater knowledge of the syntactic possibilities of lexical items and integrated into a larger system. As it is not possible to draw a line between presyntactic and syntactic awareness, and for practical reasons, the early structures will be described in syntactic terms.

1.4 THE DESCRIPTIVE FRAMEWORK

1.4.1 Syntax

In this study the focus is on syntax. The interrelation of syntax with other aspects of language is expressed by Givón in the three functional realms in the coding of language:
- lexical semantics, which pertains to the lexicon; it is coded by sounds in a linear sequence;
- propositional semantics, which pertains to specific information couched in propositions; these are coded syntactically as sentences;
- discourse pragmatics, which involves the place of the propositions in a wider communicative context. Discourse pragmatics is coded jointly with propositional semantics via syntax, but the syntactic aspects can be separated from the coding of the discourse-pragmatic function (Givón 1984: 30 ff). The present investigation is confined to the syntactic codings, because a description of all three functional realms is beyond the scope of the study. In the analysis of the children's speech, the lexical semantics and discourse pragmatics will be referred to only if the interpretation of the syntactic coding requires this.

Syntactic structure makes use of three devices: intonation, word order and morphology, while certain conditions or constraints play a part in the applicability or identifiability of structures (Givón 1984: 36). I shall deal mainly with word order and morphology, but the intonational contour is taken into account in the interpretation of the propositions.

1.4.2 Choosing a syntactic framework

In choosing a framework for the description of syntactic development two joint requirements should be taken into account: the first is that the analysis must be valid syntactically, the second that it must be adequate to indicate subsequent levels of syntactic development. Both requirements have been taken into consideration in Crystal, Garman and Fletcher's LARSP (1976), the syntactic descriptive model in seven developmental stages mentioned above.

LARSP was drawn up on the basis of the considerable knowledge then available of the syntactic development of English normal first-language learners. It has proved to be a valuable tool in language remediation. This was already apparent in 1979 when Crystal published *Working with LARSP* (Crystal 1979). Adaptations of LARSP were made in a number of other languages. (See for Hebrew HARSP, Berman, Rom and Hirsch 1982; for Irish, Hayden 1984; for German, Clahsen 1986; for Welsh LLARSP, Ball 1988.) Crystal et al. take

the view that for the use of a language scale for descriptive and remedial purposes it is best to choose a syntactic framework that has been fairly stable over a period of time. They argue, in 1976, that Transformational Grammar has not produced an approach to the description of impaired language development which contains those features of child language that characterize the language of deviant children. They conclude that, for the sake of language remediation, a structuralist orientation which includes certain transformational notions is best suited. Crystal et al. make use of a descriptive framework based on Quirk, Greenbaum, Leech and Svartvik's grammar *A Grammar of Contemporary English* (1972/1984), which aims at a comprehensive description of modern spoken and written English. In this handbook the analysis is organized in levels of sentence, clause, phrase and word. This organization allows a comprehensive, clear and economic description of the syntax of child language. Since Crystal et al. formulated their point of view substantial developments in linguistic theory have taken place. The purpose of the present project, a description of early syntactic development in successive stages, is in my opinion still served best by a structuralist approach. English and Dutch, both configurational, right-branching West Germanic languages, have a great deal of structural characteristics in common. This has made it possible to use Crystal et al.'s framework, based on Quirk et al.'s grammar in the present study.

In addition to the reasons given by Crystal et al., there is another reason for using this approach, which directly relates to the developmental characteristics of normal child language. This concerns the analysis on the first level of the simple or one-clause sentence. In modern syntactic approaches the sentence is seen from the perspective of the verb which codes the information about the nature of the action, event or state of the proposition, and its relation to its arguments. The subject's relation to the predicate is placed on a level above the analysis of the verb and its internal arguments. Developmentally, a combination of increasing length and complexity of the sentence marks progress. In structural grammar, subject, verb, objects, complements and adverbials are all considered as clause elements on one level. Most types of clause elements already emerge in the earliest stages, as we shall see in chapter 4. A systematic increase in the number of clause elements, including the subject, in the child's sentences is the major developmental characteristic on the first level rather than a greater complexity in the relations between the elements of clause structure. This was reported by Wells (1985: 198), who concluded, after his extensive research of normal language development in English children, that in the development of sentence structure the most obvious characteristic is the increase in the number of elements. This increase may prove to be even stronger in Dutch child language, owing to the large number of one-word adverbials in spoken Dutch. These add substantially to the number of clause elements, but cannot easily be analysed in terms of separate arguments. Structuralist syntax supplies a better framework for the first level of analysis. At the lower levels modern distinctions or terminology may be fruitful.

In discussing the choice of framework, the development of children up to about four years of age is at issue, which is the period of development in which children gradually increase the number of clause elements in their utterances. It is quite possible that for a later period in child language a different approach to syntactic analysis will be more useful.

An instance of an analysed sentence is given in (11). On the first level the multi-clause sentences are noted, followed by the analysis of clause elements on the second level, the complex phrases on the third and the word structure on the fourth level. For the analysis of specific Dutch structures I used the *Algemene Nederlandse Spraakkunst* (Geerts, Haeseryn, De Rooy and Van den Toorn 1984) and Van den Toorn's *Nederlandse Grammatica* (1979). Givón's *Syntax, a functional-typological introduction* (1984) has provided a theoretical background to the investigation.

```
(11)    even wachten met versieren, want ik moet toch ook meedoen
        ----------
        just wait    with decorating, for I must yet also join in
                          coordinated clauses
        A   V     C                   S     A   A   V
                prep. object phrase        aux + inf
                                         PP1s  Vf1s
```

1.5 PREVIEW

This thesis is structured as follows. In chapter 2 the study of the one-word stage is presented. It describes the first-50-word vocabularies acquired by 37 Dutch children in a longitudinal study. The data for this chapter were collected by means of mothers' reports. The vocabularies are analysed into functional categories, by analogy with American research of first-50-word studies (Nelson 1973), and into form classes.

Chapter 3 deals with the methodological issues concerning the syntactic investigations in a cross-sectional study. The main topic in this chapter is the introduction of the Clause Element Index, an instrument to stratify language samples to subsequent syntactic levels of development, as opposed to MLU measures. The index was developed in a longitudinal study, which is briefly described. Chapter 3 also gives information on the 100 subjects in the cross-sectional study, aged 1;6 - 3;11, whose spontaneous language is investigated. The criteria for emergence are given, paving the way for the analysis of the syntactic structures which are described in chapters 4 and 5.

Chapter 4 reports on the clause level of children's syntactic development in the successive stages, ranging from two-clause-element structures to multi-clause sentences, including imperative and interrogative structures. The increase in mature and the decrease in immature structures as children develop syntactically are seen to contribute to the validity of the Clause Element Index. The varieties in the order of clause elements in early syntactic structures is the theoretical point of focus in this chapter. While it is generally held that children start out with one basic sentence type, it will be shown that in Dutch, from the earliest use of the finite verb, two orders of subject and finite verb form occur.

Chapter 5 describes the developing structures of the verb phrase. It is shown that as children advance in syntactic ability according to the Clause Element Index, the verb phrase becomes more frequent and more varied. This contributes to the validity of the index. The theoretical issues in this chapter revolve around the use of finite and nonfinite forms by children as compared with adults, which is an area of great interest in Dutch and German child

language studies. A classification of verbs frequently used by children reveals that children acquire some classes of verbs first in finite form, others first in nonfinite form.

Chapter 6 deals with the validity of the Clause Element Index and presents some theoretical conclusions. Various aspects of validity are discussed, including reliability. A separate section is concerned with the validity of MLU as an index of syntactic ability. In the section devoted to theoretical conclusions the social and cognitive basis of syntactic development are emphasized. Children evolve from a pragmatic mode to a syntactic mode, which are both found in adult language. Differences in Dutch and Flemish word order are used as evidence for the decisive role of the language-specifity of input. Furthermore, the variations in expressive and referential styles in early lexical acquisition are discussed in relation to divergent styles found in adults, and the errors found in the clause-element and verb-phrase structures are reviewed. The chapter ends with recommendations for the research of syntactic studies in child language.

Chapter 2

The First Fifty Words

This chapter provides quantitative and qualitative analyses of the study of the first fifty words of Dutch children. These are acquired in the one-word stage, which is defined as the stage in language development in which the verbal utterances of the child consist of one word or of one phrase learned as a unit. The purpose of the study is to collect data concerning the early vocabulary development of Dutch children. The quantitative questions concerning this stage in language development focus on the age at which Dutch children acquire their first fifty words and on the rate at which they develop a fifty-word vocabulary. The qualitative questions focus on what words Dutch children learn, and what categories are acquired in the one-word stage, that is before they start to use two-word sentences productively. The quantitative and qualitative results will be compared with the early vocabularies in American English.

For methodological reasons the study of the one-word stage was not connected with the study of the syntactic development, which forms the subject of chapters 4 and 5, but was set up as a separate project within the study as a whole.

2.1 METHOD

2.1.1 Collecting data of first vocabularies

The data collection of the first vocabularies of young children may be carried out in several ways.

1. The recording method. Children's utterances are recorded at their homes, mostly by an observer. The disadvantage of this method is that it takes a great many recordings to get sufficient information about the early vocabularies, and it is impossible to be sure that all the items in a child's vocabulary have been recorded.
2. The diary method. Parents make notes of all the words in their child's vocabulary. The method can be used longitudinally or cross-sectionally. It has several disadvantages, one of them being that the parent may not be an objective or accurate observer. An advantage is that the parents' interpretation of the child's utterances is obtained, which is often indispensable at this stage. A crucial matter in this method is the instruction of the parents.
3. A combination of these methods as used by Nelson (1973) (with monthly recordings), and Benedict (1979) (with bi-weekly recordings).

4. The checklist method. In this method, which has come to be used increasingly in the last decade (Rescorla 1989; Bates, Dale and Thal 1995), parents are presented with a list of approximately 300 - 350 words including some routine phrases which commonly occur in early vocabularies. Parents check what words and phrases are used by their children. This yields a score.

Using the checklist method for Dutch was not possible, because there were no data available concerning the early words, which is a requirement for drawing up a checklist. Considering the scope of the project, the longitudinal version of the diary method was chosen, with the mothers, who received thorough instructions, acting as monthly reporters on their children's progress.

2.1.2 Defining 'word'

The working definition which is used for 'word' has been adopted from Nelson. Nelson carried out a study of the first-50-word productive vocabularies of 18 children. She defined a word as "the sound unit ... used by the child in a consistent form and with a consistent (thus recognizable) meaning" (Nelson 1973: 14). I assume that the form in many cases is only fairly consistent (see e.g. Dubber and de Blauw 1973: 8), and that the meaning, too, may vary from the adult word meaning to a certain extent, and may change over time (see e.g. Bloom 1970). Sometimes the child's sound unit is not the same as the adult's, though the meaning is that of an adult word, as for instance in *woef* used to refer to a dog. In those cases the sound unit is classified as *hond* 'dog'. When *woef* is used by the child to refer to the sound made by a dog, the word is classified as an onomatopoeia, which is coded as a social expression. In the case of overextensions, when the word is used in a wider meaning, or underextensions, when the word is used in a narrower meaning than in the adult language, the word used by the child is coded as reported by the mother. Words used by the child to represent two opposite meanings, like the word *open* 'open' for *open* ' open' and *dicht* 'shut', were coded as the word that was actually used by the child. Only words produced spontaneously by the child were considered part of her vocabulary. Apart from single words, children acquire formulae or routine phrases in their early vocabularies. These are not analysed, but calculated as one 'word' or unit.

2.1.3 The restriction to 50 words

In the present study, the aim was to collect the first 50 words of the children's vocabularies. The number of 50 words was fixed upon because it was my intention to compare American English and Dutch early vocabularies. Apart from Nelson, Benedict (1979) also carried out a study of the first 50 words, concerning both comprehension and production, in eight children.

The reasons for Nelson to limit her vocabulary study to the first 50 words were, firstly, that in her study mothers' reports proved to be unreliable after the 50th word, because the number of new words accelerated. Secondly, phrases began to appear at this point, indicating that children had entered the stage of combining two words (Nelson 1973: 16). These arguments were felt to be valid for the present study.

2.1.4 Subjects

A sample of 50 children was drawn at random from the children born of Dutch fathers in the month of June 1982, in the city of Utrecht. The sampling was restricted to Utrecht for practical reasons. Of these 50 children, 37 fully participated in the project. During the project two children proved to be developmentally retarded. Their data were not included in the analyses. The other 11 children did not participate in the project either because their mothers were not native speakers of Dutch, or because their mothers thought the project would be too time-consuming; some mothers withdrew during the project. None of the mothers worked full-time.

The 37 subjects were 18 boys and 19 girls from different socio-economic backgrounds. They were assigned to three social classes on the basis of the educational level attained by their parents, in which only the parent with the highest qualification was considered. The educational certificate obtained by one of the parents in Group 1 is at least the certificate of the HAVO school for general secondary education. This certificate gives entrance to the polytechnic level of higher education, nursing and teacher training colleges etc. Group 1 is probably equivalent to the American middle or higher middle class. The level of education of at least one of the parents of Group 2 is a MAVO certificate for general education, which gives entrance to training colleges for office jobs, the police etc. In the year 1987 about 80 percent of Dutch children entered a MAVO school or a higher form of education. The parents in Group 3 mostly attended technical or domestic science schools; they often had no school-leaving certificate and mostly started work at the school-leaving age of 16. In the sample there is a larger proportion of Group 2 and Group 3 parents than in the sample which was drawn for the study of syntactic development (see chapter 3 (1.1). The sample was not stratified; in table 2.1 the number of children in the six subgroups is shown.

Table 2.1 *Number of subjects in the first-50-word study in the six subgroups.*

	Boys	Girls
Group 1	6	6
Group 2	5	6
Group 3	7	7

2.1.5 Procedure

The mothers were interviewed at home and instructed in the reporting of their children's vocabulary development. They were asked to enter in a monthly word list the new words their child had used spontaneously. These words were written in the first column, in a spelling approaching the child's pronunciation. In the second column of the list it was stated what the child meant by these words, the third column was for remarks about the setting in which the words were said, or for expressing the mother's doubts about the meaning of the

word. The mothers were shown a protocol which included words from several syntactic and semantic categories including an overextension, a reduplication, a homonym, two routine phrases and a taboo word. Every month the mother sent a checklist to the research-assistant, who sent her a new list and contacted her by telephone if there were any problematic items on the list[1]. As an illustration a word list, as sent in by Jeffrey's mother, is shown in table 2. 2.

Table 2.2 *Word list of Jeffrey, Group 2, age 18 months.*

Word number	Word	Meaning	Remarks
16	*Sjettie*	Jeffrey	own name
17	*da*	dank 'thanks'	
18	*iekeboe*	kiekeboe 'peekaboo'	
19	*eh, eh*	eh, eh	says this when doing something forbidden
20	*hoi*	hoi ' hello'	
21	*titte*	zitten 'sit'	
22	*lekke*	lekker 'nice' (taste)	
23	*weteruste*	welterusten 'good night'	
24	*dag*	dag ' hello, bye'	saying hello or goodbye
25	*uit*	uit 'out'	I want to get out of bed

2.2 THE AGE OF ACQUISITION OF THE FIRST FIFTY WORDS

2.2.1 Vocabulary growth per month

In table 2.3 the vocabulary growth per month of the 37 children is shown. Some mothers reported that the vocabularies of their children had accelerated so much during the last month of their report that they could not give all the new words; these children are indicated by (+).

At 14 months most of the children, 34 out of 37, produced at least one word. Three girls already had a vocabulary of over 20 words. The mean number of words at the age of 14 months was 7.6, with a standard deviation of 7.1. At 15 months the first child in the group, g,1,1, reached the 50-word milestone. The mean number of words at this moment was 13.8, SD 11.7. The means of the different subgroups are given in table 2.4.

Table 2.3 *Cumulative vocabulary growth per month in the six subgroups. Child number (ch.no): boys (b), girls (g); socio-economic background (1, 2, 3), followed by child number within the subgroup. Numbers indicating the vocabulary size at 14-30 months.*

Ch.no.	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
b,1,1	18	32	48	60(+)													
b,1,2	3	4	17	39	55(+)												
b,1,3	19	26	36	41	57												
b,1,4	4	5	8	16	26	46	62										
b,1,5	5	11	16	19	24	34	40	64									
b,1,6	0	0	2	2	3	3	5	7	18	26	37	53					
b,2,1	15	36	51														
b,2,2	4	10	25	46	61												
b,2,3	6	15	25	30	36	55											
b,2,4	15	20	29	39	40	54											
b,2,5	0	0	3	4	6	8	13	16	21	25	29	32	35	38	43	54	
b,3,1	15	17	23	33	47	55											
b,3,2	6	9	11	17	18	22	26	28	38	61							
b,3,3	6	7	10	14	14	19	22	23	31	38	61						
b,3,4	4	10	10	14	16	24	27	30	41	45	50						
b,3,5	5	9	13	17	23	28	33	43	43	43	49	52					
b,3,6	4	7	8	8	8	12	12	13	16	35	41	47	56				
b,3,7	2	5	7	8	10	12	15	18	21	22	23	25	27	30	34	43	54
g,1,1	29	50															
g,1,2	11	18	23	51													
g,1,3	3	4	27	41	56												
g,1,4,	4	14	26	33	42	69											
g,1,5	9	11	11	15	20	23	23	29	33	77							
g,1,6	2	2	2	2	6	8	8	9	15	16	19	21	26	48	51(+)		
g,2,1	25	34	56														
g,2,2	5	17	24	40	50												
g,2,3	9	16	23	35	41	56											
g,2,4	1	13	20	25	31	35	57										
g,2,5	0	0	0	4	13	15	15	19	26	33	42	60					
g,2,6	1	1	4	9	10	13	14	16	20	24	30	35	43	48	54		
g,3,1	8	15	28	40	59												
g,3,2	9	22	26	32	40	52											
g,3,3	9	18	18	28	38	54											
g,3,4	21	33	33	33	33	35	46	63									
g,3,5	6	7	11	13	14	17	22	32	40	52							
g,3,6	2	4	7	7	14	19	19	19	25	29	29	50					
g,3,7	1	2	4	4	8	12	15	19	27	31	38	49	68				

Table 2.4 *Mean number of words and standard deviations acquired in the six subgroups at 15 months.*

	Boys		Girls	
Group 1	13.0	SD 13.0	16.5	SD 17.5
Group 2	16.2	SD 13.3	14.7	SD 12.7
Group 3	9.1	SD 3.8	14.4	SD 11.0

Table 2.4 shows that there is a tendency for the boys in Group 3 to have a slower development than the other 5 groups. Tested with the Mann-Whitney U test these differences were found to be not significant. It is not possible to compare group means of the ages above 15 months because from this month onwards children reach the 50-word target and no records have been kept beyond that moment.

2.2.2 The age at 50 words

At the age of 18 months, 10 out of 37 subjects had acquired a vocabulary of at least 50 words. At 19 months, half of the children used at least 50 words. At 24 months, 73% had 50 words, with one or two late developers in all subgroups; the last child to attain the 50-word milestone was 30 months old. The two subjects who proved to be developmentally retarded, see 2.1.4 above, produced their 50th word at the age of 31 months.

The mean age of the whole group at which the 50th word is produced is 21.3 (21 months and 3/30 of a month: 9 days) (SD 4). The mean age for boys is 21.8 (SD 4.1), and for girls 20.9 (SD 4). Table 2.5 hows the subgroup means of the ages when the target of the 50th word is reached.

Table 2.5 *Age in months, and standard deviations, of the six subgroups at reaching the 50th word.*

	Boys		Girls			Total	
Group 1	19.8	SD 2.9	20.0	SD 4.7		19.9	SD 3.8
Group 2	20.2	SD 5.1	20.8	SD 4.6		20.5	SD 4.6
Group 3	24.6	SD 3.0	21.7	SD 3.0		23.1	SD 3.3
Total	21.8	SD 4.1	20.9	SD 4.0	Grand mean	21.3	SD 4.0

Boys and girls in groups 1 and 2, the high and middle socio-economic groups, speak their 50th word around the age of 20 months. We see a slight delay for the girls in group 3, the lowest socio-economic group, as compared with the grand mean of 21.3, while the boys in the lowest socio-economic group, are at 24.4 months the last subgroup to reach the 50-word target (see figure 2.1).

The differences between the six groups were tested for significance with the Mann-Whitney U test. Significant differences were found between the boys in group 3 and the boys in groups 1 and 2, and the girls in group 1, all at the 5%

level. An analysis of variance was carried out, which showed a tendency for the socio-economic background to explain the differences between the children (p= .1234). (For a discussion of the differences between boys and girls, and between children of different socio-economic backgrounds see chapter 6 (1.3).)

The age of the acquisition of the 50th word by Dutch children may be compared with the results of the two American 50-word studies by Nelson (1973) and Benedict (1979). In Nelson's study the mean age at which the 50th word was acquired is 19.75 months, very close to the 19.9 in the highest socio-economic group of the Dutch children, which is on the same or just below the socio-economic level of Nelson's subjects. Benedict's subjects produced their 50th word at 18.5 months. Her subjects came largely from Lower Middle Class families, comparable to group 2 in the present study, but were two months faster in producing their 50th word than the Dutch group-2 children, viz. at 20.5 months. Benedict's results may have been influenced by the intensive character of her study, in which mothers were visited bi-weekly; this may have stimulated the mothers to interact more with their children, or to report more accurately.

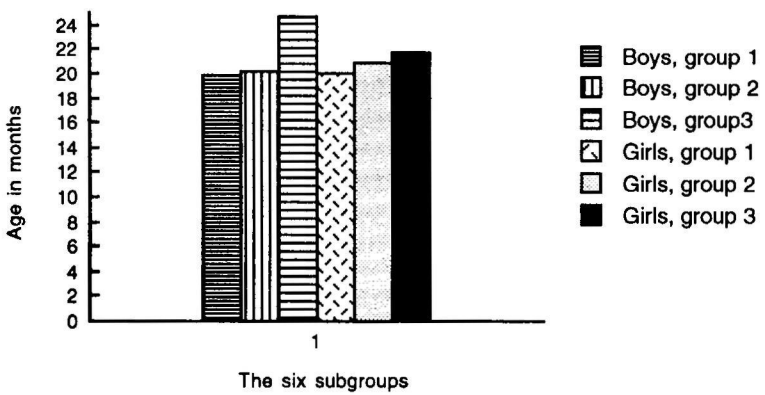


Figure 2.1 *The age in months at reaching the 50th word in the six subgroups*

2.2.3 Rate of acquisition

The age of acquisition of the 50th word is determined by the age at which the first words are produced, and by the rate at which the child acquires her words.It is not possible to carry out a full analysis of the rate of acquisition of the vocabularies, because the study began when the children were 14 months old when most of the children already had a small vocabulary (see table 2.4). However, their vocabularies mostly consisted of less than 10 words, so that for the majority of the children, 27, it was possible to calculate the rate of acquisition between the 10th and the 50th word (including the three group-1 subjects whose mothers had noted that not all the new words of the last month had been reported because the increase in vocabulary had been so extensive).

Out of the ten children who had already acquired more than 10 words at 14 months, the early starters, four were from group 1, four from group 2 and two from group 3. In the calculations all the words that were reported for the month in which the 10th word was acquired were included, including all the words that were reported in the month of the 50th word. The mean number of words learned per month in this group of 27 children was 8.6, SD 3.9. The means of the subgroups differed considerably. They ranged from 5.2 to 12.6. In table 2.6 the mean numbers of words learned per month in the six subgroups are shown.

Table 2.6 *Rate of acquisition in words per month for the six subgroups (later starters only).*

	Boys			Girls			Total	
Group 1	12.6	SD 3.6	(n=4)	11.0	SD 3.0	(n=4)	11.8	SD 4.2
Group 2	9.6	SD 4.9	(n=3)	8.0	SD 3.1	(n=4)	8.6	SD 3.7
Group 3	5.2	SD 1.2	(n=6)	7.7	SD 1.9	(n=6)	6.4	SD 2.0
Total	8.5	SD 4.4		8.9	SD 3.5	Grand mean	8.6	SD 3.9

In Group 1 the mean number of words learned per month is nearly 12, while the mean number of words learned in group 2 and group 3 are smaller, with 8.6 words per month for group 2, and 6.4 words per month for group 3. Analysis of variance showed that there is significant influence of socio-economic background on the rate of acquisition of the 10th - 50th word ($p= .0101$), and that there is no significant difference in the rate of acquisition between boys and girls.

2.3 ANALYSIS OF THE VOCABULARIES

The agreement among the children in their vocabularies is considerable. Of the total number of 1850 possible types, 284 were used by one child only, including 137 proper names (mommy, daddy and names of TV personalities are not classified as proper names). Excluding the proper names, there is a total of 1713 tokens in the corpus with 388 different types; this yields a Type/Token ratio of 0.23.
In analysing the one-word vocabularies, the functional analysis as described by Nelson (1973) in the revision of Benedict (1979), will be presented in section 2.3.1. In section 2.3.2 the analysis into form classes as described in chapter 1 (3) is dealt with.

2.3.1 The analysis into functional classes: a replication of the Nelson/Benedict analysis

One of the larger studies of the vocabulary of the first-word stage was reported on by Nelson in *Structure and strategy in learning to talk* (1973). She aimed to

classify early vocabularies "according to their content or referent into classes related to the basic grammatical-form classes" (1973: 15), which were subdivided into semantic categories. Apart from the formulae or routine phrases, she distinguished the following word classes:

1. Nominals (including nouns, names and pronouns).
2. Action words (words "that describe, demand or accompany action or that express attention or demand for attention"). Examples of Action words given by Nelson are: go, bye-bye (Descriptive); up, out (Demand); look and hi (Notice).
3. Modifiers (words "that refer to properties or qualities of things or events"). Examples are: big, red, pretty (Attribute); hot, dirty, allgone (State); there, outside (Locative); mine (Possessive).
4. Personal Social words (words "that express affective states and social relationships"). Examples are: no, yes, want, know (Assertion); please, ouch (Social expressive).
5. Function words. Examples are: what, where, is, to, for.

Nelson's functional classification was applied by Benedict, in a slightly modified form, in her study of the comprehension and production of the early vocabularies of eight children. Benedict's classification, in which the class of Function words was left out, was used in the present study. The quantitative results of this classification can be seen in table 2.7, beside those of the American studies. The similarities among the findings of the three studies are great.

Table 2.7 *Percentages of Functional classes across three studies.*

	American English (Nelson)	American English (Benedict)	Dutch
Nominals	65	61	61
Action words	13	19	18
Modifiers	9	10	12
Personal-Social	8	10	10
Function words	4	-	-

Nelson's percentage for nominals is slightly higher than the percentages in the other two studies. If the percentages of nominals for group 1 and 2, the higher and middle subgroups in the Dutch study, which are comparable with the populations in the American studies, are calculated, the mean percentage is 63%, just between the two American figures.

Nelson included a semantic categorization of the general nouns (nouns and pronouns) produced by her 18 subjects. The same was done for Dutch. The similarities between the American studies and the Dutch study are striking as shown in table 2.8. The same categorization was made for Flemish by Schaerlaekens (Schaerlaekens and Gillis 1987: 84). Her data do not allow comparison with those of the present study.

Table 2.8 *Semantic categories of general nouns in Nelson's study of American English and in Dutch in mean percentages of 50-word vocabularies.*

	American English (Nelson) n=18	Dutch n=37
Animals	7.4	9 6
Food and drink	10.0	6 7
Furniture and household items	3.2	5 5
Vehicles	3.2	4.6
Toys and play equipment	3.3	3.6
Clothes	3.4	3.0
Body Parts	2 2	2.8
Outdoor objects	2.3	2.3
Personal items	2.3	2.0
People	0.6	1.2
Eating and drinking utensils	2.1	1.0

The names of animals again show very similar distributions (see table 2.9).

Table 2.9 *Frequent animal names in American English and Dutch first-50-word vocabularies in absolute numbers; the values of the American study have been doubled.*

		American English (Nelson) n=18 values doubled	Dutch n=37
poes	cat	28	30
paard	horse	10	21
hond	dog	32	18
eend	duck	16	16
aap	monkey	2	13
beer	(teddy)bear	8	12
vogel	bird	8	9
vis	fish	-	9
koe	cow	8	9
schaap	sheep	-	6

Aap 'monkey' is far more frequent among Dutch children.The reason for this is possibly that the Dutch word *aap* is phonologically less complex than 'monkey'. Horses are probably seen more often in Utrecht than in New York, which may explain its high frequency in Dutch compared with American English.

2.3.2 Expressive versus referential styles

In the literature there is considerable discussion about different styles or strategies of acquisition in the first vocabularies. These styles are based on the variations in the percentages of general nouns (i.e. nouns and pronouns). Children whose vocabularies have many general nouns are said to have a 'referential style' of language development, while children with a relatively larger number of social expressions are said to have an 'expressive' style'. As Nelson (1973: 22) put it: "one child seems to be learning about things and the other about self and other people" (see also Furrow and Nelson 1984). She allocated children who had 50% general nouns or more in their first 50 words to the referential group, and those who had fewer than 50% to the expressive group. In figure 2.2 the number of nouns per child in the Dutch children's vocabulary study is shown. To make a comparison with Nelson's data possible, the pronouns have been classified with the nouns as general nouns.

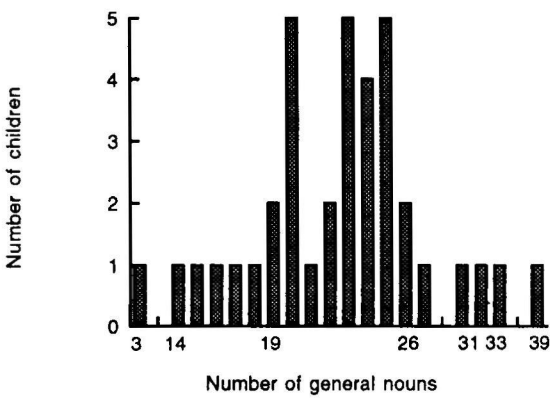


Figure 2.2 *The number of general nouns in the 37 vocabularies*

The variety among the children is great: one child had only 3 general nouns in her first 50 words, while at the other extreme we see a vocabulary with 39 nouns. The majority of the children, 26 out of 37 (70%), however, had between 19 and 26 general nouns. Six children had less than 19 nouns in their vocabulary, five children had more than 26. This suggests an exceptional style, either expressive or referential for some of the children, rather than a clear division between two groups. As Barrett (1995) reported, several researchers, e.g. Bretherton, McNew, Snyder & Bates (1983) and Wells (1986) stated that many children are neither extremely expressive nor referential.

The individual variations in the vocabularies tend to be attributed to different learning strategies of the children, but may also be attributed to different communicative styles of the parents. Five out of the six 'expressive' children in this study come from the lowest socio-economic group, while all five 'referential' children are from the highest socio-economic group, four of them boys. I suggest that some mothers, especially those from the low socio-

economic group, stress the social function of language and that other mothers, ostensibly those of middle class boys, teach their children labels. The effect of stressing the social function of language is especially seen in the number of Social Expressions used to say hello, goodbye etc. The expressive children have five times as many of these particular Social Expressions as the children who have a referential vocabulary.

This view agrees with the findings of Goldfield's study, as quoted by Snow (1988: 349). She found that it was the interaction of an object-oriented child and a label-oriented mother that led to a vocabulary containing a high percentage of nouns. The findings for Dutch suggest that mothers with a high educational level are more label-oriented. What we do not know yet is whether mothers are only inclined to label the objects for object-oriented boys and not for object-oriented girls, or whether girls are just not object-oriented to start with. It would be interesting to solve this problem, as the result might provide the beginning of an answer to the nature-nurture controversy regarding the differences between the two sexes.

2.3.3 The analysis into Form classes

In chapter 1 it was argued that it is theoretically acceptable to analyse the one-word-utterances in the one-word stage into form classes. In table 2.10 the numbers of tokens, the percentages of tokens and the numbers of types in the classes of nouns, proper names, pronouns, verbs, adverbs and 'others' (adjectives in adult language) are given. In tables 2.11 and 2.12 all words used by at least two children are listed, and in table 2.13 the Formulae.

Table 2.10 *Form classes in the 50-word vocabularies: tokens and types.*

	Tokens	Percentages	Types
Nouns	940	51.0%	213
Proper names	138	7.4%	-
Pronouns	53	2.9%	7
Verbs	178	9.6%	48
Adverbs	162	8.7%	29
Others	58	3.1%	11
Social Expressions	227	12.3%	43
Yes/no	45	2.4%	2
Stereotypes	49	2.6%	35

More than half of the children's vocabularyies were made up of nouns: 58.2%, (including proper names, excluding pronouns). These are listed in table 2.11.

Table 2.11 *Nouns occurring in more than one of the first-50-word vocabularies of the 37 children. The numbers refer to the number of children in whose vocabularies the words occur.*

35	auto	car	6	oog	eye	2	brood	bread
32	mama	mummy	6	oor	ear	2	haan	cock
32	papa	daddy	6	Ernie	Ernie	2	kaars	candle
30	poes	pussycat	6	luier	diaper	2	kabouter	goblin
27	opa	grandpa	6	schaap	sheep	2	cadeautje	present
23	koekje	biscuit	6	snoepje	sweet	2	kast	cupboard
23	oma	granny	6	schoen	shoe	2	laars	boot
22	pop	doll	6	sok	sok	2	lepel	spoon
21	bal	ball	6	stoel	chair	2	kikker	frog
21	paard	horse	6	vliegtuig	airplane	2	limonade	lemonade
18	hond	dog	5	banaan	banana	2	maan	moon
17	jas	coat	5	hand	hand	2	mond	mouth
17	klok	clock	5	ijs	icecream	2	muis	mouse
16	eend	duck	5	keuken	kitchen	2	muziek	music
14	appel	apple	5	koffie	coffee	2	navel	belly button
14	boek	book	5	WC	toilet	2	olifant	elephant
13	aap	monkey	4	boterham	sandwich	2	pan	saucepan
13	kaas	cheese	4	hapje	bite	2	parkiet	parakeet
12	bad	bath	4	kip	chicken	2	patat	chips
12	beer	teddybear	4	konijn	rabbit	2	puzzel	puzzle
12	bus	bus	4	licht	light	2	pyjama	pyjamas
12	fiets	bike	4	Sesamstraat	Sesamestreet	2	pijn	pain
12	kindje	small child	4	teen	toe	2	school	school
12	neus	nose	4	thee	tea	2	sneeuw	snow
11	baby	baby	4	tiktak	tick-tack	2	tand	tooth
11	ei	egg	3	ballon	balloon	2	telefoon	telephone
10	bed	bed	3	Bert	Bert	2	televisie	television
10	fles	bottle	3	broek	trousers	2	toeter	hooter
10	huis	house	3	deur	door	2	Tommie	Tommy
10	tas	bag,purse	3	douche	shower	2	torenklok	churchclock
9	eigen naam	own name	3	haar	hair	2	trui	sweater
9	koe	cow	3	muts	hat	2	uil	owl
9	vis	fish	3	pot	potty	2	vla	custard
9	vogel	bird	3	Sinterklaas	Santa Claus	2	voet	foot
8	bloem	flower	3	toetje	desert	2	water	water
8	boom	tree	3	varken	pig	2	Zwarte Piet	Black Peter
8	pap	porridge	2	bank	settee			
8	lamp	lamp	2	bos	wood/forest	97 Nouns used by one child		
7	boot	boat	2	bril	glasses	138 proper names other		
7	trein	train	2	brommer	moped	than those listed		

The vocabularies contained 2.9% pronouns. Most of these had a deictic function (*die* 'that', *deze* 'this', *dat* 'that'). Out of the 37 subjects, 25 had a deictic word in their vocabularies. It is typically the sort of word that is acquired very early: 16 of these 25 subjects had a deictic word in their first 10 words. Mothers frequently reported that their child pointed while she spoke the word. Thirteen pronouns (tokens) referred to the children themselves *ik* 'I' , *mij* 'I/me', and 2 to the person spoken to *jij* you'. In the longitudinal study of Daantje, whose language development I observed from 18 - 47 months (see

chapter 3 (3.3), the words *ik* and *jij* were among the first fifty words. However, they disappeared from his vocabulary and emerged again later, when he spoke in short sentences.

Out of the first 50 words 8.7% was in the class of adverbs. Most frequent were *uit* 'out', and *op*, usually in the meaning of 'allgone', neither of them are adverbs in the usual sense of the word, but rather particles. These particles are placed at the end of the sentence when the verb has a finite form as in *doe je jas maar uit* 'take your coat off', which, like the nonfinite forms of the verb (see below), facilitates the learning of the particles. Phonologically *uit* and *op* are simple, and they are important words in the lives of children. All adverbs used by more than one child are given in table 2.12.

The Dutch child has 9.6% verbs in her first vocabulary, almost all infinitive forms (see table 2.12). The final unstressed syllable *-en* , which occurs in most infinitives, is usually pronounced as schwa by children as well as adults. Benedict had a subclass General Action words which is equivalent to the category of verbs in the present study and reported that her 8 subjects had 18 verbs among them in their first-50-word vocabulary, which is 4.5%. This tallies with the number of verbs found in Nelson's 8 vocabularies of 50 words (Nelson 1973: 120-127), which was 5%. The question can be raised why the Dutch child has twice as many verbs in her vocabulary as the American English speaking child. The reason for this is probably the position of the verb in the sentence. Dutch is considered to be a language with many SOV characteristics (Koster 1975). In speaking to young children mothers use many structures with a nonfinite form of the verb, usually an infinitive, at the end of the sentence (Klein: 1974). For example, when Daantje was 24 months old, Daantje's mother used 43 verb phrases in a speech sample of 100 child utterances with 123 accompanying mother's utterances. Out of the 43 verb phrases, 26 were structures ending in an infinitive, some with, some without a preceding finite verb form as in (1) and (2). The other 17 structures comprised six copulas, eight finite lexical verbs and three finite separable verbs with a separated lexical verb.

(1) *moet je even wachten*
must you just wait (wait a moment)

(2) *even wachten*
just wait (wait a moment)

Most lexical verbs in Daantje's input at this age seemed to be in sentence-final position. Children learn a word more easily when it is placed at the end of a sentence, because it is the last word they have heard (recency effect) and because it is more salient, being followed by a pause. Among the first 10 words, however, very few verbs were found: only 7 out of the 37 children have a verb in their first 10 words.

Table 2.12 *Adverbs, Verbs, Pronouns and 'Other' occurring in more than one of the first 50-word vocabularies of the 37 children. The numbers refer to the number of children that use the words.*

Adverbs		Verbs		Pronouns	
21 uit	out/off	20 eten	eat	21 die	that
20 op	allgone	17 zitten	sit	8 dit	this
13 buiten	outside	15 slapen	sleep	8 mij(n)	me/mine
13 open	open	14 poepen	have a pooh	6 deze	this
10 daar	there	13 drinken	drink	5 dat	that
10 dicht	shut/closed	10 kijk(en)	look	3 ik	I
10 mee	(come)along	6 hebben	have/possess	2 jij	you
8 klaar	done	6 pakken	get/take		
7 ook	also	5 kom	come		
7 weg	allgone/gone	5 plassen	have a pee		
6 af	off	5 poetsen	clean/brush		
6 boven	upstairs	5 kussen	kiss		
5 zo	so/that's it	4 happen	take a bite	'Other'	
3 hier	here	4 liggen	lie		
2 beneden	downstairs	3 douchen	take a shower	10 heet	hot
2 daarheen	that way	3 lopen	walk/go	10 mooi	beautiful
2 daarin	there-in	3 rijden	ride/drive	8 lekker	tasty
2 daarop	there-on	3 zwemmen	swim	8 vies	dirty
2 meer	more	2 bijten	bite	7 kapot	broken
2 over	(pain) gone	2 huilen	cry	5 koud	cold
2 meer	more	2 lezen	read	4 stout	naughty
		2 maken	make	2 leeg	empty
		2 spelen	play	2 leuk	nice/good
		2 stappen	step		
9 Adverbs used by one child		25 Verbs used by one child		2 'Other' used by one child	

Though in this study we are not concerned with semantics I cannot refrain from pointing out that the most frequently learned verbs all refer to basic human functions: *eten* 'eat', *zitten* 'sit', *slapen* 'sleep', *poepen* 'have a pooh', *drinken* 'drink', *kijk(en)* 'look' (in descending frequencies).

In the category 'Other' in table 2.12 the items are shown that are adjectives in adult speech (see chapter 1 (3)).

2.3.4 Formulae

Two types of formulae were distinguished: Social Expressions and Stereotyped sentences or routine phrases (see chapter 3 (2.2).

Social expressions

The category of Social Expressions, excluding *ja* 'yes' and *nee* 'no', contained 12.3% of the whole vocabulary. They are listed in table 2.13. Most children had one or more words for saying 'hello' or 'goodbye' as the high scores for *dag* (used by 25 children), *hallo* (8), *hai* (6), *aju* (5), *doei* (3), and *hoi* (2)

indicate. Another frequent Social Expression is *dank* 'thanks' (in 11 children's vocabulary). Words that do not have a strong social character are the onomatopoeic words of animal sounds and a word like *broem* 'vroom'. The reaction signals *ja* 'yes' and *nee* 'no' constituted 2.4% of the total number of words acquired.

Table 2.13 *Formulae occurring in more than one of the first 50-word vocabularies of the 37 children. The numbers refer to the number of children who use the items.*

Social Expressions		Yes/No	Stereotypes	
26 bah	bah/yuk	24 nee no	4 één twee	giddy-up
25 dag	bye	21 ja yes	4 hop paardje	gee-up
22 au	ouch		3 kijk eens	look
15 hap	said when taking a bite		3 leuk, hè?	nice, isn't it?
14 aai	said while caressing an animal		2 aai, poes	stroke, cat
13 boem	said when something falls		2 kom maar	come
13 kiekeboe	peekaboo		2 nou, hoor	I say
11 dank	thank you			
8 hallo	hello		29 phrases used by one child	
8 oh	oh			
7 woef	woof woof			
6 hai	hello			
5 aju	bye			
5 boe	boo			
5 miauw	miaow			
4 hoera	hurrah			
4 ssst	hush			
3 doei	bye			
3 eh, eh	you can't			
3 welterusten	good night			
2 amen	amen			
2 broem	vroom			
2 hé	hey			
2 hupatee	oops-a-daisy			
2 hoi	hello/bye			
2 kukeleku	cock-a-doodle-doo			
2 lalala	lalala			
2 piep	peep/tweet			
2 tik	tick (of the clock)			
13 Social expressions used by one child				

Stereotyped sentences

In the corpus 49 stereotyped sentences or routine phrases were found - 2.6%. A phrase is defined as an utterance made up of two or more different words; this implies that reduplications are not regarded as phrases. In the analysis of phrases the following categories are distinguished:

1. Imperatives with *kijk* 'look' and *kom* 'come' followed by an adverb (8 items).
2. Other phrases with a syntactic structure (22 items), e.g. *jas aan* 'coat on';

mag niet '(you) can not (do that)'.
3. Units made up of two consecutive utterances (9 items), e.g. *aai, poes* 'stroke, cat' (said while stroking the cat).
4. Snatches from nursery rhymes (5 items).
5. Units made up of an adjective and a tag (5 items), e.g. *leuk, hè?* ' nice, isn't it?'.

Among the children there were considerable differences in the number of phrases: 14 children had no phrases at all; 19 had one, two or three phrases; 2 of the children had four and 2 had six phrases. These last four children had 19, 19, 17 and 3 general nouns in their vocabularies, in agreement with Nelson's report that children who have many phrases have few nouns in their vocabularies.

The comparatively small percentage, 2.6% of Stereotyped sentences and 'chunks' is puzzling. In the literature we find frequent references to different styles of language acquisition in which one of the noted differences is the number of phrases in the first 50 words. Phrases are said to be frequent in the vocabulary of children who have less than the average number of nouns in their first 50 words. Peters (1983: 89) asserted that "the first units of language acquired by children... frequently consist of more than one (adult) word or morpheme." Horgan (1980: 8), discussing the different characteristics of 'noun-leavers' and 'noun-lovers', stated that "leavers' early utterances have a more variable length than do those of lovers. Their speech is peppered with 'stereotyped' phrases (tourist-book talk)." Peters and Horgan both referred for evidence of this phenomenon among others to Nelson's results in the 1973 study. Nelson (1973: 22) reported that in her 18 subjects, the referential group had a mean of 2.4 speech units of two words or more (range 0-5), and the expressive group a mean of 12.6 (range 6-18). From these figures we can calculate the mean number of phrases of the whole of Nelson's group, which is 6.9 (13.8%). Her percentage is five times higher than the 2.6% in the present study. Conflicting data indeed. This is especially problematic as the similarities in the functional classes were shown to be very great (see table 2.7).

Let us have a closer look at Nelson's data. The first 50 'words' of four of her ten referential and of four of her eight expressive subjects are given in the report of her study (1973: Appendix A). The numbers of two-word combinations of the referential children were 2, 1, 6, and 5. The numbers of two-word combinations of the expressive children were 4, 6, 5 and 4, counting every unit that is made up of two words. Three out of the four expressive children, according to these figures, were outside the range of 6-18 phrases for expressive children. In the given group of 8 children the percentage of two-word combinations is 8.25%, considerably less than the 13.8% calculated above. The reader will recall that we are dealing with only 8 of Nelson's 18 subjects, but in these 8 I fail to find the large number of phrases that Nelson reported. The only solution to this enigma would be that Nelson split up the phrases before entering them in the vocabularies. For this I found no evidence; a phrase like 'put there' (Nelson 1973: 122) is listed as such, the words 'put 'and 'there' do not appear in the vocabulary, and there are 49 more 'words'. Having a closer look at the type of two-word combinations of Nelson's subjects, we see that some of these cannot be considered phrases in the sense of showing some syntactical relationship, which is the issue here. In the first

50 words of Lisa (Nelson 1973: 124), who is named as one of the expressive children, we see four possible two-word combinations: 'Woof woof', 'Tickle tickle', 'Thank you' and 'Not now'. Reduplications like 'Woof woof' and 'Tickle tickle' should not be analysed as phrases in English or Dutch, because they show no syntactical relationship, nor are they constructed of two single words in succession like 'hi, there'. 'Thank you' is doubtful as a phrase; it can almost be regarded as one word. This leaves only 'Not now' as a real 'chunk'. Out of the 33 phrases used by the 8 children 15 were reduplications (including bow-wow). Out of the 18 phrases that are left, four more show little or no syntactical relationship ('thank you' and 'peek-a-boo'), which leaves us, according to my analysis, with 14 phrases in a total of 400 'words', which is 3.5% in Nelson's 8 subjects. This is very close to the 2.6% found in the present study.

Support for these results can be found in Stoel-Gammon and Cooper's presentation of three American first-50-words corpora (1982). Their three subjects have, again not counting the reduplications, 1, 3 and 2 phrases in their first 50 words with 25, 34 and 17 general nouns in their vocabularies. Additional evidence comes from the longitudinal study of Daantje, whose first-50-word vocabulary contained 14 general nouns and two phrases.

It may be concluded that, apart from very infrequent individual developments, the number of phrases in the first vocabulary is not substantial. It is doubtful whether this small number of phrases can be an argument in the discussion on different language acquisition strategies during the one-word stage.

2.4 SIZE OF ONE-WORD VOCABULARIES BEFORE WORD COMBINATIONS

Unlike Nelson I could not, in the vocabularies acquired during the last month before the 50th word of the individual children, detect a rise in the number of phrases that might have heralded the growth of two-word combinations. This seemed to indicate that a vocabulary larger than 50 words is acquired before two-word combinations develop on a regular basis. To examine this, the vocabulary growth of four Dutch children was followed until they produced two-word combinations. The important thing here, as Dromi (1987:19) stated, is the cut-off point: when can we say that the child has begun to combine two words into sentences? In this study the following criterion has been selected: when 5% of the utterances in a sample consisted of two clause constituents the child was considered to have entered the two-word-combination period (see also chapter 3 (4.1).

The first of these diary studies concerned Daantje (see section 2.3.3). His mother had collected notes of his vocabulary growth from 15 months onwards. His development was as follows:

19th month:	vocabulary growth from 50 to 55 words;
20th month:	vocabulary growth from 55 to 72 words; no two-word sentences reported. During the recording two two-word sequences consisting of two words, without a syntactic relationship between them, were observed: *o, mooi* 'oh, pretty' and *oh, kijk* 'oh, look'

21st month: reported vocabulary of 92 words. Two items consisting of two clause elements were reported by Daantje's mother.
During the collection of the spontaneous language sample of 200 utterances ten different two-clause-element utterances were recorded, some including verbs, which clearly showed productive use of two-constituent clauses.

According to the 5% criterion stated above, Daantje reached the stage of two-word combinations as defined above when he had a vocabulary of 92 words. More data were obtained from Jurjen and Jan Tijmen, who were observed by their mother, a speech therapist. Jurjen had a vocabulary of 89, Jan Tijmen one of 104 words, when two-word combinations began to be used. A fourth subject, Andrea, was observed by her father, who was also familiar with the 5% criterion of words and word combinations. Andrea had a vocabulary of 99 words when two-word combinations began to appear regularly. The agreement among the four diary studies is remarkable, with a range of 89 - 104 words and a mean of 96 words.

This number of a vocabulary of around 100 words before word combinations begin, is controversial in the light of Dromi's estimation of the size of single-word lexicons. Dromi hypothesized that single-word lexicons contain over 250 words (Dromi 1987: 20). The number was based on her longitudinal study of her daughter, whose vocabulary contained 276 words when she began to construct phrases, and on indirect evidence of two other studies: one of one child and one of two children, all of them children of linguists; here, however, the cut-off point was much higher than the 5% of the utterances in a sample.

The question can be raised whether a specified number of single words must be acquired before a child enters the word-combination stage or whether children vary in this. Children in linguistically rich environments are probably stimulated to learn more words during the single-word period than children in the average family. Some subjects from a high socio-economic background in the present 50-word study acquired names of animals like *leeuw* 'lion'; *giraf* 'giraffe', or names of musical instruments among their first 50 words. I doubt whether learning words such as these is important for the development of syntactic ability.

Let us return briefly to the notion of awareness. In chapter 1 it was assumed that the child must have a certain awareness of words as possible building blocks for syntactic structures before she can start combining these words into sentences. This awareness implies that a certain amount of generalizing has taken place of the syntactic notion of verbs or the use of a noun or adverb as an argument.

Dromi's daughter was exceptional, I think, in having a vocabulary of 276 words before word combinations began to appear. It indicates that the one-word stage may be enriched by learning more words in various categories. It is not likely that the maturation of linguistic awareness is solely dependent on the number of words learned so that progress towards the two-word stage can be 'brought on' by teaching the child a large vocabulary in a short time-span. The child obviously needs time to develop her syntactic awareness and other prerequisites for the combining of words into sentences.

On the whole the 37 children in the 50-word study had a lower socio-economic status than the four Dutch children whose development was followed until two-word sentences appeared. Based on the data of these four, and on the study of the 37 children, my estimation of the number of words required before syntactic development begins is 70 - 100 words for the child of the average socio-economic background.

2.5 METHODS OF COLLECTING EARLY VOCABULARIES COMPARED

In section 2.1.2 the various ways of collecting data of early vocabularies were enumerated. The checklist for parents was mentioned as the fourth method. This is a list of words and phrases on which parents indicate which items are used by their child. The American English quantitative results with this method differ considerably from those in the first-50-word studies described in this chapter (Barrett 1995). According to Nelson and Benedict's studies, children speak their 50th word at the age of, respectively, 19.75 and 18.5 months. According to the American checklist MacArthur CDI Toddler Scale, American English children produce 175 words at the age of 19 months (Bates, Dale and Thal 1995). Considerable differences in early vocabularies were also found when comparing the Dutch results of the present study, the 50th word spoken at the age of 21.3 months, with a Dutch checklist comparable to the MacArthur Scale, the Lexilijst (Schlichting, Van Eldik, Lutje Spelberg, Van der Meulen and Van der Meulen 1995). According to the latter study the mean number of words spoken at the age of 21 months is 89. It is beyond the scope of this investigation to reflect on these differences, but it is obvious that the method of collecting data manipulates the quantitative results in the early vocabulary studies. I suggest that the decision whether a child uses a word is not an easy decision for a parent, or for any observer, to take.

Note

1. I am indebted to Marian Morelli-Kaiser, who carried out the investigation of the first-50-word study as part of her Master's degree in General Linguistics (Morelli-Kaiser 1985).

Chapter 3

Methodological Issues in the Study of Syntactic Development

This chapter discusses the methodological aspects of measuring syntactic ability of children under four. Spontaneous language samples of 100 normal children constitute a corpus which is the data base of the investigation. In section 3.1 subjects and setting of the language sampling are described. Section 3.2 deals with the segmentation of language samples into utterances which are analysed (the Analytic Units), and those which are not (the Formulae and discarded utterances). The stratification of language samples into stages of development is the main methodological issue in this chapter. Section 3.3 discusses this issue and leads up to a proposed measure of syntactic ability which, in section 3.4, is applied to the corpus of 100 language samples. This results in a stratification of the corpus into seven Syntactic Stages. In section 3.5 the criteria for the emergence of syntactic structures are presented. The chapter ends with a listing of how the syntactic structures found in the corpus are presented to the reader.

The methodology of data collection and analysis have been so designed that they can initially be used to describe normal development, as was done in the present investigation, and later be applied to assess individual children.

3.1 SUBJECTS AND SETTING

3.1.1 Subjects

Spontaneous language samples were taken from one hundred children in the target age of 1;6 - 3;11. All subjects were preschoolers: in the Netherlands children do not start school before the age of four. No subject was in fulltime day-care, most subjects over 2;6 attended a private nursery for two or three mornings a week. All children had native-speaking, hearing parents. There was no evidence of physical or mental disorders in that subjects had not been under the care of a medical consultant at the time of language sampling. The subjects' position in the family has not been taken into account.

The age of the 100 subjects is spread across five age groups of twenty in age ranges of six months. These groups of twenty allow for two variables per age group: sex and two levels of socio-economic status (SES), resulting in four subgroups of five subjects per age group (see table 3.1). Age group 1 (1;0 - 1;6

years) is not included in the study of syntactic development (see chapter 2 for the lexical development of this group).

Table 3.1 *Subgroups with mean ages in years, months and days in the twenty cells (n=5)*

Age group	Age range	Mean Age Boys A	Mean Age Girls A	Mean Age Boys B	Mean Age Girls B
2	1;6-2;0	1;9;20	1;9;12	1;8;29	1;9;12
3	2;0-2;6	2;4;6	2;3;24	2;1;23	2;3;15
4	2;6-3;0	2;9;29	2;9;10	2;9;19	2;8;0
5	3;0-3;6	3;2;1	3;3;8	3;2;2	3;3;1
6	3;6-4;0	3;8;29	3;7;12	3;9;6	3;8;6

The distinction between the two socio-economic levels was based on the educational level of the parents. The criterion for the higher socio-economic group, group B, was that one parent had minimally obtained a HAVO-certificate (this gives entrance to the polytechnic level of higher education), and for the lower group, group A, that neither parent had that level of education.[1] In 1982, when the project was started, the division was not strictly representative of the Utrecht population, but for statistical purposes two socio-economic groups of equal size are to be preferred. According to the random samples which were obtained from the municipal authorities in 1982, 45% of the Utrecht families belonged to group B, while 55% of the families belonged to group A. Most subjects in the study were selected at random from a random sample obtained from the municipal authorities; some children from a previous study, mostly group B subjects, have been included.

3.1.2 Setting

Labov demonstrated that the social setting in the collection of language data has great impact on the representativeness of language samples (Labov 1972). Three factors can be distinguished: 1) location and time, 2) participants, and 3) type of interaction. The decisions taken for the present study with regard to these factors were as follows.

1. All language samples were taken in the subjects' homes. Especially for the younger subjects, this seemed the only possible location to elicit spontaneous language. The investigations generally took place in the morning as this is the more productive period of the day (see Wells 1985: 114); recording started when the child had become used to the presence of the interviewer. Language samples were taken by means of audiorecordings with small portable recorders. Recordings were made for one hour. Per language sample 200 utterances were transcribed.
2. Apart from the child there were generally two participants in the sampling situation: the child's mother and the interviewer. The latter acted as a participating observer. Other participants were rarely present. With older children the mother was sometimes absent during part of the observation. All

interviewers were female graduate students, reading for their Master's degree of Psychology, and experienced in assessing young children psychologically. In most cases the interviewers had briefly met the child and her mother before the language sampling took place.

3. An adequate relation among participants in a language situation is the first requirement to obtain a representative language sample (Crystal, Fletcher and Garman 1989: 202). This implies a relaxed atmosphere during the observation. The interviewer's attitude towards eliciting language is of prime importance. Labov presses this point: "...the social situation is the most powerful determinant of verbal behavior and...an adult must enter into the right social relation with a child if he wants to find out what a child can do" (Labov 1972: 339). Labov's statement is based on experiments with different interviews of the same child. Especially the interviews in which questions were the main stimuli showed a poor language quality. In the present study the interviewers were instructed to follow the child's interest rather than initiate topics and restrict the number of questions asked. With the more advanced children the situational context was broadened and topics from the 'there and then' were introduced. The most frequently recorded situations concerned play, 'general activity' and conversation between interviewer and child, mother and child, or among the three participants. The child's own play material was used.

The question arises whether the data obtained in these settings are representative of the children's syntactic systems. Corrigan (1982: 166) reported the results of Olswang and Carpenter's research into the influence of the interviewer on amount and quality of language. The conclusions were that "...the amount of conversation varies as a function of whether the mother or the clinician is engaging in the conversation with the child, though the quality of the language is equivalent with both participants". These results must be trusted. A second issue in this respect is that the normative results of this research will be used for clinical assessments and scientific investigations in which children are usually confronted with relatively unknown speech pathologists and researchers, usually female. The most reliable method of speech sampling for the sake of obtaining norms, is therefore to shape the sampling situation in the research project as closely as possible to the situation in which the obtained norms will be used.

3.2 SEGMENTATION OF THE LANGUAGE SAMPLES

3.2.1 Segmentation of utterances

The child utterances of the language samples were transcribed with the accompanying utterances of the interlocutors. If necessary for the interpretation, glosses of the utterances were made and non-verbal behaviour was noted. The language samples of some of the youngest children consisted of fewer than 200 utterances. To obtain the required number of 200 for statistical purposes, the language samples were supplemented by re-using the first utterances of the language sample.

Language samples were segmented into utterances. Wells (1985: 60) defined an utterance as "...the minimal conversational contribution... ." This definition

is adopted in the present study. The segmentation was made on the basis of prosodic information. The intonational pattern and the pause between utterances usually marked the end of an utterance. In some utterances there were one or more words followed by a short pause and another word which might be interpreted as having a syntactic relation with the previous word(s). Segmentation in these cases varied according to the information in the sample regarding the child's syntactic level.

Up to a maximum of three main clauses with their subordinate clauses, multi-clause sentences were regarded as one utterance. The reason for the segmentation into these longer utterances instead of the traditional T-units (one main clause with its subordinate clauses) was that the acquisition of multi-clause sentences with coordination is an important step forward in syntactic development.

3.2.2 Analytic units and Formulae

Utterances are either Analytic units or Formulae. Formulae are stereotyped sentences or non-expandable one-word utterances. The latter are of three types: Reaction signals, mainly *ja/nee* 'yes/no', Social expressions, for example *hallo* 'hello', and Vocatives. Stereotyped sentences are patterns which the child has learned as one unit, and may as such be considered to be non-productive. Some of these are formulaic in adult speech as well, for example *dank je wel* 'thank you so much' and the imperative *kijk 'ns* 'look'.

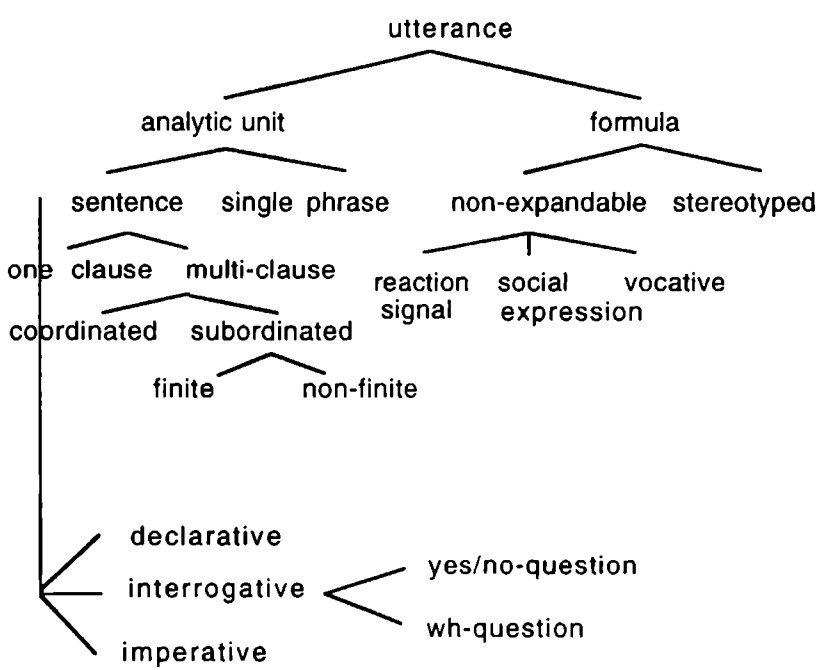


Figure 3.1 *The segmentational units.*

Analytic units may consist of a single phrase only, e.g. *met de fiets* 'by bike', or of two or more clause elements, in which case they constitute a sentence, e.g. *soms met de fiets* 'sometimes by bike'. Sentences may be declarative, interrogative (yes/no-questions or *wh*-questions), or imperative. Exclamatory sentences are not described; they rarely occur in the corpus.

Sentences may be single-clause or multi-clause sentences. Single sentences may be introduced by coordinators or subordinators. Multi-clause sentences have either coordination or subordination. Subordinated clauses are either finite or non-finite. The relation among the segmentational units is shown graphically in figure 3.1.

3.2.3 Discarded utterances

The following types of fragments were discarded from syntactic analyses and all calculations:

A. Unidentified utterances. These were mostly unintelligible. If one word in a more-word utterance was not intelligible but could be analyzed as belonging to a particular syntactic category the utterance was not discarded from the language sample.

B. Words which were corrected or repeated in the same utterance. An instance of a False start is (1).

(1) *(die) gaat die vlieg zo naar beneden*
(that) goes that fly so to down (that fly goes down)

Dysfluencies at word level were all transcribed. Fluency problems are still few at the early language levels, but increase when children advance in their syntactic ability (Wijnen 1990: 143). For incidence and distribution across language levels see Appendix 2.

C. Some types of Deviancies (see chapter 1 (2.1)). For example, the incomplete utterances, as in (2), and the utterances which could not be interpreted, as in (3).

(2) *en dan ...*
and then ...

(3) *laat is ook*
late is also

The following categories were *not* discarded, though some may be considered erroneous in adult speech.

A. Errors of Deletion (see chapter 1 (2.2)). For example, deleted unstressed first syllables. These were frequently found in past participles, as in (4).

(4) *oma (ge)vallen*
granny fallen

B. Errors of Context (see chapter 1 (2.2)). One of the frequent types was substitution. For example, in the determiner class, when the definite article for a *de*- word is used for a *het*- word, as in (5).

(5) *naar de ziekenhuis*
to the hospital

C. Some types of Deviancies are not discarded. For example, doubtful positions of one-word adverbials, as *nou* 'now' in (6), and the double coding of a clause element, usually an adverbial such as in (7).

(6) *ik wil een andere stoel nou hebben* *(ik wil nou een andere stoel hebben)*
I want a different chair now have (I want to have a different chair now)

(7) *zal ik even 't kleed even doen?*
shall I just the table cloth just do (shall I do the tablecloth?)

The number of deviant utterances according to the definition stated above proved to be small: 109 utterances (0.8%) were not included on grounds of deviancy in the analysed corpus of 13,381 Analytic units. In Stage II there were 7 deviant utterances; in Stage III: 13, in Stage IV: 44, in Stage V: 17 and in Stage VI: 28.

Transcription, segmentation and syntactic analysis were carried out by the interviewers. The syntactic analyses were checked by graduate linguists.

3.3 MEASURING SYNTACTIC ABILITY

Children's syntax is expected to increase in complexity as they advance in linguistic ability. In a study describing children's growing syntactic complexity, a measure is needed to assign children to developmental levels. These are at best related to the object of measurement: syntax. As there is no generally accepted standard definition of syntactic complexity, a standard of measurement must be hypothesized. A possible solution to this problem lies in choosing one aspect of syntactic development which is a permanent factor in developmental syntactic complexity. If this factor can be measured adequately it can be used as a yardstick for other aspects of syntactic development. For example, Berman (1990a) proposed the percentage of subordinate clauses in a language sample as a yardstick to measure advanced grammatical ability, suitable for children from around the age of three. In this section a new measure is presented which is used to define the levels of syntactic development in the present study, suitable for children from 1;6 up to the age of around four.

The definition of syntactic categories constitutes another methodological problem in this type of study. This problem is addressed first, in the following subsection.

3.3.1 Defining syntactic categories

The two basic principles of categorization are a drive toward cognitive economy, combined with structure in the perceived world (Rosch 1978: 29). The boundaries between categories are created by the constructs of the investigator. The developmental psycholinguist is required to consider linguistic and developmental aspects in her categorization. Structures which have linguistic similarities should not be assigned to the same categories if they emerge at different periods in development. On the other hand some categories

in a developmental language scale may contain a number of subcategories that would be recognized as categories in their own right in the description of the adult system.

The more categorizations within a particular supercategory are distinguished, the later that category will seem to emerge. The description of the acquisition of the copula presents a good example of this aspect of the categorization issue (see also Wells 1986: 115). Clahsen, who reported on German syntactic development in his *Spracherwerb in der Kindheit*, distinguished two clause types with a copula: copula + adjective phrase, and copula + noun phrase (Clahsen 1982: 42). A different distinction in the copula category was found in Wells's description of syntactic development in British English (Wells 1985: 214), which features subject + copula + complement, subject + copula + intensifying complement, and subject + copula + adverbial. A twofold or threefold distinction in copular categories leads to a later moment of emergence than the registration of the copula regardless of context: the categorization in itself determines to a certain extent the moment of acquisition. In the present study the copula was coded irrespective of its context for practical reasons; this leads to an early moment of emergence.

The influence of the frequency of a structure in the language itself should be minimal. An example of a problematic (sub)categorization in this respect is found in Bol and Kuiken's work (1988). They described the syntactic development of Dutch children in five age-related Phases of syntactic development. Two-clause-element structures containing an adverbial were categorized as subject-adverbial (SA), adverbial-verb (AV), adverbial-adverbial (AA) and object-adverbial (OA). SA and AV emerge in Phase II according to Bol and Kuiken's criteria, AA in Phase III, and OA in Phase IV (Bol and Kuiken 1988: 60). The late emergence of OA in Phase IV may be questioned because the combinations of OA with V and S, OAV and SVAO are described as emerging before OA, viz. in Phase III. A low frequency of the relatively noncomplex OA in the Phases II and III is the probable cause of Bol and Kuiken's placement of OA in Phase IV, especially because their language samples are fairly short. In order to investigate such problematic categorizations, and for other reasons which will be specified below, a pilot study of large language samples was drawn up as part of the present study (see section 3.3.3).

3.3.2 A standard of measurement

The research design of this study requires an index for placing or stratifying the subjects into subsequent developmental stages. Once these have been established the structures emerging in these stages can be determined and described. Finding this index is the first methodological step in the research design. A frequently used index to language development is the age of the subjects. Age has a correlation, but no content relation with respect to the measurable object, syntax. The second possible index is the mean length of utterance. This is a measure with a limited relation to the measurable object. Because neither age nor the mean length of utterance are satisfactory, a third index, the clause element index, with a clearer relation to syntactic development, will be proposed.

Age as an indication of syntactic ability

The simplest research design in a cross-sectional study, viz. arranging language samples of children according to age and making an inventory of the structures per age unit, is not satisfactory. Age is often relied on as the sole basis for grouping subjects for analysis and for assessing developmental trends (Derwin and Baker 1986: 334), but children vary too much in their rate of development to use such a design (Bates, Dale and Thal 1995). To illustrate this point, I present Wells's age ranges for the levels on his scale of language development in table 3.2; these levels correlate highly with syntactic development (Wells 1985: 280). The figures represent the tenth (advanced), the fiftieth (average) and the ninetieth (delayed) percentiles of the ten levels on his scale of language development.

Table 3.2 *Age Norms in years and months of Language Levels I-X in Wells's study.*

Level	Advanced	Average	Delayed
I	<1;3	<1;3	1;9
II	<1;3	1;9	2;0
III	1;3	2;0	2;6
IV	1;6	2;3	3;0
V	1;9	2;6	3;6
VI	2;0	3;0	4;3
VII	2;3	3;6	4;9
VIII	2;9	4;0	>5;0
IX	3;3	4;9	>5;0
X	3;9	>5;0	>5;0

The figures in table 3.2 show that age as an index for language development is hardly acceptable. As language levels rise the age range increases substantially and age as an index for language development becomes less reliable.

Mean Length of Utterance

A second possible index of language data is to use the Mean Length of Utterance (MLU). The basic assumption of MLU and related measures is that utterance length increases with syntactic complexity. MLU is computed by counting all the words or, more usually, all the morphemes in a language sample and dividing the total by the number of utterances. In a more sophisticated MLU calculation social expressions and sometimes all one-word utterances are discarded, resulting in an ostensibly more reliable measure of syntactic complexity. In a design using MLU as the stratifying language index all language samples are measured for MLU; bands of ranges of MLU are set up, thus creating MLU stages, and syntactic structures occurring in the language samples in these stages are assumed to emerge or be mastered in these particular MLU stages. Brown (1973: 271) was the first to use MLU as an ordering

principle in this way. He allotted fourteen closed class morphemes to 5 stages of MLU, resulting in a developmental scale. For example, a child with a MLU of 2.75, in Brown's Stage III, is expected to have (nearly) mastered the use of the uncontractible copula. Provided validity and reliability of MLU are satisfactory, a similar design in the present study would be useful. However, several aspects of MLU need further consideration.

A first point is the relation of MLU to age. The correlation coefficient between the two is not expected to be near 1.0 because children vary too much in their rate of syntactic development, as we saw in the preceding subsection; on the other hand some investigators reported that the increase of MLU with age is predictable. Some evidence concerning this relation with respect to a longitudinal study was obtained from the Daantje corpus (for details see 3.3.3) by Legtenberg who calculated MLU (in words) across 26 monthly observations from the age of 21 to 47 months (Legtenberg 1989). The data are displayed in figure 3.2. The correlation between age in months and MLU in words across all observations is significant on the 0.001 level (r=0.68). Correlation across observations at 22-34 months is .86, but across observations at 35-46 months it is .55, which is no longer significant (see for another MLU curve of longitudinal data in this respect Brown 1973: 57).

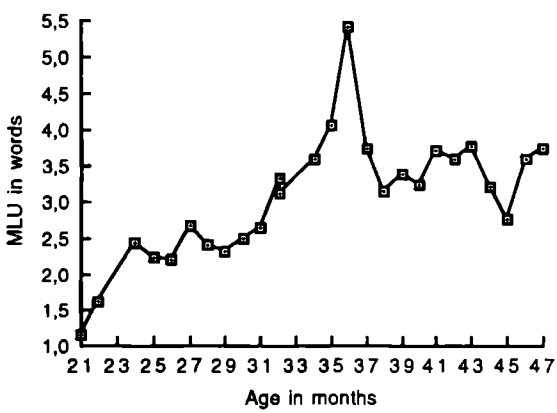


Figure 3.2 *MLU in words from the Daantje corpus across 26 observations.*

Miller and Chapman (1981) studied a group of children with an age range of 1;5 - 4;11 years. They reported a high correlation of MLU (in morphemes) with age across the whole group (r=0.88). Klee and Fitzgerald (1985) set up a study of 18 children in the age range of 25 - 47 months with MLU ranges of 2.50 - 3.99. They found that correlation between MLU and age was on a chance level (r=0.26), which they interpreted as a lack of validity of MLU. Beside MLU calculated across all utterances, they computed a second type of MLU: Mean Syntactic Length (MSL), averaging multimorphemic utterances only. MSL showed a positive correlation with age, but far lower than in the Miller and Chapman study (r=0.52). The difference in correlation of the two measures

with age may be considered a shortcoming of MLU. In a reaction to Klee and Fitzgerald's investigation a similar evaluation study of MLU and MSL was carried out by Rondal, Ghiotto, Brédart and Bachelet (1987). They studied a group of 21 children with a MLU range of 1.05 - 3.06, resulting in the conclusion that MLU and MSL correlate strongly with age up to a MLU level of 2.50. This is not in conflict with Klee and Fitzgerald's results whose subjects had higher MLU's, viz. 2.50 - 3.99.

The second point in this discussion related to the content validity of MLU as a syntactic measure: does MLU predictably increase with syntactic ability? Crystal (1976: 9) and Wells (1985: 121) both stated that some advanced syntactic structures do not increase the length of the utterance, in fact they may reduce it. An example in Dutch is the simple past tense of irregular verbs, which is acquired later than the perfect (auxiliary + past participle). According to Brown's rules the irregular past tense is calculated as one morpheme and the perfect as two or three. Advanced structures are not always related to the number of morphemes or words. On the other hand the influence of the relatively few, short but advanced utterances on the stability of MLU may be negligible. To throw some light on MLU as a syntactic measure Klee and Fitzgerald, in the study referred to above, compared MLU and MSL levels to syntactic development as measured with LARSP (Crystal, Garman and Fletcher 1976), a highly relevant comparison with regard to the design of the present study. Both frequency and diversity of syntactic constructions were compared to MLU and MSL. Klee and Fitzgerald concluded that morphological development increased with MLU and MSL, but that, with the exception of the three-element clause types, non-morphological syntactic development failed to show a change with increasing MLU or MSL. Rondal et al. (1987) also replicated this part of the Klee and Fitzgerald study and found that utterance length was a valid predictor of syntactic complexity up to MLU 3.00.

A third important point in this discussion is the stability of MLU in two subsets of one larger language sample, which bears a relation to test-retest reliability. Klee and Fitzgerald found that within a 40-minute language sample MLU differed significantly according to which particular 100-utterance sample was selected for the computation of MLU. These differences were found to be as great as two or three of Brown's MLU stages. A similar divergence between two sets of 100 utterances taken from the same language sample was found in a Dutch study by Arlman-Rupp, Van Niekerk de Haan and Van de Sandt-Koenderman (1976). Rondal et al. (1987) also studied the variations in MLU within one language sample, using the same method as Klee and Fitzgerald. Their findings regarding the intra-sample variability were that up to approximately MLU 2.00 this variability was relatively small (not extending a 0.50 MLU-span), and that at higher MLU levels the variability increased.

Taking the three issues together: the correlations with age and with syntactic ability and the variability of MLU across language situations, the results are mainly that validity and reliability decrease as children become linguistically more advanced. The relevance for the present investigation is the following: there is little doubt that for grouping language samples, MLU levels are superior to age levels. MLU, in morphemes, is a reliable measure for partitioning children's early language development into stages up to MLU 2.00 or 3.00, depending on whether the intra-sample reliability or the correlation

with syntactic development is taken as a criterion.
Additional evidence for the problems of using MLU came from the studies of Moerman-Coetsier and Van Besien (1987) and Bol and Kuiken (1988), who respectively calculated MLU's of Flemish children, aged 2;6 - 4;6, and Dutch children aged 1;6 - 4;0. These ages resemble those in the present study, which examines children aged 1; 6 to 3;11. In both studies MLU was calculated in morphemes, approximately according to the same rules. Their MLU means differed considerably in the same age groups, while the syntactic differences between Flemish and Dutch are few. A second point is that their data showed that we may expect MLU's up to 4.66 in the age group of up to four years. As we saw above, MLU is no longer reliable when it is as high as 4.66.

The conclusion of the above discussion must be that MLU is not acceptable as a standard measure to stratify language samples into sequential stages of syntactic development in the present study.

The clause element as the standard for measurement of syntactic development

Having discarded age and MLU as indices for syntactic stratification, a new indexation technique for spontaneous language samples is proposed. Syntactic measures of spontaneous language generally have words, morphemes and sometimes syllables as their standards for measurement. The standard for measurement introduced in this study is the clause element. The term clause element refers to Subject, Verb, Complement and Adverbial (or in different terms: the verb and its arguments/the verb and its subject, complements, modifiers and specifiers). The reasons for opting for the clause element as a primary unit in speech and consequently as a standard for measurement in child speech, are twofold. They are given below.

1. Theoretically oriented studies of adult speech.
Clark and Clark, in their handbook *Psychology and Language* (1977), summarized the evidence concerning the role of the clause element in the language of adults (for references consult Clark and Clark, chapters 2 and 7) as follows.
a. Intuitive grouping of words into clause elements generally coincides with linguistically defined clause elements as proved experimentally by Levelt (1970, 1970, 1974) and Martin (1974).
b. Fodor and Bever (1965) hypothesized that "the unit of speech perception corresponds to the clause element". In a series of experiments, they collected evidence that listeners isolate and identify clause elements and from their connection build propositions for the interpretation of sentences.
c. In planning and executing a sentence, the clause element is a major unit. One study that presented evidence for this hypothesis reported that speech errors like repetitions and false starts generally leave the clause element intact (Maclay and Osgood 1959). Furthermore, the allocation of sentence rhythm takes account of the clausal element. Levelt illustrated this point with the following sentences:
(1) (The widow) (discussed (the trouble)) (with her son)
(2) (The widow) (discussed (the trouble with her son))
The sentence rhythm of these sentences differs in that there is a "slight

rhythmic/melodic caesura after *trouble* in (1), but not in (2)" (Levelt 1989: 166).

2. Descriptive studies of child language.
Evidence from descriptive studies in child language points to the fact that the clause element is a fundamental unit in language acquisition. Wells, in the most extensive study to date describing the acquisition of English, came to the following conclusion.

> Defined in terms of clusters of coemergent items and ofsignificant ordering between at least some members of each cluster, there appear to be seven stages in the developing control of sentence structure. In this sequence the most obvious characteristic is the increase in the number of con- stituents involved as the child progresses from one stage to the next. Generally speaking, Simple Active Affirmative Declarative sentence types of a given number of constituents emerge before the equivalent interrogative types... .
> (Wells 1985, 198)

Clahsen (1982) reported similarly. Though his categories of clause structure were not fully equivalent to those in Wells's or this study, he concluded there is a systematic expansion of the sentence by the growing number of constituents. In devising LARSP, based on the literature concerning normal language development, Crystal, Fletcher and Garman (1976) characterized the Stages II, III and IV of the simple declarative sentence on clause level by the use of two, three and four (or more) clause elements.

On the evidence of the empirically tested theories concerning the central position of the clause element and the descriptive studies professing the strong developmental significance of the clause element, I hypothesize that the number of clause elements in the child's utterances is an indication of the syntactic level of the child. A special point must be made in this respect concerning the various sentence types. Wells's findings that interrogative sentences of a certain number of clause elements develop after declarative sentences with the same number of clause elements, suggested that declarative sentences must be distinguished from other sentence types. Theoretically this is an attractive proposition: producing a question might well be a more complex linguistic act than producing a declarative sentence. This implies that the question is produced later than the declarative sentence and that it will be shorter than the declarative sentences acquired in the same period. I shall assume that interrogative, and imperative, sentences of n clause elements are acquired at the same time as declarative sentences containing $n+1$ clause elements.

Dutch and English child language development may be expected to differ in the systematic increase of the number of clause elements in the sentence. Spoken Dutch has an abundance of special types of modality adverbs, sometimes three consecutively in one sentence. This phenomenon, which is already part of the language of children under four, may have an impact on the stable increase of clause elements across development. Observations of language-impaired children suggested to me that the modality adverbs were to be seen as clausal elements in their own right in developmental respects.

3.3.3 A pilot study

In order to introduce the clause element with some confidence as the standard for measurement of an index to stratify the language samples in the main study, a pilot study was drawn up. In this study the following three hypotheses were tested:

1. Emerging Dutch as a first language shows a systematic increase in the number of clause elements (S, V, C and A) in its declarative sentences of up to five clause elements, and in its interrogative and imperative sentences of up to four clause elements.
2. Yes/no- and *wh*-questions and imperative sentences have one clause element less than the declarative sentences developed in the same period.
3. Multi-clause sentences are hypothesized to develop after the stage in which children begin to use declarative sentences with five clause elements. From the literature it is not clear when multi-clause sentences are acquired. Wells (1985: 219) stated that the boundary between his levels VI and VII, in the latter of which the complex sentences emerge, is less clearly defined than the boundaries between the other levels.

Apart from these issues, the pilot study served to investigate the definitions of the relevant syntactic categories.

Method

Fourteen subjects in the age range 1;6 - 3;6 were observed in subsequent monthly sessions. Thirteen of these were observed for six months.[2] One subject, Daantje, was observed by the author for 30 months from the age of 1;6 to 3;11. Samples of spontaneous language of the fourteen subjects were taken and analysed in sentence types and clause elements.

The results of the pilot study confirmed the three hypotheses. The findings are not presented in detail as they are tested again in the main, cross-sectional, study. To exemplify the results, Daantje's emerging clause structures in his language samples from the age of 21 to 47 months are shown in table 3.3. Daantje's language samples consisted of 200 utterances. All new structures occurred at least in two types; observations 6, 7, 9, 12, 17, 18, 19, 25, 26 and 27 yielded no developments in the area of clause element structures.

Table 3.3 *The emergence of clause structures in Daantje's corpus. The numbers of the observations and the age in months (m). X may denote any clause element.*

Observation	Declarative	Interrogative	Imperative	Multi-clause sentence
3: 21 m	C+V			
	A+X			
4: 23 m	S+C			
	S+A			
	S+V			
	A+V			
	Neg+X			
5: 24 m	S+V+A			
	A+A+X			
	S+V+A+A			
6: 25 m	S+V+A+C			
7: 26 m			V+X	
10: 29 m	V+A+C	yes/no: V+S+X		
12: 31 m		Wh+V+S		
13: 32 m		yes/no· V+S+X+X		
15: 34 m	S+V+A+A+A			
16: 35 m	S+V+C+A+A			
	S+V+C+C			
17: 36 m				coordination
18: 37 m		Wh+V+S+X(+X)		
22: 41 m				complement clause
23: 42 m				adverbial clause
24: 43 m			V+X+X	
28: 47 m	six elements			

Additional results of the pilot study are:
1. The first imperative sentences emerge in stage 3.
2. The first interrogative sentences emerge in stage 4.
3. Declarative two-element structures including negation or a particle do not reach the criterion of acquisition in stage 2, but in stage 3.
4. Six-element declarative structures and complex clauses emerge in the same period, after stage 5, denoted as stage 6. Five-element interrogative and imperative sentences sometimes occur during this period.
On the basis of these results a developmental scale of clause element structure was drawn up, as is shown in table 3.4.[3]

Table 3.4 *The developmental scale of clause element structure: Stages II - VI*

Stage	Declarative	Interrogative	Imperative	Multi-clause sentence
II	2 elements (excluding negation and particle)			
III	3 elements negation + 1 element particle + 1 element		1-2 elements	
IV	4 elements	1-3 elements	3 elements	
V	5 elements	4 elements	4 elements	
VI	6 or more elements	5 elements	5 elements	coordination subordination

3.4 STRATIFYING THE LANGUAGE SAMPLES

In this section the Clause Element Index is proposed as an index of syntactic ability in Dutch children under four years of age. The 100 samples of the spontaneous language samples in the cross-sectional study are distributed or stratified across seven Syntactic Stages according to this index.

3.4.1. The Clause Element Index

The 100 language samples in the corpus of the cross-sectional study were analysed into Analytic units. The Analytic units were coded for the various sentence types (declarative, imperative, interrogative and one-clause, multi-clause), and the number of clause elements in these sentences. With the help of these codings the language samples were indexed, or stratified, to the subsequent stages of syntactic ability displayed in table 3.4. The following frequency criteria were used.

1. A language sample is indexed on the basis of its longest utterances, 'longest' referring to the maximum number of clause elements.
2. The criterion for 'maximum number' is that 5% of the Analytic units in a language sample shall contain *n* clause elements for a language sample to be indexed as Stage *n* (interrogative and imperative sentences are calculated as having an extra clause element).

The syntactic codings together with the frequency criteria constitute the Clause Element Index (CEI), which was used to index or the 100 language

samples in the cross-sectional study to seven developmental Syntactic Stages. The indexation of Chantal's language sample to Stage IV furnishes an example. In her 200-utterance sample Chantal had 59 Formulae and consequently, 141 Analytic units. Note that an Analytic unit may or may not contain a clause structure; it may also consist solely of one simple or complex phrase. Chantal needed a minimum of 7 clause structures (5% of 141) in a particular stage for her sample to be indexed to that stage. Her language sample was analysed at clause level as follows.

Stage II:	36 clause structures
Stage III:	52 clause structures
Stage IV:	13 clause structures
Stage V:	2 clause structures
Stage VI:	0 clause structures
Stage VII:	0 clause structures

Chantal did not produce sufficient Stage-V clause structures for her to be classified as Stage V; her 2 Stage-V structures were added to her 13 Stage-IV structures, which resulted in 15 (11%), clause structures of at least Stage-IV level, which is more than the required criterion. Chantal's Stage-IV structures are 5 four-element declarative structures, 1 three-element yes/no question, 4 three-element wh-questions, 2 one-element wh-questions, and 1 three-element imperative sentence.

The 5% criterion is not completely arbitrary. Considering that it is a criterion for the emergence of structures, not mastery, the required percentage should not be too high. If a criterion of 10% had been selected, children classified as functioning at a particular stage would already produce quite a few utterances in the subsequent stage in which case thát would be the stage which might be said to be emerging. A percentage lower than 5% might lead to false classifications if smaller samples were considered. In a language assessment session, a maximum of 60-70 utterances can be obtained (Groenhuis and Goorhuis-Brouwer 1991). As we shall see in section 3.5.2, around 40-50 of these are Analytic units, which leads to a requirement of 2 to 3 clause structures in a particular Syntactic Stage for the sample to be indexed to that Syntactic Stage. A percentage lower than 5% would make one such structure sufficient; this might easily result in a false indexation of the language sample and consequently in a faulty assessment.

3.4.2 The distribution of the language samples across the Syntactic Stages

The indexation of the language samples of the 100 subjects by means of the CEI resulted in seven groups of language samples, the stage corpora, pertaining to the Syntactic Stages I - VII. In figure 3.3 the distribution of the 100 samples is shown graphically and in table 3.5 the numerical details concerning the distribution are given.

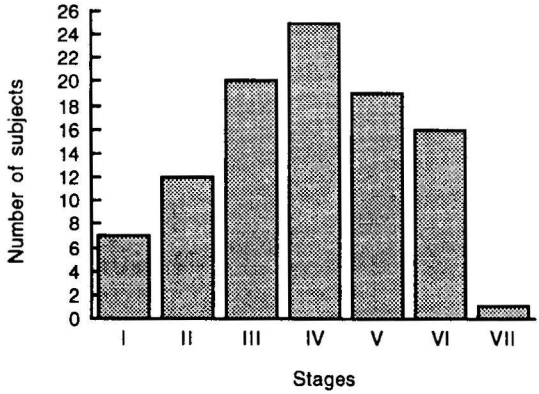


Figure 3.3 *The distribution of the 100 subjects across the seven Syntactic Stages.*

Table 3.5 *Number of subjects in seven Syntactic Stages; Boys and Girls with socio-economic background A and B; mean age in years and months, mean age in days, intervals between the means and the standard deviation from the mean age in days.*

Stage	n	Boys A	Girls A	Boys B	Girls B	Mean Age in years	Mean Age in days	Interval between age means	SD
I	7	2	3	1	1	1; 9	641		48
								61	
II	12	3	2	7	-	1;11	702		88
								148	
III	20	8	2	3	7	2;4	850		174
								199	
IV	25	9	5	4	7	2;10	1049		172
								149	
V	19	2	10	4	3	3;3	1198		151
								52	
VI	16	1	3	6	6	3;5	1251		129
VII[a]	1				1				

a. The one subject in Stage VII is considered as Stage VI in all calculations

Table 3.5 displays age, sex and SES variables in the stage corpora I - VII. The mean ages of the subjects in the stage groups show a clear rise with a bottom effect between Stages I and II, and a ceiling effect between Stages V and VI. Standard deviations in Stages III and IV, in which there is no bottom or ceiling effect, are nearly equal. Differences between boys and girls, and the two levels of socio-economic background, A and B, are discussed in chapter 6 (1.3). In the same section of chapter 6 the correlation between age and Syntactic Stage will be discussed.

3.5 ASSIGNING THE STRUCTURES TO THE STAGES OF SYNTACTIC DEVELOPMENT

3.5.1 Subject Frequency and Token Frequency

Apart from the need for an indexation technique to stratify the language samples, the description of syntactic development poses two frequency problems in connection with the determination of the order of acquisition of syntactic structures.

1. What percentage of subjects in a stage corpus should use a target structure for it to be entered as developing in that Syntactic Stage? The criterion here is arbitrary to a certain extent, but again it should be realized that determining emergence is the issue at hand. Some structures are more frequent in a language than others; within the limits of one language sample a less frequent structure may fail to appear although it is part of the child's system. Therefore a 50% criterion was maintained, which means that whenever 50% of the language samples in a stage corpus contained a particular structure, this structure was entered as emerging in that particular Syntactic Stage. This type of frequency, which pertains to the number of subjects in a stage corpus using a structure, will be referred to as the Subject Frequency of that structure.

2. How many instances of a structure should a language sample contain for that structure to be considered part of the child's language system? In child development generally, a newly acquired ability is "present sometimes, absent sometimes, depending on the specifics of the task situation and perhaps other factors" (Flavell 1985: 27). A newly developing syntactic structure, for example, the plural of nouns or the use of a subordinate clause is at first used occasionally, and gradually generalizes to other contexts, to different representations and different uses of the structure. In assessing the linguistic abilities of the child, this creates a problem. Should the single use of a structure or a restricted number of occurrences be taken as an indication that a structure has been or is being developed? Or should the child show evidence of mastery of a structure by using it in all obligatory contexts? The latter option was chosen by Brown (1973) in his study of the morphological development of Sarah, Eve and Adam. For non-morphological syntactic structures the requirement of obligatory contexts cannot be assessed in spontaneous language, which means that mastery is not a possible target in the present study. My aim is the description of the emerging structures during the early phases of their development.

Criteria for emergence are bound to be arbitrary to a certain extent. As was set out in 3.3.1, the influence of structure's frequency in the language itself should be minimal. Wells discussed the various frequencies of different structures in language samples and arrived at the conclusion that a single token of a structure can serve as evidence of its emergence, with the restriction that the structure should also be produced in a subsequent language sample in his longitudinal study. The samples in his project contained a minimum of 100 utterances (Wells 1985: chapter 3). Bloom (1970) adopted a criterion of five different tokens of a structure in her samples of different sizes as evidence that the structure was within the child's linguistic ability (for a discussion of this high criterion see Bowerman in Bloom, Lightbown and Hood 1975 and

Verhulst-Schlichting 1984). In the present study, Wells's criterion is applied that one occurrence or token of a structure in a language sample is regarded as evidence of its emergence in the child's syntactic system. Wells's safeguard of the required presence of the structure in a subsequent language sample is not possible in the present investigation. Frequency pertaining to the number of occurrences or tokens of a structure in a particular language sample will be referred to as Token Frequency.

In the literature the one-token criterion is sometimes criticized as leading to overestimation because of the possible occurrence of the target structure in routine phrases, which might suggest knowledge of a structure that is not productive. However, the advantage of a single-token criterion is that it is only arbitrary in one direction: it can only lead to over-, never to underestimation.

3.5.2 Description of structures

As was described in section 3.2.2, utterances are divided into two main groups: Formulae and Analytic units. The mean numbers of Analytic units in the 200-utterance language samples, per Stage corpus, were as follows:

Stage I:	110.1
Stage II:	135
Stage III:	142.6
Stage IV:	143
Stage V:	143
Stage VI:	143.1

The highest percentage of Formulae occurs in Stage I. It decreases rapidly and Stages II - VI have a remarkably stable mean number of Formulae, around 28.5%.

All Analytic units were analysed at multi-clause level, clause level and phrase level, including morphological structures. Structures were entered as emerging in a particular stage, if the criterion of Subject Frequency and Token Frequency was met. For example, in Stage IV with a stage corpus of 25 language samples, the present perfect just reached the criteria for emergence because it occurred in 13 language samples.

The sequence of the acquisition of structures of the one-clause and multi-clause sentences is described in chapter 4. In chapter 5 the development of the verb phrase is presented. The TARSP scale (Appendix 1) lists these and the other developing structures in the order in which they emerge across the seven developmental stages. This order is based on the Subject Frequencies of structures. The alternative to using Subject Frequencies as an ordering principle is Token Frequencies and indeed most structures show increasing Token Frequencies across the Syntactic Stages. However, this effect is not as systematic and robust as is the increase of Subject Frequencies, as we shall see in chapter 6.

Notes

1. Comparing these criteria with those in the first-50-word study discussed in chapter 2, the

group B criterion is in accordandance with that for group 1 of the first-50-word study; group A is comparable to groups 2 and 3 of the first-50-word study jointly.

2. My thanks are due to the following graduate students, who carried out the longitudinal studies, and their subjects: Ria van Adrichem en Bas, Kees van der Wal en Willem, Marina Pex en Sylvie, Ad Trum en Mathijs, Moniek van Ieperen en Nico, Marijke Hetsen-Ettema en Marieke, Job van Zuijlen en Fabian, Alice Westers-van Oord en Dirk-Jan, Frank Wijnen en Nick, Marian Morelli-Kaiser en Jeroen, Olga van Itallie en Marc, Marga Cardinaal en Cindy, Anneke Westendorp en Lodewijk.

3. The structures which are assumed to emerge in Stage VII will be described in a forthcoming paper. They are briefly mentioned in Schlichting (1993).

Chapter 4

The Clause

This chapter describes the development of the various clause types. Section 4.1 outlines the structure of the various clauses in adult language. Section 4.2 presents the hypotheses concerning the development of clause structure in the language of Dutch children up to four years of age. Sections 4.3, 4.4 and 4.5 deal with developing sentence patterns: section 4.3 with the independent declarative sentence, section 4.4 with the interrogative and imperative sentences and section 4.5 with the multi-clause sentences with coordination and with subordination. These sections describe the emergence and frequencies of clause structures in the six developmental Syntactic Stages which were defined in chapter 3. In section 4.6 the hypotheses with regard to frequencies of structures are discussed, while section 4.7 deals with the hypotheses on variations and errors in the order of clause elements.

4.1 THE STRUCTURE OF THE CLAUSE IN ADULT SPEECH

In this section the elements of clause structure and their order in subordinate and independent clauses is described. I shall limit myself to the structures and to the issues relevant to the description of syntactic development in Dutch children under four.

4.1.1 Elements of clause structure

A clause is a unit that can be analysed into the elements subject, verb, complement, object and adverbial (Quirk et al. 1984: 342).
The following clause elements are distinguished in the present study:
1. Subject (S). The subject is realised by noun phrases.
2. Verb phrase (V). This comprises all verbs in the clause. Verbs are finite (Vf) or nonfinite (Vnf).
3. Complement (C). This category comprises five subcategories:
Direct object, Prepositional object, Indirect object, Complement to the subject (nominal part of the predicate) and Complement to the object. Complements are realised by noun phrases, prepositional phrases, adjectival phrases or complement clauses. Complement clauses may be nonfinite or finite. The subcategorization of the direct object, O, in the larger category of C deviates

from the traditional analyses. The reason is that for practical reasons the number of categories in the analysis of sentence structures must be limited (see also Crystal et al. 1976). In the description of word order the subcategory direct object, O, will be used as a category by itself.
4. Adverbial (A). The adverbial is realised by adverb phrases, prepositional phrases, noun phrases, and adverbial clauses. Adverbials are not distinguished as to whether they qualify the whole sentence or part of the sentence. An adverbial may be an obligatory argument to the verb.
The symbol X is used to represent any possible element.

Additional categories of clause elements are distinguished in the earliest structures:
1. The particle of the separable prefix verb (PTL) is coded distinctively when it occurs without its verbal part in two-element utterances, because it cannot be analysed as an adverbial or a compliment due to the lack of context (for examples see section 4.3.2 (38).
2. A negating word (NEG). Generally, negation is coded as an adverbial. Negation is coded separately in two-element utterances, because in the early stages the negating words are not always adverbials. Kaper (1975) and Ter Hedde (1987) describe early sentences with negation in which the interjection *nee* 'no' constitutes the earliest negating element.

4.1.2 The order of clause-elements in subordinate and independent clauses

In Dutch the order of clause elements in subordinate and independent clauses differs. The order of elements in the subordinate clause is SOV. Theoretically this is considered the basic word order in Dutch according to transformational grammar (Koster 1975). In surface structure the basic order in the independent clause depends on the perspective taken. Frequency as an indicator of basic word order in the independent clause (Hawkins 1983) would result in different basic word orders depending on whether the finite verb or the lexical verb are indicative of basic word order. In *zij drinkt Vf thee* 'she drinks tea' the finite verb is the lexical verb, whereas in *zij wil Vf thee drinken Vnf* 'she wants to drink tea' the modal verb is the finite verb and the lexical verb coincides with the nonfinite verb. If the position of the lexical verb, whether finite or nonfinite, is indicative of word order in Dutch, basic word order probably is SOV. If the finite verb is taken as a criterion, the basic order probably is SVO or VSO.

A language may have a fairly rigid word order, like English, or have a greater degree of flexibility in its word order. In Dutch there is a difference between the subordinate clause, which has a fairly rigid order, and the independent clause, which has a more flexible order. The various positions of the elements of clause structure, V, S, O and A, in subordinate and independent clauses is described in the following subsections. Instances are from adult interlocutors in the corpus of the present study.

The position of the verb

In the finite subordinate clause, V is rigidly in final position as in (1). In a complex verb phrase Vf may precede or follow Vnf as in (2) and (3).

(1) *(je denkt) dat het mannetje S ook A loopt Vf*
(you think) that the little man also walks

(2) *(kijken) of ik S die O kan Vf maken Vnf?*
(look) if I that can make (shall I see) if I can fix it?)

(3) *(en wat doet ie) als ie S de deur O weer A dichtgedaan Vnf heeft Vf?*
(and what does he) when he the door again shut has
(and what does he do) when he has shut the door again?)

In the independent simple or main clause Vf is rigidly in first or second position: in second position in the declarative sentence as in (4), (5) and (6) and in the *wh-question,* as in (7); in first position in the yes/no question and the imperative sentence, as in (8) and (9). Vf is in first position in the declarative sentence if the first element is null. This is discussed below.
The complex verb phrase in the independent clause is discontinuous, with Vf in first or second position and Vnf in final position, as in (5). A separated prefix verb, e.g. *vasthouden* 'to hold', has Vf in first or second position and the particle (PTL) in final position, as in (6).

(4) *we S maken Vf hem O nou A een beetje anders C*
we make him now a little bit different
(we'll make it a little different now)

(5) *je S kunt Vf het O straks A maken Vnf*
you can it presently make (you can make it in a minute)

(6) *ik S hou Vf 'm O vast PTL*
I hold it tight (I 'll hold it)

(7) *wat O ga Vf je S dan A doen Vnf?*
what go you then do (what are you going to do?)

(8) *lust Vf je S wel A patatjes O?*
like you indeed chips (are you sure you like chips?)

(9) *pak Vf jij S je potloden O maar A!*
take you your pencils just (you take your pencils!)

The position of the subject

The position of S in the subordinate clause is rigid in that it follows the subordinator and precedes V, as in (1), (2), and (3).

In the independent declarative sentence the canonical or neutral order is generally assumed to be SVO and the position of S in the prefield, before the finite verb, is unmarked. If O or A are fronted to first position S is in the middle field, following the finite verb. Fronting of O/A takes place mainly for reasons of (1) discourse cohesion (Levelt 1989: 271; Quirk et al. 1984. 947) and (2) contrastive focus (Givón 1988: 275). The reason for fronting relates to the type of coding. According to Givón's code-quantity principle the degree of predictability/accessibility/continuity (focus) of referents relates to the amount of phonological material which is used (Givón 1988. 249). If fronting of O/A takes place to express discourse cohesion, the informational status of O/A is equal to or less than that of S. The expected codings according to Givón's

rating scale are:
- option a: zero anaphora. This option results in null objects/ adverbials in initial position. The null object in (10) refers to the previous utterance of the interlocutor. In (11) it refers to the material context. In (12) the reference is identified as *dan* 'then' by the adverb *wel* 'indeed' and the intonational contour of the clause. The occurrence of null objects is not possible in German according to some linguistic theoreticians (cf. Hyams 1992), but is not uncommon in spoken Dutch.
- option b: unstressed/clitic pronoun, as in (13). Another frequent unstressed first element is the adverbial proform, as in (14).

(10) (Child interlocutor: moet hij geen hoed op? 'must he not wear a hat?')
øO mag Vf je S zelf C weten
may you self know (you can decide that for yourself)
(11) *øO heb Vf ik S om mijn nek C geknoopt*
have I around my neck tied (I have tied it around my neck)
(12) *øA schrijf Vf ik S het O wel A op*
write I it indeed down (I'll write it down)
(13) *dat O weet Vf ik S niet NEG.A*
that know I not (I don't know)
(14) *nou A moet Vf ik S hem O in bed A leggen Vnf, hè?*
now must I him in bed put, eh (I'll put him to bed. ok?)

If fronting takes place to mark O/A for contrastive focus there is less attention for S. The expected codings of O/A are:
- option c: stressed/independent/contrastive pronoun or proform. The example in (15) is of an adverbial proform.
- option d: full definite noun, as in (16).
- option e: restrictively-modified definite noun, as in (17).

(15) *zo A blijft Vf ze S niet A lang A schoon, hè?*
so stays she not long clean, eh
(she won't stay clean for long like that, will she?)
(16) *die planten O hebben Vf jullie S*
those plants have you
(17) *zo'n step O had Vf ik S vroeger A ook A*
such a scooter had I earlier too
(I had a scooter like that when I was a child)

Zero coding of the subject in first position may occur for highly accessible, easily identifiable referents. This is a common phenomenon in spoken Dutch (see Kooij 1978, Geerts et al. 1984: 967, for English see Quirk et al. 1984: 545 ff, for Hebrew see Berman 1990b). Subjects are identified by the verbal context as in (18) or by a situational context, often referring to material within sight of speaker and addressee, as in (19). Uncoded subject + non-lexical finite verb are also commonly heard, as in (20).

(18) (in a discussion on whether the tail and the head of a model horse can be removed)
øS kan Vf bij echte paarden C toch A ook A niet A?
can with real horses yet also not
(that is impossible with real horses, isn't it?)
(19) *øS past VF niet NEG* (referring to a piece of a jigsaw puzzle)
fits not (it does not fit)

(20) *ø(S+Vf/A+Vf+S) eerst A even A wat klei O pakken*
first just some clay get (I'll/we'll get some clay first)

In the *wh-question* the first position is filled by the *wh*-word, as in (7) above. S follows Vf in the *wh*-question when the *wh*-word is not the S, as in (7) above, in the independent yes/no question as in (8), and in the imperative sentence, as in (9).

The position of the direct object

The position of O in the subordinate clause is in the middle field resulting in SOV, as in (2) and (3).

In the independent clause opening with S, O follows Vf in the middle field, preceding Vnf, resulting in SVO, as in (4) and (6) and SOV, as in (5). Various elements, mostly A's may come between O and sentence-final Vnf, as in (5) and between Vf and O. O may also be in first position resulting in OVS, as we saw above.

The position of the adverbial

The position of A in the subordinate clause is mainly in the middle field between S and V; A may precede or follow O as in (3) above; some adverbials may be in the postfield, following Vnf, as in (23).

In the independent clause A's position varies widely, depending on the type of adverbial and on informational status or focus. Its place is generally in the middle field, as in (5) above. Vf and S are penetrable under certain conditions as in (21). For reasons of contrasting focus, as in (21) above and to express cohesion, as we saw in (14) above, A may be fronted. However, the sentence-initial position of A, especially when indicating time or place, may be neutral, as in (22) (Geerts et al. 1984: 946, Kooy 1978).

(21) *daar A moet Vf ook A weer A een knoop S*
there must also again a button (there should be another button there)
(22) *morgen A ga Vf je S weer A naar school A , hè?*
tomorrow go you again to school, right?
(23) *die mag jij hebben dan A, hè?*
that may you have then. eh? (you can have that one)

The position of the negative adverb in the subordinate clause is in the middle field, between S and V. In the independent clause the position of NEG depends on the scope of the negation. The neutral position is at the end of the middle field, as in (13) and (15) above. NEG and a group of related adverbs indicating notions such as addition, occurrence and recurrence (e.g. *ook* 'also', *eens* 'once', *weer* 'again') cannot be in first position to express discourse cohesion in the independent declarative sentence.

The multi-clause sentence with coordination

Two clauses which have sufficient in common to justify their combination can be linked by coordination (Quirk et al. 1984: 560). The order of elements in coordinated clauses does not differ from the order in single independent clauses.

Ellipsis of clause elements does not change the order of elements. Ellipsis is possible under certain restraints. Ellipsis of the first clause element, of the first clause element and the subject, of the finite verb, of the verbal elements in the predicate, of the finite verb and (part of) a clause element, and of three or more clause elements is possible. An example of ellipsis of the first adverbial element is (24) (for other examples see Geerts et al. 1984: 1195). In clauses coordinated by *want* 'for' ellipsis is not possible.

(24) *anders wordt het te vol en* ELLIPSIS of A *ga je knoeien*
otherwise becomes it too full and go you make a mess
(else it gets too full and you will make a mess)

Summary of the main patterns of clause elements

The main pattern of clause elements in the subordinate clause is:

Subordinator S (A) (O) (A) V (A)

The main patterns of clause elements in the independent declarative sentence are:

S Vf (A) (O) (A) (Vnf) (A)
O Vf (A) S (A) (Vnf) (A)
A Vf (A) S (A) (O) (A) (Vnf) (A)

The degree of flexibility in the position of the clause elements in the independent clause may be summarized as follows: the adverbial is most flexible, the direct object is less flexible, but more flexible than the subject, the position of the verb is inflexible. This can be expressed in the following formula indicating relative flexibility in positioning clause elements:

A > O > S > V.

4.2 RESEARCH HYPOTHESES

In this section the research hypotheses with regard to the development of the clause are formulated. A first set of hypotheses deals with the increase in mature and the decrease in immature clause structures as children develop syntactically. A second set deals with the position of the clause elements V, S, O and A in the subordinate and independent clause.

4.2.1 Validity of the CEI: frequencies of mature and immature clause structures

In this investigation syntactic development has been indexed with the CEI, the Clause Element Index (see chapter 3). Generally, children are assumed to use more mature structures and fewer immature structures as their syntactic ability

develops. If the CEI is valid, children indexed to higher Syntactic Stages produce more mature and fewer immature structures than children indexed to lower Syntactic Stages.

Validation is a broad concept, which mainly deals with the question of the adequacy of measures. I have adopted Cronbach's point of view, as formulated in *Essentials of Psychological Testing*, that all validation is essentially construct validation (Cronbach 1984: 126). The first question with regard to the validity of the CEI concerns content validity: are we dealing with syntax when analysing clauses into clause elements? I assume that this is so on the basis of structuralist grammar tradition generally, and on the basis of English LARSP (Crystal et al. 1976), in which the first level of analysis deals with the clause element.

The main question of the validity of the CEI, and consequently of the Dutch scale of syntactic development as presented in TARSP (Schlichting 1993), concerns the element of clause structure as the basic unit in the indexation of developing syntactic ability. Do the populations indexed as Stage groups I - VI show development in their use of the syntactic system, and consequently, does the CEI have psycholinguistic reality? The main evidence for the validity of the CEI is internal (see Groot 1990). I find it in the changes in frequencies of the various structures. Children are expected to show a growing number of mature clause structures and a declining number of immature clause structures, as they develop syntactically according to the CEI. This is the first hypothesis which is tested in this chapter. Mature clause structures are defined as containing a verb phrase and as occurring with some frequency in adult Dutch; immature clause structures are defined as containing no verb phrase and as absent or infrequent in adult Dutch. (A subject is not considered essential to the early mature sentence in spoken language, as subjectless sentences are not uncommon in spoken Dutch; see section 4.1.)

Hypothesis 1.1
As children develop syntactically according to their indexation by CEI, clause structures which contain a verb and occur with some frequency in adult Dutch become more, and clause structures which do not contain a verb and are absent or infrequent in adult Dutch become less frequent.

The hypothesis is subdivided into two subhypotheses. One deals with the increase of mature structures, the other with the decrease of immature structures. The two are not interdependent: children may use more structures with verbs, but retain their use of the verbless structures. As was stated in chapter 3, two types of frequency are distinguished, viz. Subject Frequency (SF) and Token Frequency (TF). The reader will recall that SF refers to the number of subjects within a Stage corpus in whose speech samples a particular structure occurs, and that TF refers to the number of tokens of a particular structure in a speech sample. Hypothesis 1.1 is operationalized in the following two subhypotheses:

1.1.1 Clause-element structures which contain a verb and occur with some frequency in adult Dutch, increase in Subject and Token Frequencies from the Stage in which they emerge up to Stage VI.

1.1.2 Clause-element structures which do not contain a verb, and which are

absent or infrequent in adult Dutch, show a decrease in Subject and Token Frequencies in Stage VI as compared to the earlier Stages.

The frequencies in Stages I - VI of the declarative, interrogative and imperative independent clause structures and the multi-clause sentences are presented in sections 4.3 - 4.5. It is not possible to compare the growing syntactic ability of children with the syntactic characteristics of the language of adults, because data from the spoken language of adults is generally not available. Therefore the frequencies in the most advanced stage of development, i.e. Stage VI, are assumed to have a predictive value as regards the structures occurring in adult speech.

Increase and decrease of frequencies are defined as follows:
- Evidence of an increase in SF is defined as a rise in percentages of subjects using the relevant structure, from Stage I to Stage VI (declines under 10% are ignored).
- Evidence of a decrease in SF is defined as a decline of 15% in Stage VI as compared to SF in a previous Stage, calculating from the Stage when the structure reaches the criterion of 50%.
- Evidence of an increase in TF is defined as a total rise of two in the mean TF in Stage VI as compared to the mean TF in the Stage when the structure reaches the criterion of 50%.
- Evidence of a decrease in TF is defined as a decline of two in the TF in Stage VI as compared to the highest mean TF in Stages I - V. By these definitions Stage-VI structures cannot show a rise or decline in Token Frequency; these structures will not be taken into account in the TF calculations.

Developmental patterns in SF and TF other than rise and decline are treated as 'stabilizing'. These include U-curves.

4.2.2 Order of clause elements

Correct word order

Word order is a major issue in the study of syntactic development. An assumption in generative child language research is that the child is able to use word orders which are not part of the adult system as a stage in the acquisition of verb placement (Clahsen and Muysken 1986, Hyams 1992, Gawlitzek-Maiwald, Tracy, and Fritzenschaft 1992, Meisel and Müller 1992). In contrast, the literature of the 1960s and 1970s shows that maintaining the correct word order with the omission of sentence elements was considered one of the major features of child language. The term used to characterize early child language was 'telegraphic speech' (Brown 1973: 74). Brown & Fraser (1963) described telegraphic speech in spontaneous utterances as follows:

> For the striking fact about the utterances of the younger children, when they are approached from the vantage point of adult grammar, is that they are almost all classifiable as grammatical sentences from which certain morphemes have been omitted.
> (as quoted by Brown 1973: 76).

Slobin (1973) formulated the same principle in his Operating Principle Universal C2 as follows:

> Word order in child speech reflects word order in the input language.
> (Slobin 1973: 197)

Klein concluded from his study of two Dutch children and their mothers that:

> Dutch children in producing utterances mirror the order preferences of their mothers and do not go outside the range of orders that is offered to them.
> (Klein 1974: 20)

The above three claims form the basis of hypothesis 1.2a.

Hypothesis 1.2a
The order of the elements of clause structure in Dutch children's independent declarative, interrogative and imperative sentences and in subordinate clauses is in agreement with the order in Child Directed Speech. (The order in Child Directed Speech is taken to be in agreement with the order in adult language.)

The canonical sentence schema

If an input language has several orders for a set of items, which order is acquired first by the child? The neutral order in Dutch surface structures is assumed to be SVfO. As we saw in section 4.1.2, declarative sentences in adult spoken language, including first sentences of a spoken or written text, may open with A or O, resulting in A/OVS. The reason for fronting varies, but is mostly prompted by discourse cohesion. Slobin and Bever (1982) assumed that children start out with one basic sentence pattern, a canonical sentence schema as the basic format for their sentence comprehension/production development. They proposed that: "... children construct a canonical sentence schema first, ...as a framework for the application of productive and perceptual strategies". This canonical schema is the neutral pattern of a language, as for example SVO for English. Slobin and Bever argue that the canonical form SVO is not the most frequent order in the input of English to children. Children are assumed to have a critical ability to identify canonical forms in their language. If Slobin and Bever's assumption with regard to early sentence patterns holds, early Dutch sentences may also be expected to have the SVO format. This leads us to hypothesis 1.2b. Because early sentence patterns in Dutch often have an A as a third element, the hypothesis is extended to sentences with A.

Hypothesis1.2b
The first generally acquired order of S, Vf and O/A in Dutch child language is SVfO/A.

To judge the word order in a child's one-clause or multi-clause sentence, this sentence is paraphrased or inflated to form a complete sentence, while preserving the child's order of elements. This will be called the Principle of

Inflation. I shall rely on this Principle for the explanation of word orders and base my analyses on it. Thus, only structures deviating from the adult models in their ordering of clause elements require an explanation.

Technical Note

The child utterances in sections 4.3 - 4.4 exemplify the independent structures emerging in Syntactic Stages II - VI. Examples are given of all structures meeting the criteria of emergence. If a structure occurs in more orderings in the Stage in which it emerges, examples are given of these orderings. In section 4.5 a selection of the orderings in multi-clause sentences is exemplified.

All sentences without a finite verb (except for some *wh* -questions) are unmarked as to sentence type; they have been classed as declaratives. Sentences with declarative word order and interrogative or imperative intonation/function have also been coded as declaratives.

In the abbreviations of the verb phrase, V in first or second position always indicates a finite form. If Vf has been realized, a possible nonfinite verbal complement (infinitive, past participle or particle) is not coded. V in final position is always nonfinite; in these cases the clause contains no finite verb. The notation Cop for Copula always indicates a finite verb form. Sentence-initial omissions of clause elements have been noted for most structures from Stage III. The symbol '+' indicates that clause elements are combined in a structure without reference to the order of these clause elements.

Instances of structures in the forthcoming sections are from the Stage corpora in which these structures emerge, consequently they are early specimens of those structures. Glosses have been provided if necessary. The terms 'structure' and 'construction' are used as synonyms.

4.3 THE DEVELOPING DECLARATIVE SENTENCE

In this section the clause patterns of emerging declarative sentences are given. Generally, two-element structures emerge in Stage II, three-element structures in Stage III etc. up to Stage VI.

4.3.1 The declarative sentence in Stage II

In Stage II most two-clause-element structures emerge.

Subject + Complement

Both subject - object constructions, as in (25) and copular constructions, as in (26) occur. The subject is always the first element in these constructions.

(25)	SC	*mama koek* mummy biscuit (mummy has a biscuit)	Pieter
(26)	SC	*poppie leuk, hè?* doll nice, right? (the doll is nice, isn't it?	Chantal

Subject + Adverbial

Both possible orders of S and A occur, as in (27) and (28).

(27)	SA	*die hier* that (one) here	Pieter

(28) AS *hier die* MaartenL
here that (one)

Complement + Verb (including Copula)
Direct object and prepositional object constructions occur with the order CV, as in (29) and (30); copular constructions occur with Cop as a first element, as in (31).

(29) CV *beertje pakken* Julia
little bear get (get the little bear)
(30) CV *auto kijken* Bob
car look (I want to look at the car)
(31) CopC *is een molen* MaartenV
is a mill

Subject + Verb
In a few instances the deviant order VS is found (see section 4.7.1). Other constructions all have the order SV, as in (32). V is mostly nonfinite.

(32) SV *die happen* (points at photograph) MaartenL
that (one) eat (he/she is eating)

Adverbial + X
The two-clause-element structures A + A, A + V, and A + S are coded as A + X. In the A + V constructions V is mostly nonfinite and final, as in (33).

(33) AV *hier zitten* Pieter
here sit (I want to sit here)

In figures 4.1 and 4.2 Subject and Token Frequencies of the Stage-II declarative sentences are shown. The SF of the verbless S+C drops sharply after Stage III; it is typically an immature structure with a low frequency in adult language. Other SF's show increases or stable frequencies across the Stages. The TF's all show a decline from Stage III (A+X) or from Stage IV.

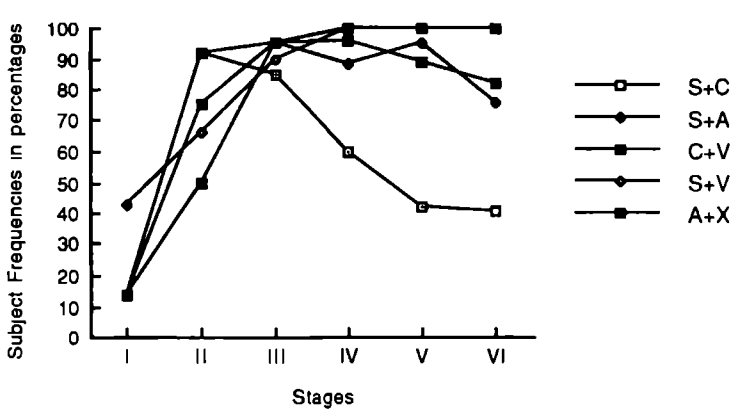


Figure 4.1 *Subject Frequencies of Stage-II Declarative sentences.*

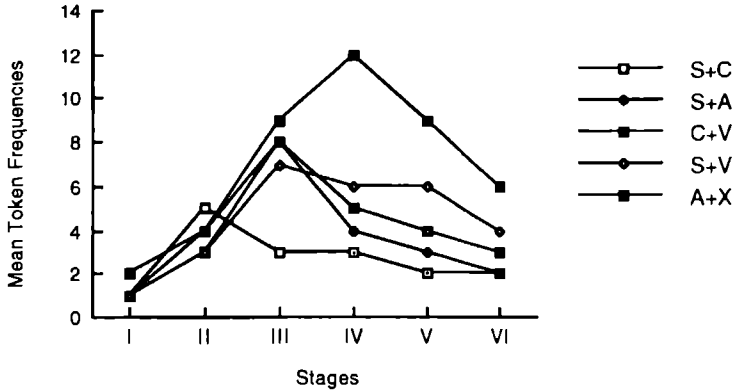


Figure 4.2 *Token Frequencies of Stage-II Declarative sentences.*

4.3.2 The declarative sentence in Stage III

In Stage III two two-clause-element structures and a number of three-clause-element structures emerge.

Subject + Verb + Complement

In Stage III the direct object follows the finite verb, as in (34) or precedes the nonfinite verb as in (35). The direct object is between the finite and nonfinite verb, in (36). In the copular constructions the order is always SCopC, as in (37).

(34)	SVC	*jij hebt meisje* you have girl	Bianca
(35)	SCV	*Kimm poppie pakken* Kimm little doll get (Kimm wants to get the doll)	Kimm
(36)	(øA)VSC	*ga ik eitje koken* go I little egg boil (I am going to boil an egg)	JaapJan
(37)	SCopC	*auto is kapot* car is broken	Claudia

Subject/Complement/Adverbial + PTL

In two-clause-element structures containing PTL are coded S/C/A + PTL. In (38) the function of the clause element other than the PTL cannot be determined, it may be S or C. In three-element-clause structures PTL is coded as A, as in (40), or C. PTL is always the second element in these constructions.

(38)	S/CPTL	*mut(s)je op* hat on (he has his hat on/the hat is on)	Wouter

Subject + Verb + Adverbial
This construction occurs in all orders which are possible in Dutch.

(39)	SAV	*mama even drinken* mama just drink (mama must have a drink)	Claudia
(40)	SVA	*deze kan aan* this can on (you can put on this sock)	Marije
(41)	SVA	*dat kan niet* that cannot (that can't be done)	Danny
(42)	(øA)VSA	*gaat ie zo* goes it so	JeffreyV
(43)	AVS	*nou moet die andere* now must the other (now the other bead should be put on)	Eliette

X + Negation
Two-element-clause structures with a negation are coded as X + Neg, as in (44) and (45). In three-element-clause structures NEG is coded as A, as in (41) above. In constructions with a verb, NEG follows the finite verb and precedes the nonfinite verb.

(44)	VNEG	*kan niet lopen* cannot walk	JeffreyV
(45)	S/CNEG	*paardje niet* little horse not	Lude

Adverbial + Adverbial + X
Some of these combinations are verbless, as in (46). Mostly the verb is finite and in first position, as in (47), or nonfinite and in final position, as in (48).

(46)	SAA	*die ook nog* that (one) also yet (that one must be put in also)	JaapJan
(47)	(øS)VAA	*kan niet in* cannot in (you cannot put it in/it does not fit)	Johnny
(48)	AAV	*nog eventjes pakken* yet just get	Claudia

Subject + Adverbial + Complement
The two orders occurring are SAC, as in (48), or the less frequent ASC, as in (49).

(48)	SAC	*mama ook schwa bee beetje* mamma also eh little bit (mummy also wants a little bit)	Vanetta
(49)	ASC	*nou Marije nat* now Marije wet (now Marije is wet)	Marije

Verb + Adverbial + Complement
The so called 'prodrop' constructions with a null subject, as in (50) and (51), have a finite verb as their first element. The other constructions in which the subject as well as the finite verb are null have a nonfinite verb as their last clause element, as in (52).

(50)	(øS) CopAC	*is ook klaa(r)* is also finished	Desmond

(51)	(øS)VAC	*moe(t) niet bal*		Johnny
		must not bal	(I don't want a ball)	
(52)	(øS,øAux)	*even die doen*		Eliette
	ACV	just that do	(I'll just do that one)	

Figures 4.3 and 4.4 show Subject and Token Frequencies of the Stage-III declaratives. The SF's of structures containing S and V reach 100% in Stage IV. The SF of verbless S+A+C drops sharply after Stage III; it is typically an immature structure with a low frequency in adult language. The SF's of other structures, including subjectless V+A+C, are 60% or more in Stage VI. The TF's of structures containing S and V show a steady increase towards Stage VI. Other structures show frequencies from 2 - 4 across the Stages.

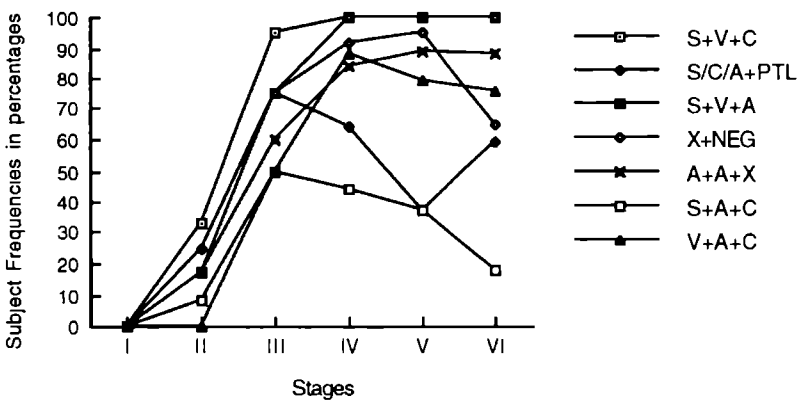


Figure 4.3 *Subject Frequencies of Stage-III Declarative sentences, with the legend showing the order of emergence.*

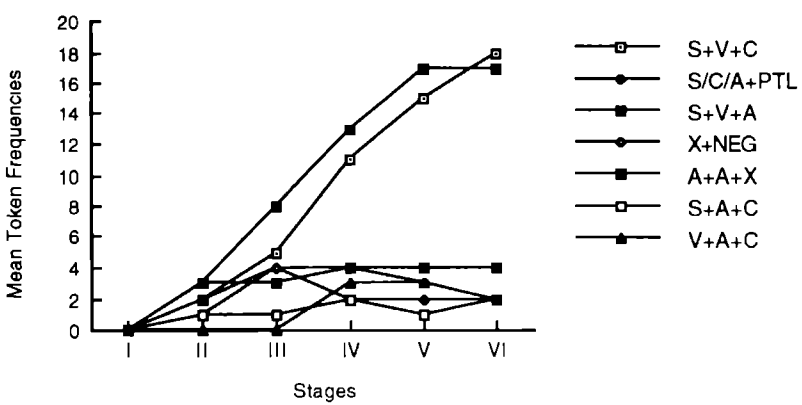


Figure 4.4 *Token Frequencies of Stage-III Declarative sentences, with the legend showing the order of emergence.*

4.3.3 The declarative sentence in Stage IV

In Stage IV two four-clause-element structures emerge.

Subject + Verb + Adverbial + Complement
Six orders with a finite verb occur, as in (57) - (62). Apart from sentences opening with a null complement, they constitute all the orders that occur in adult language. Constructions without a finite verb occur only in the order, SACV as in (63).

(57)	SVAC	*jij mag ook een* you may also one (you can have one too)	Famke
(58)	SVCA	*ik ga Snoopy niet opdrinken* I go Snoopy not finish (a drink in a mug with a Snoopy picture) (I won't finish my drink)	Joram
(59)	ACopSC	*nou is ster weg* now is star gone	Floortje
(60)	CVSA	*dat kan ie niet* that can he not	Wilger
(61)	(øA)VSCA	*heeft eentje allemaal sneeuw in de oog* has one all snow in the eye (one has snow in his eye)	Wilger
(62)	(øA)VSAC	*moet je ook e tas* need you also schwa bag (do you also need a bag)	Jan
(63)	SACV	*ik even anner (=ander) bakje pakken* I just other dish take	Gemma

Subject + Verb + two Adverbials
All the orders that are possible in adult language occur, as in (64) - (66).

(64)	SVAA	*die mag ook op tafel* that may also on table (we'll put that also on the table)	Floortje
(65)	AVSA	*hier ga ik weer* here go I again	Jeroen
(66)	(øA)VSAA	*gaan die weer gauw weg* go those again quickly away	Wilger

In figures 4.5 and 4.6 Subject and Token Frequencies of the Stage-IV declaratives are shown. The SF's of both structures increase towards 100% in Stage VI. The TF's show a steady increase, with S+V+A+C being more frequent than S+V+A+A.

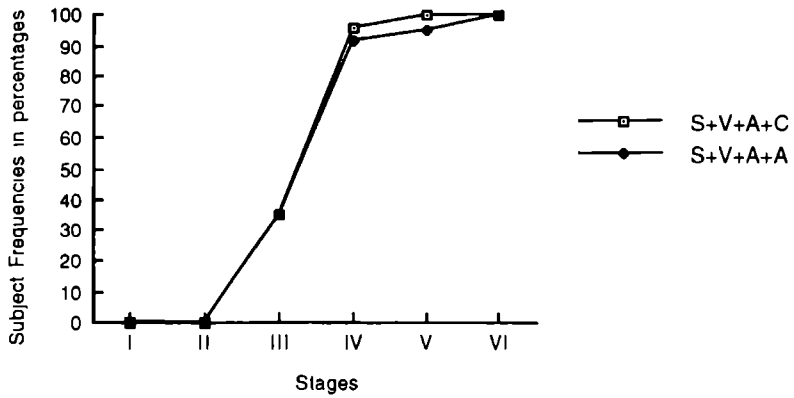


Figure 4.5 *Subject Frequencies of Stage-IV Declarative sentences, with the legend showing the order of emergence.*

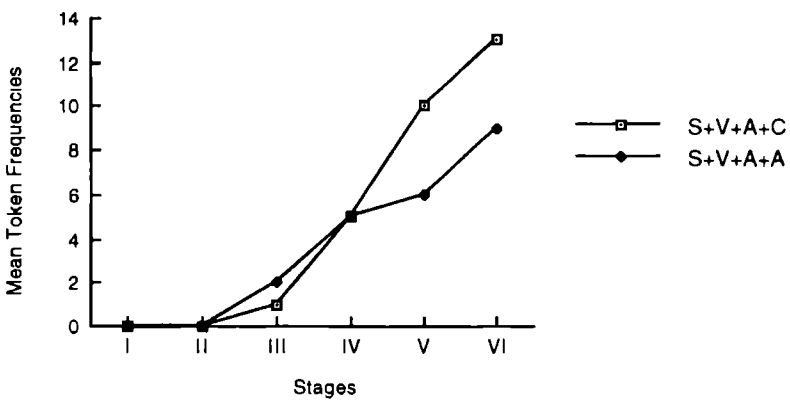


Figure 4.6 *Token Frequencies of Stage-IV Declarative sentences, with the legend showing the order of emergence.*

4.3.4 The declarative sentence in Stage V

In Stage V five-clause-element structures emerge and four- or five-element structures with two complements.

Subject + Verb + Complement + two Adverbials
All the orders that are possible in sentences with an overt first element occur, as exemplified in (67) - (72). Two orders with a null first element occur, as in (73) and (74).

(67) SVACA *ɪk heb nou een kam d'rbɪj* Ramon
I have now a comb as well

(68)	SVAAC	*we gaan nu even (er)mee spelen*	Debbie
		we go now just (it)with play (we'll play with it now)	
(69)	SVCAA	*hij kan (kent) mij ook niet*	Wendy
		he knows me also not (he doesn't know me either)	
(70)	AVSCA	*een keertje heb ik wat in mijn schoen gedaan, hè?*	Mark
		one time have I something in my shoe done, what?	
(71)	CVSAA	*die lus(t) je toch wel?*	Priscil
		that like you indeed indeed? (you like that, don't you?)	
(72)	AVSAC	*nou doe ik even de ruit*	Sofie
		now do I just the window pane	
(73)	(øA)	*kan je zo sleutel in stoppen*	Marscha
	VSACA	can you so key in put (you can put a key in it like that)	
(74)	(øA)	*kan je die nog niet d'rop*	Amerens
	VSCAA	can you that not yet there-on (you can't put it on yet)	

Subject + Verb + two Complements (+ Adverbial)
Alternative codings for C have been added: Od (direct object), Oi (indirect object), Cs (Complement to the subject), Co (Complement to the object). The orders that are possible in adult language are all found, as in (75) - (79). Constructions with a null first element do not occur.

(75)	SVCAC	*wij eten 't niet met een sausje*	Yvette
	(SVOdACo)	we eat it not with a sauce	
(76)	SVCCA	*ze gaan allemaal wat in de schoen doen, hè?*	Mark
	(SVCsOdA)	they go all something in the shoe put, won't they?	
(77)	SVACC	*ik ga even een doekje pakken voor m'n vieze kleren*	Kees
	(SVAOdCo)	I go just a rag take for my dirty clothes	
(78)	CVSAC	*dat hondje vind ik niet leuk*	Jurre
	(OdVSACo)	that dog think I not nice (I don't like that dog)	
(79)	AVSCC	*dan moet ik mama een handje geven*	Carola
	(AVSOiOd)	then must I Mummy a hand give (I have to hold Mummy's hand)	

Subject + Verb + three Adverbials
All commonly used orders of S+V+A+A+A occur. Examples with overt fronted adverbials are (81) and (82). Some possible orders with a fronted null adverbial occur, as in (83) and (84).

(80)	SVAAA	*die moet ook maar weg*	Amerens
		that must also just away	
(81)	AVSAA	*nou zijn we weer thuis*	Kees
		now are we again home	
(82)	AVAAS	*daar zit toch ook stekker*	Debbie
		there sits yet also plug (there's a plug too, isn't there?)	
(83)	(øA)	*moet er weer hier eentje*	Mark
	VAAAS	must there again here one (one should go there)	
(84)	(øC)	*doe ik zo weer d'nn doen*	Debbie
	VSAAA	do I so again there-in put (I'll put it in again)	

Figures 4.7 and 4.8 show Subject and Token Frequencies of the Stage-V declaratives. The SF's increase towards 76-88% in Stage VI. The TF's increase towards means of 2 - 4.

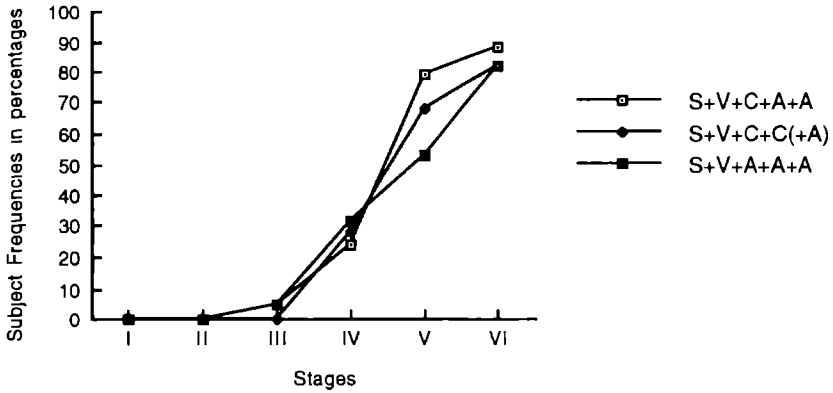


Figure 4.7 *Subject Frequencies of Stage-V Declarative sentences, with the legend showing the order of emergence.*

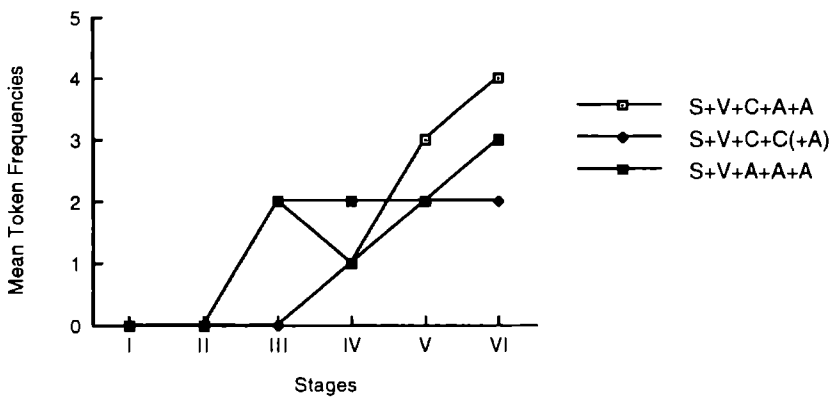


Figure 4.8 *Token Frequencies of Stage-V Declarative sentences, with the legend showing the order of emergence.*

4.3.5 The declarative sentence in Stage VI

Structures with six clause elements emerge in Stage VI.

Six clause elements

This category comprises all six-or-more-element declarative structures. The clause elements are: subject + verb, a maximum of two complements, and a maximum of five adverbials. The total of these structures in the Stage-VI corpus is 26; they show 12 different patterns. Out of these 26 structures 21 have VS order as in (85) - (87); 14 open with *(en) dan* '(and) then', as in (86), 3 open with *(en) nou* 'and now', 2 open with other adverbials, 1 opens with a null adverbial and 1 opens with a complement; 5 have SV order.

(85)	AVSCAA	*dan legt hij die zo op de rug* then puts he that so on the back	Davey
(86)	AVSAAA	*en dan gaat ie zo weer onder* and then goes he so again under	Fenneke
(87)	AVSCAC	*als ie nou op de boot staat kan ik 'm niet eten geven* if he now on the boat stands can I him not food give	Krista

For Subject and Token Frequencies of the Stage-VI declaratives see Schlichting (1993).

4.4 THE DEVELOPING YES/NO QUESTION, WH-QUESTION AND IMPERATIVE SENTENCE

4.4.1 The developing yes/no question

In Stages II and III the frequency of the yes/no question is too low to reach the criterion for emergence.

The yes/no question in Stage III

Tag: hè?
In Stage III the tag-construction takes some of the functions of the yes/no question, as in (88) and (89).

(88)	*ja, hè?* yes, right?	NickyV
(89)	*een toren bouwen, hè?* a tower build, right? (we are going to build a tower, aren't we?)	Sjors

The yes/no question in Stage IV

Verb + Subject (+ X)
The order in this construction is VS(X)by definition, as in (90) - (93). The two-element yes/no question, as in (93) is infrequent, due to the frequently required presence of an obligatory argument or the frequent addition of an adverbial.

(90)	VCopSC	*is-t-ie zwart?* is it black?	Floortje
(91)	VSC	*wil jij huisje maken?* will you little house make (will you make a house?)	Nico
(92)	VSA	*mag ik nog?* may I yet (can I have another one?)	Gemma
(93)	VS	*komt papa?* comes daddy	Kevin

The yes/no question reaches the criterion in Stage IV. In Stage III only 3 out of 20 subjects produce a yes/no question. This requires an explanation, because the main elements of yes/no questions seem to have been acquired already in

Stage III: declarative sentences containing a subject and a finite verb in VS order are produced regularly, as in (36) and (43) above. The yes/no question is also frequent in the input. I conclude that yes/no questions are more complex than declarative sentences with VS order. This may be only a matter of syntactic complexity, but also of a social-cognitive development. As the child develops she gradually becomes more communicative, and more aware of her interlocutor as a person who may be questioned. In terms of the 'theory of mind' (Baron-Cohen 1996), the child must learn that her interlocutor thinks differently than she herself does, and that his mind may be questioned.

The yes/no question in Stage V

Verb + Subject + two X's

The yes/no question with two clause elements following verb and subject emerges in this Stage. An instance with two adverbials is (94). The ordering of complement and adverbial varies, as in (95) and (96).

(94)	VSAA	*zal ik eens zo doen?* shall I once so do (shall I do like this?)	Amerens
(95)	VSCA	*gaan we (er)nog een een uit de auto halen?* go we yet one (rep) out the car get? (are we going to get another one from the car?)	Kees
(96)	VSAC	*moet ik dan rood gooien?* must I then red throw (should I throw red?)	Yvette

The yes/no question in Stage VI

Verb + Subject + three/four X's

A variety of possible orderings is found, as in (97) - (101).

(97)	VSACA	*zal ik eens hier een helicopter van maken?* shall I once here a helicopter from make	Hendrik
(98)	VSAACC	*heb jij wel eens op televisie gezien, dat ze deze stokken hadden?* have you ever once on television seen that they these sticks had	Davey
(99)	VSCAA	*zullen we dit even opzij zetten?* shall we this just aside put	Renske
(100)	VSCAC	*vind je dat niet leuk?* find you that not nice	Sander
(101)	VSAAA	*zal we stiekum even de'in dopen?* shall we secretly just therein put	Wouter

Figures 4.9 and 4.10 show Subject and Token Frequencies of the yes/no questions. The SF's of the tag question and of four- and five- element questions show a steady rise. The SF of the two/ three-element yes/no question shows a dip in Stage V. The TF of yes/no questions generally show an increase, with a fall of the Tag in Stage VI. The reason is probably that by then the syntactic yes/no questions are more readily available and that the child needs no longer to rely so much on the Tag to ask yes/no questions.

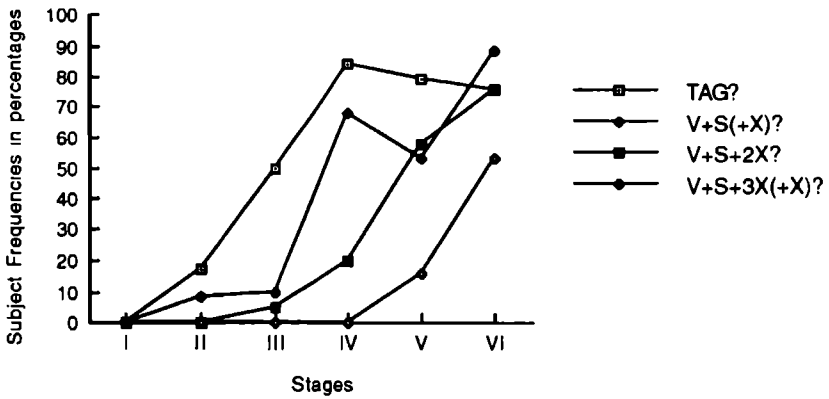


Figure 4.9 *Subject Frequencies of yes/no questions, with the legend showing the order of emergence.*

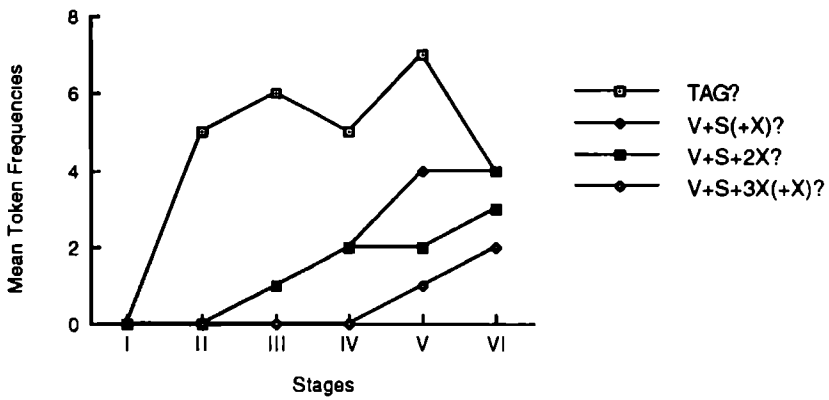


Figure 4.10 *Token Frequencies of yes/no questions, with the legend showing the order of emergence.*

4.4.2 The developing *wh*-question

In Stages II and III the frequency of the *wh-question* is too low to reach the criterion for emergence.

The wh-question in Stage IV

Wh + X (+ X)

Wh-questions in Stage IV open with *wat* 'what' (SF=14), *waar* 'where' (SF=13), and *wie* 'who' (SF=4). In Stage IV only Chantal produces an utterance consisting of a single *wh*-element, as in (104), immediately following her full question (103). The one-element *wh*-question is by definition elliptical

and therefore probably more complex than the full *wh*-question. Sometimes the *wh*-element is dropped as in (118) (for frequencies of wh-dropping see figures 4.11 and 4.12 and section 4.7). The øwh-question never reaches the criterion for emergence. This type of question also occurs in adult language under certain constraints. Question inversion is always applied, as in (102), (103) and (106). Only one ordering of the Wh-word, V and S is possible; only this order occurs.

(102)	*Wh*CopS	*wat zijn dat?* what are they?	Joyce
(103)	*Wh*VS	*waar is ie?* (looking for a brick) where is it?	Chantal
(104)	*Wh*	*waar?* where?	Chantal
(105)	*Wh*VA	*wie zit daarop* who sits thereon	Eliette
(106)	(ø*Wh*)VS	*moet ie?* must it? (where does it go?)	Vanetta

The wh-question in Stage V

Wh + three X's

The *wh*-question with three clause elements usually has verb and subject following the *wh*-word. In these structures only one order of wh-word, V and S are possible, as in (107) and (108). The adverbial in final position is mostly *nou* 'now', as in (107).

(107)	WhVSA	*hoe kan dat nou?* how can that now	Amerens
(108)	WhVSC	*waarom heb je deze meegenomen?* why have you this taken	Ramona

The wh-question in Stage VI

Wh + four X's

Two clause elements follow verb and subject in this construction, as in (109) - (111). In Stage VI most questions still open with *wat* 'what' and *waar* 'where', but children in this Stage vary more in their use of interrogatives. *Hoe* 'how' is used by two subjects in Stage V, as in (107) above, and by nine subjects in Stage VI; *waarom* 'why' is used by two subjects in Stage V, as in (108) above and by five in Stage VI. In (111) we see clitic *wat* 'what'.

(109)	WhVSAA	*waar is ie nou weer?* where is it now again (I can't find it)	Krista
(110)	WhVSCAC	*waarom vind je dat niet leuk?* why think you that not nice (why don't you like it?)	Sander
(111)	WhCop SAA	*'t is dit ook alweer?* what is this also again	Michiel

Figures 4.11 and 4.12 show Subject and Token Frequencies of the *wh*-questions. The SF's of *wh*-questions with realized interrogative pronouns rise steadily. The SF's of the ø*wh*-question drop from Stage V. Only *wh* + two elements has SF's over 50%. The TF's of *wh*-questions generally rise, with a

sharp decrease in the *øwh*-question from Stage IV.

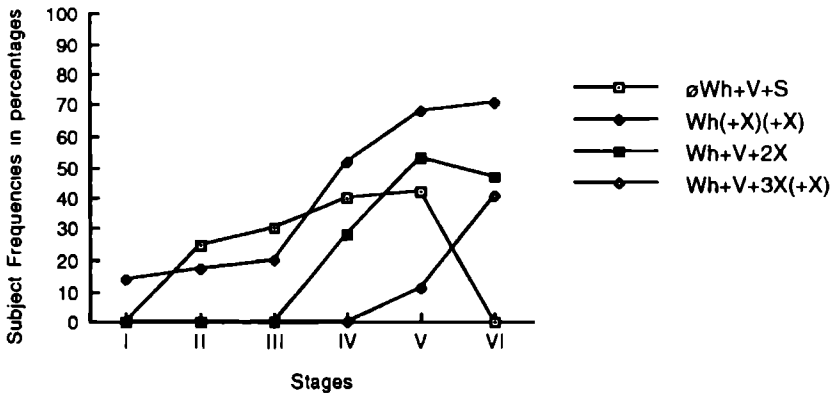


Figure 4.11 *Subject Frequencies of wh-questions, with the legend showing the order of emergence.*

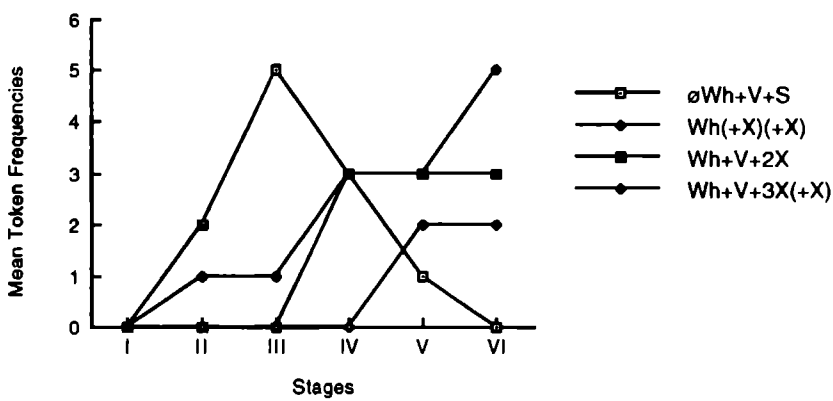


Figure 4.12 *Token Frequencies of* wh-*questions, with the legend showing the order of emergence.*

4.4.3 The developing imperative sentence

In Stage II the frequency of the imperative is too low to reach the criterion for emergence. Some stereotypes are found in Stage II, for example, *kijk es!* 'look!'.

The imperative sentence in Stage III

Verb (+ X)

The imperative by definition opens with a verb. Consequently only one ordering is possible here, as in (112).

(112)	VA	*kijk hier!* look here!	Danny

The imperative sentence in Stage IV

Verb + two X's

Rules of word order in the imperative are less flexible. Verb and subject can only be ordered as VS, as in (113). The order of clause elements is generally in agreement with orderings in adult language, as in (113) - (116).

(113)	VSA	*doe jij eens!* do you once (you do it!)	Pascal
(114)	VAA	*kijk eens in de kamer!* look once in the room	Joyce
(115)	VCA	*leg die hier!* put that here	Lisa
(116)	VAC	*zeg eens: 'plastic auto'* say just: 'plastic car'	Jan

The imperative sentence in Stage V

Verb + three X's

Instances of this construction, all in agreement with adult ordering, are (117) - (120). (131) shows periphrastic *doe* 'do' with the sentence-final infinitive of the same verb *doen* 'do'.

(117)	VSCA	*maak jij het daar schoon!* make you it there clean	Kim
(118)	VSAC	*doe jij eens de raam!* do you just the window	Debby
(119)	VSAA	*let jij even goed op!* mind you just well	Andries
(120)	VAAA	*doe maar even hier doen !* do just just here do	Priscil

The imperative sentence in Stage VI

Verb + four X's

An instance of this structure is (133).

(133)	VCAAA	*leg hem dan maar op de kast!* put him then just on the cupboard	Davey

Figures 4.13 and 4.14 show Subject and Token Frequencies of the imperative sentences. The SF's of the one/two and four-element imperatives rise steadily, the three-element imperative in Stage IV shows a sudden rise. The TF's of

imperatives range from 1 - 3. The incidence of the imperative sentence is highly dependent on the setting. The setting was not favourable for its occurrence, because the relationship between observers and subjects was not close.

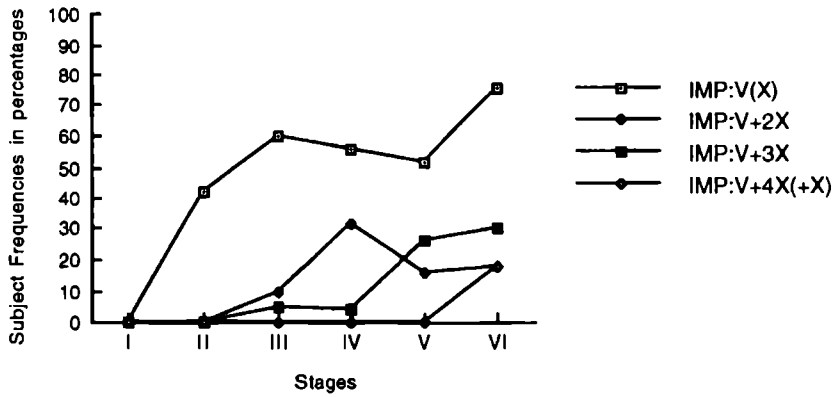


Figure 4.13 *Subject Frequencies of imperative sentences, with the legend showing the order of emergence.*

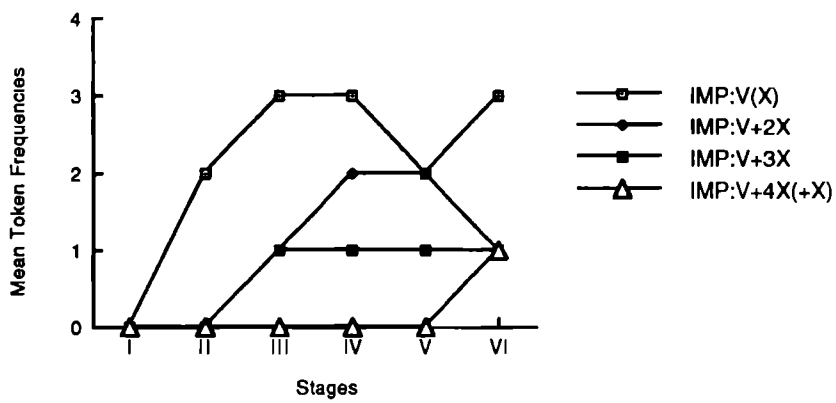


Figure 4.14 *Token Frequencies of imperative sentences, with the legend showing the order of emergence.*

4.5 THE DEVELOPING MULTI-CLAUSE SENTENCE

4.5.1 The multi-clause sentence: age of emergence and frequencies

Multi-clause sentences with coordination and subordination emerge in Stage VI. The age of acquisition of the multi-clause sentence is a point of diverse opinions in the literature. This is of importance because theoretical conclusions are based on the age of emergence. The period of emergence mentioned is often the

second half of the third year (see e.g. Bowerman 1979; Meisel and Müller 1992); the subjects in these studies are mostly middle class; parents often have a university background. In Wells's study of English children with a full range of Social Economic Status (SES), the age of emergence of multi-clause sentences was set at Level VII, mean age of emergence is 3;6. Wells's study has criteria for emergence which are comparable with those in the present study (Wells 1985: 280). The age at which Dutch children with varied SES acquire multi-clause sentences is more in agreement with Wells's figures than with those in the theoretical literature. An important Dutch source for this type of information is a study of 42 Dutch boys from three SES groups with a mean age of 3;6 (Van der Geest, Gerstel, Appel and Tervoort 1973). One hundred utterances per subject were sampled during the daily activities in the nursery playroom. Out of the 4200 utterances 39 contained a subordinating conjunction (1%). Out of these, 28 occurred in the language samples of the highest SES group.

The results of the present study support the findings of Wells and Van der Geest et al. In table 4.1 the incidence of multi-clause sentences across the age groups 2 - 5 of the present study is displayed. Age groups consist of 20 subjects. Of the total of 80 subjects, 22 produce one or more multi-clause sentences with coordination, 28 one or more with subordination. The following are the results per age group.

- Age group 2;6-3;0: 3 subjects use coordination, 5 subordination.
- Age group 3;0-3;6: 10 use coordination, 7 subordination.
- Age group 3;6-4;0: 9 use coordination, 16 subordination.

Table 4.1 *Subject Frequencies of multi-clause sentences with coordination and subordination (including direct speech) in Age groups.*

Age group	Boys Group A	Girls Group A	Boys Group B	Girls Group B	Total
Multi-clause sentences with coordination					
2;0-2;6 n=20	-	-	-	-	0
2;6-3;0 n=20	-	1	1	1	3
3;0-3;6 n=20	1	4	2	3	10
3;6-4;0 n=20	2	2	3	2	9
				Total	22
Multi-clause sentences with subordination					
2;0-2;6 n=20	-	-	-	-	0
2;6-3;0 n=20	-	1	3	1	5
3;0-3;6 n=20	1	2	-	4	7
3;6-4;0 n=20	2	4	5	5	16
				Total	28

The striking subgroup is the male subjects of low SES (group A, see chapter 3 (1.1)), of whom only 4 out of 20 produce a multi-clause sentence. (cf. female subjects of the same SES, of whom 8, male subjects of high SES, of whom 11 and female subjects of high SES, of whom 10 out of 20 produce multi-clause sentences (for discussion see chapter 6.))

4.5.2 The multi-clause sentence with coordination

Defining the multi-clause sentence with coordination

The corpus of the present study contains 77 multi-clause sentences with coordination between independent clauses (CcC). Coordinated subordinate clauses do not occur. Coordinated clauses are linked by *en* 'and', *maar* 'but' and *want* 'for'. The multi-clause sentence with coordination is distinguished from:

a. Asyndetic coordination. Two clauses have a logical relation but no overt marking of coordination; linkage is effected by intonation. Asyndetic coordination has a total frequency of 3 in the present corpus.

b. A single clause introduced by a coordinator. Coordinators used to introduce of independent clauses are produced earlier and with greater frequency than in their linking function. In the language of the adults in the present corpus the coordinator is far more frequent in its introductory function.

c. Weak semantic linkage. Sometimes an independent clause following another independent clause is introduced by *en* 'and', rather than being semantically linked to the first clause. The coordinator seems to be used as a means to hold the attention of the listener, perhaps to give the child speaker time to plan the next utterance. In the analysis these clauses were not coded as coordinated.[1]

d. Phrasal coordination. VP+VP coordination, as in (134), is treated as a coordinated sentence. NP+NP coordination, as in (135), is treated as phrasal coordination. If the coordinator does not immediately follow the first phrase, the sentence is analysed as coordinated, as in (136).

(134)	*we gaan kerstboom versieren en eten* we go christmas tree decorate and eat	Domin
(135)	*die kan onder water, want die heb dit en dit en dit en dit* can under water, for that has this and this and this and this	Arthur
(136)	*zit heel veel chocola in en witte dingetjes* sits very much chocolate in and white little things	Michiel

The CcC is co-emergent with the multi-clause sentence with subordination and with phrasal coordination (see Appendix 1).

Coordinators

In Stages IV and V there is one occurrence of *maar* 'but'; in all other CcC's *en* 'and' is used. In table 4.2 the incidence of the coordinators in the Stage-VI corpus is given. The most frequent coordinator is still *en* 'and'.

Table 4.2 *Coordinators in multi-clause sentences with coordination in the Stage-VI language samples (n=16).*

	Subject Freqency	Token Frequency
en 'and'	13	35
want 'for'	6	2.2
maar 'but'	4	1.0

Quirk et al. (1984: 561) distinguish eight semantic relationships in the coordination by *en* 'and'. They are similar to relationships in Dutch (Geerts et al. 1984: 1097 ff.). The occurrences of these relationships in the Stage-VI multi-clause sentences with coordination are as follows:

1 Second clause is consequence/result of first	4
2 Second clause is chronologically sequent to first	12
3 Second clause introduces contrast	8
4 Second clause is comment on first	-
5 First clause has concessive force	-
6 First clause is condition of second	-
7 Second clause makes point similar to first	14
8 Second clause is purely additional to first	3

The main categories in the present corpus are 'second clause makes point similar to first', as in (121), and 'second clause is chronologically sequent to first', as in (122). Contrast is used in 8 instances, as in (123). It is often difficult to distinguish 'contrast' from 'second clause makes point similar to first'. There are five incongruent statements in which linkage is semantically very weak, as in (124).

(121)	*je moet daarin en je moet daarin* you must there-in and you must there-in	Wouter
(122)	*nou is het boek uit en nou ga je even boven kijken* now is the book finished and now go you just upstairs look	Arthur
(123)	*jij hebt zoveel en ik heb er eentje* you have so much and I have there one	Timo
(124)	*en dit moet zo en hier kan ie niet bij* and this must so and here can he not with (this should go here and it can't be added here)	Krista

Categories in which the second clause presents a comment on the first or sentences in which the first clause has a conditional or concessive meaning with regard to the second are not used by children in the early phase of the acquisition of sentential coordination. Bloom, Lahey, Hood, Lifter and Fiess (1980) reported from their longitudinal study that all of the different meaning relations expressed by *and* occur in their corpus, which samples the language of four children up to around 36 months of age. The difference in their results with those in the present study may be ascribed to their number of categories for semantic coding of *and*, which is four, compared with eight in this study, and, possibly, to the size of their samples (ranging from 15,000 - 19,000 utterances). The use of *maar* 'but' is often semantically inadequate, as in

Arthur's (125).

(125) *en die geeft stukjes aan de hond, maar dat mag niet van pappie*
and he gives pieces to the dog, but that is not allowed by Daddy

Ellipsis

A main syntactic aspect of coordination is ellipsis: the non- realization of one or more elements in one clause if co-referential with the same lexical element(s) in a linked, mostly preceding, clause. In child-language research some attention has been given to this aspect of development (cf. Bowerman 1979, Ardery 1980, Bloom, Lahey, Hood, Lifter and Fiess 1980, Lust and Mervis 1980). Generally ellipsis in the early coordinated sentences should be viewed with some caution. The syntactic level regarding length and complexity in the coordinated clauses is weak. Consequently, what looks like ellipsis in a particular clause may be a deletion caused by performance limits.

In the corpus of Stage-VI coordinations 13 out of 63 items are linked by *want* 'for', which does not permit ellipsis. Ellipsis cannot take place in exactly 50% of the sentences with coordination by *en* 'and' and *maar* 'but'. The reason is mainly that there are no co-referents in the two linked clauses, as in (126). In some cases the first clause has an omission or a null first element, which makes ellipsis in the second clause impossible, as in (127). In (128) ellipsis of S or Vf is impossible because the changed order of S and Vf does not permit ellipsis.

In the Stage-VI corpus, various types of ellipsis occur (see table 4.3); the direction of ellipsis is always forward. Ellipsis of S is rare; an instance is (129). Ellipsis of Vf takes place in most cases, as in (130). An instance where ellipsis takes place by referrring to the whole predicate of the preceding clause by means of an adverb of modality or recurrence is (131). Ellipsis of the finite verb or subject is not possible in clauses with different orders of S and Vf.

In Stage VI, children fail to apply ellipsis in 50% of possible instances (see non-ellipsis in table 4.3). Lust and Mervis (1980) studied forward and backward ellipsis in American English child language. In their study, 88% of well-formed sentential coordinations (n=40) contained some form of (non-elided) redundancy. The reason for this high percentage of nonellipsis is to be sought mainly in their analysis of identical lexical elements in second clauses as redundant. However, these elements often have different referents. A sentence like *that's a daddy and that's a daddy* is analysed as having a nonreduced redundant subject in the second clause (Lust and Mervis 1980: table 5). I suggest that, probably while pointing to a model toy or picture, the child refers to two different items which makes the subject in the second clause obligatory (see also Ardery 1980). An objection can also be raised to the analysis of a repeated verb form with a different function as redundant, as in *that's a sink and he's taking a bath in there.*

In the present corpus non-ellipsis of Vf is the most frequent category, see (132). The reason is possibly that ellipsis of Vf is a frequent category in the adult language.

(126) *komt er niet water in z'n ogen en daarom moet dat* Arthur
comes there not water in his eyes and therefore must that
there's no water coming into his eyes and therefore that should be done

(127)	*en øA+øVf+øS nog even Pino kijken en dan gaan we naar bed* and still just Pino look and then go we to bed	Domin
(128)	*want ik heb geen geld en dan ga ik alle ijsjes opeten* for I have no money and then go I all icecreams eat	Kim
(129)	*Zwarte Piet staat hier en gaat eten geven aan het paard* Black Peter stands here and goes food give to the horse (Black Peter stands here and starts feeding the horse)	Krista
(130)	*dan ben jij weer en dan ik weer* then are you again and then I again (then its your turn and then it's mine)	Timo
(131)	*die kan een vis opeten en die niet* that can a fish eat and that not (he can eat a fish and he can't)	Arthur
(132)	*jij was moeder en ik was vader* you were mother and I was father	Rozem

Table 4.3 *Frequencies of Occurrence of ellipsis and non-ellipsis in the Stage-VI multi-clause sentences with coordination by* en *'and' and* maar *'but' (n=50).*

Types of Ellipsis used	
Ellipsis of S	1
Elipsis of Vf	2
Ellipsis of S+Vf	4
Ellipsis of S+A	1
Ellipsis of S+Vf+A	2
Ellipsis of whole predicate	2
Total	12

Possible Ellipsis not used	
Non-ellipsis of S	1
Non-ellipsis of Vf	8
Non-ellipsis of S+Vf	1
Non-ellipsis of A/O	3
Total	13

No ellipsis possible	
Nonidentical referents	17
Omission of element in first clause	5
Topicalization of A/O	2
Other	1
Total	25

4.5.3 The multi-clause sentence with subordination

This section deals with the subordinate clause, introduced by a subordinator, with or without a superordinate or main clause. It is confined to structures with the main elements of the adult subordinate clause. The acquisition of the subordinate clause in Dutch, and in German, implies acquiring a new structure (Rothweiler 1989: 8). The new elements are:
1. the use of the indicators of subordination;
2. the placement of Vf in final clause position.
Before acquiring the multi-clause sentence with subordination, in Stage V, children are capable of producing five-clause-element declarative sentences.

The adverbial clause

The Adverbial clause and the Complement clause emerge at the same time according to the criteria. There is a total of 31 sentences consisting of Main clause (Mc) + Adverbial clause (Ac), 30 of these are linked by *als* 'when/if'. In Stages IV and V, the order of Mc + Ac is mostly AcMc, as in (133), see table 4.4. In Stage VI, 6 subjects use the AcMc order and 7 use the McAc order; an instance is (134). If Mc follows Ac it may open with the correlator *dan* 'then', as in (135). In Stage VI, 4 out of the 16 subjects use this correlator (see table 4. 4).

The subordinator *als* 'if/when' may introduce a temporal clause, as in (134) or a conditional clause; as in (135). The subject frequency of The temporal meaning is used far more often than the conditional meaning (see table 4.4).

(133)	AcMc	*maar als het leeg is ga ik nog meer inschenken* but when it empty is go I still more outpour but when it is empty I'll pour out some more	Chantal
(134)	McAc	*mag je op mijn sokken als ik op schoot zit* can you on my socks when I on lap sit	Rozem
(135)	AcMc	*als je zo doet, dan gaat ie zo doen* if you so do, then goes it so do	Fenneke

Table 4.4 *Subject Frequencies of Adverbial clauses in the Stage-IV, -V, and -VI language samples. Ac = Adverbial clause; Mc = Main clause.*

	Stage IV	Stage V	Stage VI
AcMc	1	5	6
McAc	-	1	7
AcMc: *als ... dan* 'if/when ... then'	1	3	4
als temporal	1	4	9
als conditional	-	2	4
Ac; ø Mc	4	4	5

In 13 speech samples a single Ac without Mc occurs; in 11 speech samples they open with *als* 'if/when', as in (136), in 2 with *omdat* 'because', as in (137). From table 4.4 we learn that this type of clause is relatively more frequent in the earlier stages and may be considered easier than the combination of Mc + Ac, possibly for reasons of sentence length. The use of an Ac without an Mc is often semantically and pragmatically adequate and occurs also in adult language.

(136)	*als ik deze pakt* if I this takes	Chantal
(137)	*omdat jij een pisa(ng) bent* because you a banana are	Sander

One subject uses multi-clause sentences which are the result of blending coordination and subordination. The position of the verb *komt* 'comes' in the 'subordinate' clause is ambiguous; it is acceptable in both subordinate and main clauses. If the first clause is analysed as an Ac there is a superfluous coordinator *en* 'and' in the 'main clause', see Krista's (138).

(138) *maar als Sinterklaas komt met de boot... en dan gaat ie naar het rijtuig*
but when Sinterklaas comes with the boat ... and then goes he to the coach

The Complement clause

The finite Complement clause (Cc) emerges at about the same time as the Ac, i.e. in Stage VI, but has a lower total frequency (n=23). Cc's in the corpus can be classified as dependent statements, as in (139) and (140), or dependent questions, as in (141) and (142). The Mc is very short: out of the 4 Stage-V Mc's, 3 consist of one verb form only, the fourth consists of Vf and A. In Stage VI the mean number of words in Mc is 2.3.

(139)	*ik denk, dat die erin moet staan* I think, that that one there-in must stand	Merel
(140)	*maar het lijkt niet, of het daar past* but it seems not if it there fits	Charlot
(141)	*zoeken ,waar die is* find where that is	Hendrik
(142)	*weet je, wat ik zo leuk vind?* know you what I so nice think	Sander

In Stage IV, children acquire the verbs which are generally used as matrix verbs (see chapter 5). Burger, Jansma and Rijpma studied 162 multi-clause sentences with subordination from 15 language samples of Dutch children with a language comprehension level of 4, 5 and 6-year olds (groups 1, 2 and 3) (Burger, Jansma and Rijpma 1992: 35). The language samples were collected in a clinical setting (Corpus Kloth). To augment my material, the 20 Cc's from the Burger et al. group-1 children were included in the analysis of the verb + subordinating element combinations.
The diversity in the verb + subordinating-element combinations in the 23 main clauses with Cc's in the present study is striking: there are 13 different

combinations of the verb in the main clause, the matrix verb, and a subordinator (see table 4.5).

Table 4.5 *Subject Frequencies and Frequencies of Occurrence of the Matrix verb + subordinating-element combinations in finite complement clauses in Stages -V and -VI of the present study and the 5 Group -1 subjects of the Burger et al. study.*

	Stage V	Stage VI	Group 1 Burger et al.
Finite Complement clauses with *dat/of* 'that/if'			
Subject Frequencies	2	5	3
Frequencies of Occurrence	2	10	5
denken dat 'think that'	1	1	1
zien dat 'see that'	1	2	-
weten dat 'know that'	-	-	1
kijken of 'look if'	-	2	1
lijken of 'seem if'	-	1	-
proberen of 'try if'	-	1	-
Finite Complement clauses with *wh*-pronouns			
Subject Frequencies	1	6	5
Frequencies of Occurrence	2	9	15
denken waar 'think where'	-	1	-
zoeken waar seek where'	-	1	-
zien waar 'see where'	-	1	-
kijken waar 'look where'	-	-	2
weten waar 'know where'	-	-	2
kijken wat 'look what'	1	1	1
zeggen wat 'say what'	-	1	-
weten wat 'know what'	-	1	3
weten wie 'know who'	-	1	-
weten waarvoor 'know wherefore'	-	1	-
weten welke 'know which'	-	-	2
kijken hoeveel 'know how many'	-	-	1

As regards the verbs in the main clauses: in Stages V and VI of the present study 8 different matrix verbs are used, as against 3 in Group 1 of the Burger et al. study: *weten* 'know', *kijken* 'look', *denken* 'think' (see table 4. 5). Nearly 50% of main clauses in the Dutch complement clauses contain *kijken* 'look' as a matrix verb. Rothweiler, who investigated the acquistion of multi-clause sentences in German in a longitudinal study found a similar percentage for the incidence of *gucken* 'look' (Rothweiler 1989). In both Dutch studies 6 different subordinating elements occur. They are of the two main types: subordinators *dat* 'that' and *of* 'if', as in (139) and (140), and *wh*-elements, as in (141) and (142). In Stages V and VI the Subject Frequency of *dat* and *of* combined is 7, while 6 subjects use *wh*-elements. This indicates that both types

of subordinator emerge at about the same time.

The nonfinite complement clause

By the criteria applied, the nonfinite complement clause (subordinator: *om/voor* + infinitive with *te* ' for/in order to', no separate S, no separate Vf) does not emerge in the language of the children in the present study. There is a total of 7 instances in the corpus introduced by *om te* 'in order to', as in (143), *voor te* 'in order to', as in (144) or the ungrammatical double conjunction *voor om te* 'for in order to', as in (145). In (146) we see a nonfinite Cc without an Mc. It is interesting to compare the late emergence of the nonfinite complement clauses in Dutch, which is also reported by Burger et al., with the time of acquisition in Flemish. Vleeschauer (1986: 80) reported that in her study of 10 Flemish children aged 3;9-3;11, 9 used the nonfinite complement clause, while 4 used the finite type. The late emergence of the nonfinite complement clause in Dutch may be ascribed to a relatively low frequency in the input language.

(143)	*dit is om te eten* this is for to eat	Kees
(144)	*dit is voor te aankleden* (dit is voor aan te kleden) this is for to dress	Inger
(145)	*zet die die dingen voor om te vissen* puts he those things for in order to fish	Miranda
(146)	*om de kerstboom te versieren* for the christmastree to decorate (to decorate the Christmas tree)	Domin

The relative clause

By the criteria applied, the Relative clause (Rc) does not emerge in children under four. There is a total of 7 instances in the corpus, introduced by *wat* 'what', as in (147), *dat* 'that', as in (148), and *waar* 'where', as in (149) and the ungrammatical (150). In (151) the Rc is separated from the main clause by a pause.

(147)	*en wat eruit valt kan je wel opeten* and what there-out falls can you indeed eat	Mark
(148)	*ik wil nog een dropje dat op de grond ligt* I want another liquorice that on the floor lies	Kim
(149)	*moet ook ergens een bakje (zijn) waar dit in kan* must also somewhere a dish (be) where this in can	Rozem
(150)	*daar kan jij doen waar die zingen, he?* there can you do where those sing. ok? (you can push the button which makes them sing. ok?)	Timo
(151)	*eh, dat huis* (points to other room) *waar kaars staat* eh, that house where candle stands	Domin

4.5.4 Syntactically premature subordination

Syntactically premature subordination, i.e. multi-clause sentences consisting of a main clause and a 'subordinate' clause without a connecting subordinator sometimes occur. Two types can be distinguished: with a null subordinator and with a 'filler' subordinator.

1. With null subordinator. In the subordinate clauses the verb forms are correctly placed. There are 7 instances in the corpus. Mainly clauses with the subordinator *dat* 'that' show syntactically premature subordination, as in (152). Rothweiler (1989: 109) also found that this phenomenon occurs mainly in *daß* 'that'-clauses. An example of an Ac with a null subordinator *als* 'if/when' opening the sentence is (153). The only omitted *-wh* element occurred in Stage II: (154). This Stage-II utterance has been segmented as a formula and an Analytic unit.

(152)	*ikke zei net ødat ik moest beginnen* I said just øthat I should begin	Timo
(153)	*øals papa thuiskomt, mag v(r)ouw weg* øwhen daddy homecomes, can woman away when daddy comes home woman may go)	Lisa
(154)	*(55 kijk 's) 56 øwaar/wat deze is* look just øwhat/where this is (look where/what this is)	Julia

Rothweiler (1989: 49) reported that in her corpus of 842 subordinate clauses, 89, 10%, show omission of the subordinator. However, 77 of these 89 subclauses are from one subject, Marianne. The other 6 subjects taken together have 12 omissions of the subordinator in 688 subordinate clauses, which leads to a percentage of 0.2% for the greater part of the corpus.
Meisel and Müller (1992: 120) give as an example of this combination of clauses for German the following utterance:

weisst du - geht ein Haus?
know you build a house
'do you know how to build a house?

According to them this phenomenon should be viewed as a syntactic phenomenon and not be attributed to performance limitations. The frequency of this phenomenon in the present study and in the main body of Rothweiler's study is low, which points rather to performance limitations than to a syntactic phenomenon. The production of these sentences implies the ability to express logical subordination, but the inability to use its syntactic code. The production of multi-clause sentences without a subordinator is therefore termed 'syntactically premature subordination', which is similar to the omission of other functional categories in the earlier Stages. Lisa's utterance (153) is probably caused by her strong motivation in expressing her feelings about the absence of her parents, while the functional category of subordinator has not yet been acquired. In Timo's utterance (152) the absence of the subordinator is probably due to the fact that the sentence is syntactically already quite complex because of its two past-tense forms. Elsewhere in Timo's language sample there are several instances of the use of a subordinator.

In my experience, syntactically premature subordination is more frequent in the language of children whose nonverbal cognitive development is more advanced than their syntactic development. This is supported by personal communications from speech therapists concerning the frequency of the phenomenon in the speech of children with specific language impairment, who are by definition more advanced in their nonverbal cognitive than in their

linguistic development.

2. Multi-clause sentences with a 'filler' subordinator
These are structures in which the subordinator has been replaced by a word from another class. They were found in two language samples: in (155) a verb form identical with that in the subordinate clause is used as a filler, in (156) an adverbial is used.

(155)	*effe kijke is (=waar) eh gieter is* just look is (=where) eh watering can is	Lisa
(156)	*kijk eens, zo (=hoe) deze bloem geworden is* look just, so (=how) this flower become has	Wendy

The 'filler' subordinator is found in an intermittent stage between the emergence of a position in the sentence for the functional category of subordinator, and the actual use of the subordinator. Occasionally the wrong subordinator is used, e.g. *als* 'if/when' for *dat* 'that'. An analogy to this phenomenon is seen in the early representations of the first modal auxiliaries, which sometimes consist of a babble only. The phenomenon also occurs in Stern and Stern's German corpus, as quoted by Mills (1985: 204). Rothweiler reported that in her corpus of 842 subordinate clauses, 21 show an undifferentiated single vowel, a consonant or a combination of the two in the position of the subordinator in the early stage of acquisition of the subordinate clause. Fifteen of these were produced by one subject, the same subject who produced the main body of subordinate clauses without a subordinator, viz. Marianne (Rothweiler 1989: 48).

4.5.5 Summary of the acquisition of the multi-clause sentences

The multi-clause sentence with coordination is syntactically and semantically weak in the early stage of acquisition described here.
Syntactically the clauses of the CcC are short; they show many omissions and little syntactic complexity. Ellipsis is infrequent and doubtful. Anaphoric reference from the second clause to an NP in the first does not occur. In only 4 language samples multi-clause sentences consisting of three clauses occur. Semantically the linkage between two coordinated clauses is weak. A number of semantic relationships have been acquired, but linkage most often expresses 'second clause makes point similar to first' and 'second clause is chronologically sequent to first'. This point needs further research.

Subordination is acquired at about the same time as coordination. Adverbial clauses and (finite) Complement clauses emerge according to the applied criteria. They are syntactically correct with regard to the specific order of clause elements in the subordinate clause, though sometimes the subordinator is omitted or substituted. In the Adverbial clause, temporal and to a lesser extent conditional meanings are expressed. In very early Adverbial clauses the Main clause is not expressed. The Complement clause expresses a dependent statement or question. The number of matrix verbs and subordinators introducing the Complement clause vary considerably. Relative clauses and nonfinite Complement clauses do not emerge in the language of Dutch children

under four, though some instances were found in the corpus. In the language of Flemish children the nonfinite complement clause emerges under the age of four.

4.6 VALIDITY OF THE CEI: FREQUENCIES OF MATURE AND IMMATURE STRUCTURES

In this section Hypothesis 1.1 is discussed. The reader will recall the two subhypotheses:
1.1.1 Clause-element structures which contain a verb and occur with some frequency in adult Dutch, increase in Subject and Token Frequencies from the Stage in which they emerge up to Stage VI.
1.1.2 Clause-element structures which do not contain a verb, and which are absent or infrequent in adult Dutch, show a decrease in Subject and Token Frequencies in Stage VI as compared to the earlier Stages.

4.6.1 Declarative sentences

The development of SF and TF of the declarative sentence structures have been summarized in table 4.6.
The following conclusions concerning the rise, stability and decline of SF and TF are drawn:

- Subject Frequency

Increase: 11 out of 18 declarative sentence structures show an increase in SF across the stages in all transitions from one stage to the next (unless 100% is reached before Stage VI).

Stable: 2 structures without a subject stabilize below 100%: C+V and V+A+C.

Decrease: 5 structures show a decrease in SF: S+C, S+A, S/C/A+PTL, X+NEG and S+A+C. Apart from X+NEG, which may contain a verb, these are by definition all verbless structures, which are considered immature.

- Token Frequency

Increase: 4 out of 7 declarative structures show an increase in TF. These are the three- and four-clause-element structures which contain S and V: S+V+C, S+V+A, S+V+A+C and A+V+S+A.

Stable: 3 three-element structures in which S or V are not represented stabilize: A+A+X, S+A+C, V+A+C. The 3 Stage-V structures: A+V+S+C+A, S+V+C+C(+X) and S+V+A+A+A, do not show an increase or decrease. The expected rise will probably take place when the language system has developed further.

Decrease: all two-element structures show a decrease: S+C, S+A, C+V, S+V, A+X, S/C/A+PTL, X+NEG. By definition 3 of these are verbless, 3 contain either no S or no V.

It is remarkable that S+V, a 'mature' structure in the sense that it contains S and V, shows a decrease. The same phenomenon was noted in English: Wells's frequencies of various structures containing only S and V in the language of

36-month-olds, is 20 per 1000 utterances, compared to 114 per 1000 utterances containing S, V and X (Wells 1985: Table A 18). The explanation is probably the relative infrequency of structures containing only S and V in the input language.

Table 4.6 *Declarative sentences: increase (->), decrease (<-) and stability (=) of Subject Frequencies (SF) and Token Frequencies (TF) across the Stages.*

Structures	SF n=18	TF n=17
S+C	<-	<-
S+A	<-	<-
C+V	=	<-
S+V	->	<-
A+X	->	<-
S+V+C	->	->
S/C/A+PTL	<-	<-
S+V+A	->	->
X+NEG	<-	<-
A+A+X	->	=
S+A+C	<-	=
V+A+C	=	=
S+V+A+C	->	->
A+V+S+A	->	->
A+V+S+C+A	->	=
S+V+C+C(+X)	->	=
S+V+A+A+A	->	=
six elements	->	-

4.6.2 Multi-clause sentences, questions and imperative sentences

The development of SF and TF of the two types of multi-clause sentences, the two types of questions and the imperative sentences are summarized in table 4.7.

The following conclusions concerning the increase, stability and decrease of SF and TF are drawn:

- Subject Frequency

The SF's of the two types of questions and of the multi-clause sentences, show an increase across the stages (with one curious dip of V+S (+X) in Stage V). The SF's of 3 of the 4 imperative structures show an increase. The SF's of the imperative are low and unstable in the corpus. Generally, there are more imperatives in the second 100 utterances of the speech samples than in the first, which shows that the imperative is very sensitive to the speech sampling situation[2]. Imperative structures of a certain length were therefore defined as emerging if they were used by 50% of those subjects in a Stage-corpus who used any imperative structure.

- Token Frequency
The TF's of both types of the three-element interrogative sentences show an increase. The TF's of the four-element interrogative sentences show a stabilizing frequency in Stage VI. The TF's of the imperatives are all stabilizing. The TF's of the multi-clause sentences are not relevant, as they emerge in Stage VI.

Table 4.7 *Multi-clause, interrogative and imperative sentences: increase (->), decrease (<-) and stability(=) of Subject Frequencies (SF) and Token Frequencies (TF) across the Stages.*

Structures	SF n=13	TF n=7
CcC	->	-
Multi-clause sentence with Cc	->	-
Multi-clause sentence with Ac	->	-
V+S(+X)?	<- ->	->
V+S+X+X?	->	=
V+S+X+X+X(+X)?	->	-
Wh(+X)(+X)	->	->
Wh+X+X+X	->	=
Wh+X+X+X(+X)	->	-
IMP:V(+X)	->	=
IMP:V+X+X	<-	=
IMP: V+X+X+X	->	=
IMP:V+X+X+X+X(+X)	->	-

4.6.3 Summary of the evidence concerning Hypothesis 1.1

The main points concerning Subject Frequency and Token Frequency in clausal development from Stage I - Stage VI are summarized below.
- Declarative structures containing S, V and one or two more elements show an increase in SF and TF.
- Declarative structures containing five elements show an increase in SF and stability in TF.
- Declarative structures containing V, but no S, or containing S and V only, show stability in SF and stability or a decrease in TF.
- Declarative structures containing no V show a decrease in SF and a decrease or stability in TF.
- Yes/no questions generally show an increase in SF and an increase or stability in TF.
- Wh-questions generally show an increase in SF and an increase or stability in TF.
- Most imperative structures show an increase in SF; all show stability in TF.
- Multi-clause sentences show an increase in SF.

4.6.4 Conclusions based on the evidence concerning Hypothesis 1.1

1. With the advance in syntactic ability children's language generally shows an increase in the use of structures containing S and V, a stabilizing frequency in the use of structures containing V but no S, and a decreasing frequency in the use of structures containing no V.
2. With the advance in syntactic ability children's language generally shows an increase in clause elements from two to six, with a delayed emergence of structures containing a negation, a particle or two Complements.
3. With the advance in syntactic ability children's language generally shows an increase in the use of multi-clause sentences.
4. These effects are generally stronger in Subject Frequency, i.e. the number of subjects in the corpus of a Syntactic Stage using a structure, than in Token Frequency, i.e. the mean number of tokens of a structure in the speech samples of a Syntactic Stage in which that structure occurs.

These conclusions strongly support hypothesis 1.1. They show that the Clause Element Index is a valid indicator of syntactic development on clause level in Dutch children's language.

4.7 ORDER OF CLAUSE ELEMENTS: ERRORS AND VARIATIONS

This section deals with the order of clause elements. To specifically study the order of clause elements and the position of verbs, all utterances containing a verb phrase in the corpora of Stages III - VII were entered in a CHILDES data file (MacWhinney 1990, MacWhinney and Snow 1990).

The entire file contains 6111 analysed utterances.[3] The results of the analysis are presented in terms of the position of the four main types of clause element: V, S, O, A (not including negation) in subsections 4.7.2 - 4.7.5. The Complement is not generally discussed as it is a heterogeneous category (see 4.1).

Three main types of errors are distinguished. They are described in terms of the errors of commission discussed in chapter 1 (2.2): Errors of Deletion, Errors of Context, and Deviancies.

4.7.1 The position of the finite and the nonfinite verb

The verb forms in the subordinate clause are always correctly placed at the end of the clause. This is in agreement with the results for German (Clahsen and Muysken 1986, Mills 1985: 240, Rothweiler 1989: 46). Complex verb phrases with Vf and Vnf occur in 10 subordinate clauses. Six of these show the VfVnf order, 4 the reverse.

In independent clauses there is almost complete agreement between child and adult verb placements: finite forms in first or second position, nonfinite forms, including particles, in final position. The following verb placements are not in agreement with (written) word order rules.

Errors of Deletion 1 (ED 1). The following categories show Errors of Deletion 1, i.e. structures which are acceptable in informal/regional adult language and in child language. These 'errors' form by far the largest error category. If the Principle of Inflation is applied, word order is correct. Two verb placements are classified as ED 1: simple sentences without Vf, with Vnf in sentence-final position (a), and simple declarative sentences opening with Vf (b).

a. Simple sentences without Vf, with Vnf in sentence-final position, as in (157) and (158).

(157)	*die* (gaat) *happen* (points at photograph)		Maarten
	that (one) (goes) eat (he/she is eating)		
(158)	*deze* (heb ik van) *Coby* (ge)*had*		Marije
	this (have I from) Coby got (I got this one from Coby)		

The nonfinite structure with an infinitive in final position is the verb pattern of most lexical verbs in Stage II.[4] In Stage III nonfinite structures, with infinitive or past participle only, still constitute a main pattern with 42% of verb phrase patterns. With the advance of syntactic ability we see a gradual decline of nonfinite structures towards 8% in Stage VI (see chapter 5, table 5.2).

Some researchers of child language consider these structures agrammatical (e.g. Mills 1985:185). Verb placement, however, is in agreement with adult word order, but Errors of Deletion distinguish them from full adult structures. Nonfinite structures also occur in informal adult speech. Some evidence comes from the investigation by De Vriendt-De Man. She analysed a corpus of 29 interviews with Dutch and Flemish speakers, containing a total of 117,122 words. Her analysis of first responses to stimuli in the Dutch interviews yielded a percentage of nonfinite structures in declarative sentences similar to that of the Stage-VI children: 6.7% (De Vriendt-De Man 1969: 322).

b. Simple declarative sentences opening with Vf.
The first element in these sentences is phonetically null. The empty first position results in a verb placement in the first overt position. The null element may be S (mainly 1st and 3rd person; cf. Clahsen and Penke 1992), as in (159) and (160). It may also be O, as in (161) or A, as in (162).

(159)	øS 1S	*moe(t) niet bal*	Johnny
		need not ball (I don't need a ball)	
(160)	øS 3S	*kan niet*	JaapJan
		can not (that can't be done)	
(161)	øO	*weet ik niet*	Emile
		know I not (that I do not know)	
(162)	øA	*moet ie hier*	Kimm
		must it here (now it should be put here)	

In table 4.8 and figure 4.15 the incidence of overt and null options in first positions in declarative sentences with Vf is displayed. (For practical reasons the incidence of null *wh*-elements is included in figure 4.15.) There is a clear relation between the incidence of null first elements and the syntactic ability of the child. In Stage III first clause element is null in 56% of declarative

sentences. This percentage gradually declines towards 20% in Stage VI. The distribution of null elements varies across the types of clause element. Of the subjects a small majority of 55% is null in Stage III. This seems exactly the same as the percentage of 55% of null subjects found by Bloom (1990a) in the language of three American children (Adam, Eve and Sarah, see Brown 1973). However, the syntactic level of these three children is probably higher than the Dutch Stage III. This I conclude from the fact that the children already use quite a few past tense forms, while in Stage III there are only few references to the past. The percentage of 55% of null subjects in Stage III decreases gradually towards 12% in Stage VI.

Table 4.8 *The incidence of overt and null subjects, direct objects, other complements and adverbials in first position in declarative sentences with Vf in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Total overt elements in first position	205 (44%)	820 (63%)	905 (73%)	1009 (80%)
Total null elements in first position	263 (56%)	474 (37%)	329 (27%)	246 (20%)
Subjects				
S	160 (45%)	612 (70%)	629 (80%)	652 (88%)
øS	198 (55%)	266 (30%)	160 (20%)	88 (12%)
Direct objects				
O	2 (10%)	29 (33%)	74 (56%)	51 (54%)
øO	19 (90%)	58 (67%)	59 (44%)	44 (46%)
Complements (non-direct objects)[a]				
C	2	17	6	12
øC	1	1	1	0
Adverbials				
A	41 (48%)	162 (62%)	196 (64%)	294 (72%)
øA	45 (52%)	98 (38%)	109 (36%)	114 (28%)

a. The frequencies of the Complements in first position are too low for a meaningful calculation of percentages or a graphic representation (see figure 4 15).

In this analysis the direct object was distinguished from the other subcategories of the complement, because other subcategories of the complement in first position are rare and because there is a very strong tendency for 'fronted' direct objects to be null. In Stage III the majority of fronted objects is null: 90%, declining gradually towards 46% in Stage VI. The frequency of null objects is not very high in American English (8.5% of null objects versus 35% null subjects according to Hyams and Wexler, as cited in Bloom (1993)). I suggest that as English does not frequently front objects to the first position of the sentence, the child is less likely to omit it[5].

The null 'fronted' adverbial shows about the same frequency as the null subject in Stage III: 52%, but declines to 28% in Stage VI, which is still fairly high. The high percentages of null direct objects and null adverbials in Stage VI may indicate that in informal adult speech these null options also still prevail. In nonsystematic observations they are recorded regularly. The referents of the null elements are easily identifiable from the nonverbal or verbal context (see section 4.1.2).

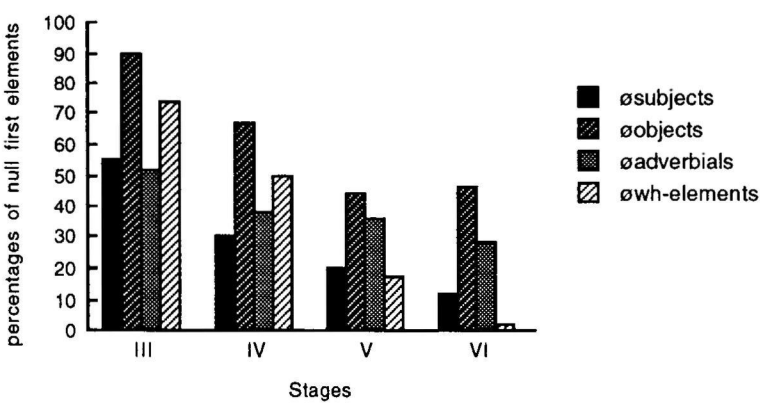


Figure 4.15 *Null first elements in declarative sentences with a finite verb in Stages III - VI.*

c. *Wh*-questions opening with Vf.
Wh-questions may have a null question word, as in (163), (164) and (165).

(163)	øwh	(waar) *isse auto?* (where) is car?	Nickey
(164)	øwh	(wat) *doet ie nou?* (what) does he now?	Jeffrey
(165)	øwh	(wie) *ben jij?* (who) are you?	Eliette

As is shown in table 4.9 and figure 4.15 the *øwh* -question shows a gradual decline as children's linguistic systems develop (see also figures 4.11, and 4.12). In Stage III, before the criterion for the emergence of *wh*-questions (with realized *wh*-) is reached, the null option is the most frequent form. In Stage IV, when the *wh*-question with overt *wh*-word emerges according to the criterion, *wh*-questions and *øwh*-questions both number 50%. In Stage V the percentage

of *øwh*-questions has declined to 17%, and in Stage VI to 2%. In familiar concrete situations in adult spoken Dutch the *øwh*-question occasionally occurs.

Table 4.9 *The incidence of overt and null question words in* wh*-questions in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Wh	8 (26%)	63 (50%)	60 (83%)	80 (98%)
øWh	23 (74%)	63 (50%)	12 (17%)	2 (2%)

Errors of Context 2 (EC 2). The following categories show Errors of Context 2, i.e. an adult word order used in the wrong syntactic context. EC 2 is generally only found in child language. Three types of EC 2 are distinguished: Vf-final declarative sentences (a), Vf-final independent *wh*-questions (b), and dependent questions with Vf in second position (c).

a. Vf-final declarative sentences
These are 'independent' declarative sentences with Vf in the final position characteristic of the subordinate clause, but without a subordinator. Non-subject elements immediately precede the finite verb.
Some of these sentences have a subject, as in (165), some have none, as in (166) and (167).

(165)	(ik denk dat) *die daar hoort Vf*	Jan W
	(I think that) that one there belongs	
(166)	(ik denk dat ie) *hier staat Vf*	Daantje
	(I think that it) here stands	
(167)	(ik zie dat je) *daar tenen hebt Vf*	Sacha
	(I see that you)there toes have	

The frequency of this phenomenon is very low as is shown in table 4.10, the maximum being 2.5% in Stage III with a gradual decline to zero occurrence in Stage VI. In the entire corpus of 4412 declarative sentences with a finite verb there is a total of less than 1% of finite-verb final structures.

Table 4.10 *The incidence of declarative sentences with Vf in final position in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Total finite verbs	510	1342	1270	1290
Finite verbs in final position	13 (2.5%)	12 (0.9%)	12 (0.9%)	1 (0%)

In German similar verb placements have been noted. Clahsen and Muysken (1986) present the example: *der teddy zu dick ist* 'the bear too fat is'.

The low frequency of this type of error does not require hypothesizing rules or stages in the acquisitional process and can be accounted for by performance errors. Bowerman (1985: 1275) argued for the competition between two activated structures in the explanation of some types of errors. This argument seems relevant for this type of error. Dutch and German children are exposed to independent-clause and subordinate-clause order in their input. The subordinate-clause order, which children hear regularly, may well incidentally be used by them in a wrong syntactic context, in this case in an independent clause. Slobin (1985: 1220) suggested that the perception and storing of the syntactic ordering of the clause is separated from the perception and storing of the function of the syntactical ordering. To a certain extent this is what we find in the acquisition of the independent-clause order, when Dutch children occasionally use subordinate-clause order erroneously. This type of error may be expected to be more frequent in children in whose input the percentage of subordinate clauses is high. Children who use this order are probably more imitative, and perhaps more inclined to learn from routines. An instance of imitation resulting in final placement of the finite verb is seen in Wouter's utterance (168), where verb placement is the result of a succession of imitated items from previous utterances in the input.

Interlocutor	WouterM
ja, hoor. daar komt het <u>plasje al</u> yes, indeed there comes the pee already <u>Heb</u> ik dat niet goed <u>gedaan</u>? Have I that not well done	
(168)	*pla al heb gedaan* pee already have done

In another instance, (169/170), when Wouter is aware of his error and corrects it, we see evidence of the performance character of his error.

Interlocutor	WouterM
(169)	*ander boekje lees* (Vf) other book read
vind je 't niet leuk? don't you like it?	
(170)	*mama, ander boekje lezen* (Vnf·Inf.) mummy, other little book read

The echolalic utterances discussed below under Deviancies are further evidence of the role of imitation in this type of verb placement. In Stage VI, when the subordinate clause emerges, the erroneous Vf-final structure does not occur, indicating that once they start producing subordinate clauses, children fully distinguish the placement of the verb in the independent clause from that in the subordinate clause verb.

b. Vf-final independent *wh*-questions

Two language samples in the corpus show independent questions with the

subordinate-clause order WhSVf with a total of three instances in the corpus. An example is (171).

(171) *waar 't bed is* Domin
where the bed is

In German the order WhSVf is also found as discussed by Mills (1985: 163) and Gawlitzek-Maiwald, Tracy & Fritzenschaft (1992:145). The latter present the example: *warum du auch ein keks ißt?* 'why you also a cooky eat'. This type of error is similar to the subordinate-clause order in an independent sentence discussed above. It is likely that the child has heard many dependent questions introduced by *ich weiß nicht* ' I don't know' or *denkst du* 'do you think' followed by the subordinate-clause order with the result that the subordinate-clause order is a strong competitor for the order used in independent questions. The low frequency of this type of sentence again suggests that it is not generally a developmental forerunner in the acquisition of questions or complex clauses.

c. Dependent questions with Vf in second position
There is only one instance in the corpus.

Deviancies. These are word orders which deviate from adult language and child language. The total frequency is 25. Four types are distinguished: infinitives in first position followed by a subject (a), objects following a nonfinite verb (b), declarative sentences with two finite forms (c), and echolalic sentences consisting of a subject and a verb (d).

a. Infinitives in first position followed by a subject
In the present corpus there are two instances of this type: (172) and (173). S follows the infinitive.

(172) 198 *vallen paard* 199 *vallen paart(j)e* Lars
fall horse fall little horse (horse falls, little horse falls)
200 *paart(j)e vallen*
little horse fall (little horse falls)
(173) *kijken paarden mij* JaapJan
look horses me (= I look at the horses)

In these sentences the subject is often added as an afterthought. Verb and subject do not form a clear prosodical and syntactical unit; there is often a slight pause between the two. Klein (1974: 13) commented on such early combinations: "Sometimes when the words come out in successive bursts, there is a tendency to reconstruct them afterwards in the normal order." We see this phenomenon in Lars's (173) SV pattern, which follows the utterances with VS order. The first utterance may be classified as presyntactic. Slobin reported that initialization of most informative elements and postposing of highly suppressed elements are found in various languages including German, quoting MacWhinney's data (Slobin 1985: 1233). MacWhinney reported that there is a short period early in Hungarian, French, Italian, German and English

acquisition, when children tend to stress and initialize the verb. This resulted in MacWhinney's Consequence Syntax 4a: "In early combinations, children will tend to order the newest or most informative element first." (MacWhinney 1985: 1120). This suggests that word order in these sentences does not reflect word order in adult language (see also chapter 6 (2)). Another possibility is that these sentences do reflect an adult order, i.e. a dislocation of the subject to final position and a phonetically null representation of the initial subject, as in *(hij)* øS *gaat vallen, het paard* S 'he goes fall, the horse'. A closer scrutiny of this phenomenon is needed, because these orders may be immediate imitations of dislocations in the input.

In the present corpus and in a longitudinal study of Dutch verb acquisition (Verhulst-Schlichting 1985) the incidence of these structures is extremely low. Though in an individual child these orders may be fairly frequent, the low frequency found in the present corpus does not justify the setting up of a principle in language acquisition, like MacWhinney's Consequence Syntax 4a for Dutch.

b. Objects following the nonfinite verb

The most frequent type of error in the Deviancies category is the object following the nonfinite verb: 13 instances. This error may also be classified as an error in object placement. The phenomenon occurs mostly in language samples of very young children, as in (174) and (175). In the language of adults this type of error is rare. They are regarded as performance errors.

(174)	*wassen* (=gewassen) *poppie* wash (past participle) doll	Lude
(175)	*maken Zwarte Piet* make Black Peter	Bianca

c. Simple declarative f-f clauses: two finite forms

These are simple clauses with a finite form in first/second position and a finite form in final position. There is a low total of six instances in the corpus. Examples are (193) and (194). Mills (1985) also reported this is an area where few errors occur.

(176)	*die past* Vf *ook wel in kruiwagen past* Vf that fits also indeed in wheelbarrow fits	Ernst
(177)	*die ging* VfS *bijna vielen* Vf PL that went almost fell	Miranda

With two identical codings of the verb, (176) seems a blend of an independent and subordinate verb placement; it is from Ernst's language sample. Ernst stands out in the corpus as having many doubtful utterances in the area of word order. Instances like (177), with two finite verbs in one verb phrase, are viewed as nonsystematic dysgrammatical utterances. The past plural form *vielen* 'fell' in (177) is identical to the required infinitive of the verb: *vallen* 'fall', but for the root vowel which is from the past tense form. The vowel *-ie-* in the first syllable is obligatory in the past tense forms and may have been activated by the past tense form *ging* 'went' in second position. De Villiers and De Villiers (1985: 88) quoted an English sentence with two finite verbs from Hurford: *did*

you came home? They gave Maratsos and Kuczaj's comment that these structures are not frequent in their data and are therefore accounted for by processing problems.

d. SVf sentences: echolalic

These sentences consist of S and Vf in SVf order but without the required argument of the verb. There are two instances in the corpus: (178) and (179).

Interlocutor	Melanie
ga je vertellen wat Pluisje doet? are you going to tell what Pluisje does?	
(178)	*Pluisje doet* Vf Pluisje does

Interlocutor	Lisa
weet je waar deze moet? do you know where this goes?	
(179)	*deze moet* Vf this goes

These utterances are immediate repetitions of the interlocutors' final words of their subordinate clauses. The intonational patterns are more like the final words of a subordinate clause than of a simple clause. Semantically these utterances are empty; structures are repeated without meaning. For these reasons they are considered echolalic.

Occasionally, a verb form ending in a schwa, similar to an infinitive form, is in second position as in the example from Trum (1989: 46): *moet-e inne keuken* 'must into the kitchen'. If the base form coincides with the infinitive without *-e(n)*, the form under discussion is phonetically similar to the infinitive and might be analysed as a deviant verb placement. However, schwas are also found added to irregular singular verb forms such as *staat* 'stands', *kan* 'can', *is* 'is', in *staat-te, kan-ne, is-se* (see also Trum 1989: 29, Schaerlaekens and Van Gillis 1987· 96) Secondly, these verb forms never end in *-en.* Thirdly, other forms such as pronouns (*ik* 'I'-> *ikke*); prepositions (e.g. *van* 'of/from' -> vanne); negation (*niet* 'not'-> niette) show the same lengthening with a schwa We see analogies of this lengthening in the adult form *of-fe* 'or'. The phenomenon is not restricted to Dutch. For German, Mills reported Stern and Stern's findings (1928) that one of their children inserted a 'nonsense syllable e' between the words of his utterance. Their explanation is that the preserving the rhythm of the language urges the child to do this (See also Fikkert 1994).

4.7.2 Summary and discussion: the position of the verb

The position of the verb in adult Dutch is fixed, with different positions for the subordinate and the independent clause types. In Dutch and German child language research, the placement of the verb has been the subject of many investigations, mainly on theoretical grounds. Children were assumed to have to go through various phases of verb placements before they acquired the adult system. The results of the present study indicate that a phase-like process of acquisition is not an issue in the sense that children acquire verb placements which they abandon in a later phase· there is complete agreement between child and adult verb placements in subordinate clauses: finite and nonfinite forms are

in varied order in sentence-final position, and in almost complete agreement in the independent clause: finite forms in first or second position, nonfinite forms, including particles, in final position.
The conclusions with regard to 'errors' in verb placement are:
1. Verb placement in subordinate clauses is error free. All researchers agree on this point.
2. The formation of yes/no questions and imperative sentences is almost totally error free.
3. *Wh*-questions almost always have the required VfS order. Slobin (1985: 1234) reported that "English- and German-speaking children have difficulty in acquiring question inversion and patient-verb-agent orders in passive constructions". Question formation in German and Dutch being similar, the outcomes in this issue are problematic. In the literature there are few data on the acquisition of questions in German. Mills (1985: 163) reported Wode's findings in this area. One of Wode's two children went through a long period in which *wh*-questions with the order *wo* 'where'-SV were produced. This is the order of dependent questions as discussed above under the Errors of Context. On the basis of my own data I look upon the *Wh*SVf questions in Wode's subject as an individual variation in the acquisition of *wh*-questions, not as a general pattern in German and Dutch children.

It can be argued that Dutch children's acquisition of questions is facilitated by their mastery of subject-verb inversion in declarative sentences previous to the acquisition of question formation. This might explain the low incidence of Errors of Context 2 in questions, a correct order in the wrong syntactic context.
4. Verb placement in declarative sentences is mostly error free.
Placement of finite and nonfinite verbs is in agreement with adult language from the moment verbs begin to be used: in the beginning most verbs are nonfinite verbs in sentence-final position; a little later finite verbs emerge, they are corrrectly placed in first/second position. Most Dutch investigators (Jordens 1990, Klein 1974, De Haan 1986) agree on this point. In chapter 5, I will show that some types of verbs are mainly used as nonfinite verbs in sentence-final position, and others mainly as finite verbs in first/second position, with a third group occurring in both positions.
In terms of the three types of Errors, erroneous word orders are the following:
- Errors of Deletion with the two subcategories of nonfinite verb phrases and of null first elements form a frequent category. Both are found in adult spoken language and are not considered deviant.
- Errors of Context show a correct word order in the wrong syntactic context with a low frequency of 41 instances in the entire corpus. The main type is the sentence-final finite verb in the context of an independent clause. Errors of Context are explained as possibly based on a temporary faulty hypothesis in some cases, but mainly as caused by performance errors. These may occur in immediate imitation of a correct order in the input.
- Deviancies, the third type of error, has a low total frequency of 23, the main type being the nonfinite verb followed by the direct object. This type is explained as caused by performance errors, especially in echolalic imitation.

These findings are in some respects opposed to Clahsen and Muysken's report (1986) on word order in the first stage of verb placement acquisition. Clahsen and Muysken based their description of German verb placement in

first-language acquisition on Clahsen's data from a longitudinal study of three German siblings: male twins and their sister. Clahsen and Muysken concluded that German children do not differentiate between placement of the various finite and nonfinite forms in the earliest stage (roughly equivalent to Stage II-IV), though they have a preference for placing verbal elements in final position. This conclusion is problematic in the light of the analysis of the interpretation of 'errors' in the present study. Clahsen and Muysken gave the following examples of early verb placement:

(a) SVfO: *ich bau ein mast* 'I build a mast',
(b) SCCop: *der teddy zu dick ist* 'the teddy too fat is',
(c) SOVnf: *ich schaufel haben* 'I shovel have',
(d) VnfA: *rausholt hier* 'out-taken here'

In terms of the present investigation verb placement (a) is standard German; (b) is an example of subordinate verb placement in an independent clause, an infrequent phenomenon categorized as an Error of Context. If Clahsen and Muysken's verb placements are analysed on the basis of the Principle of Inflation the verb placement of (c) is correct. In (d) *rausholt* (=taken out) is interpreted by the authors as an (incorrect) nonfinite form in second position. An alternative analysis is given by Jordens (1990). He argues that *rausholt* is a nonfinite verb in final position with the adverbial *hier* in postposition. I concur with this interpretation. The placement of *hier* is a type of placement which increases as children advance in their syntactic ability. It is not generally considered incorrect, as we shall see in section 4.7.5.

4.7.3 The position of the subject

The position of S is almost always in agreement with adult Dutch. A few problematic placements were discussed in section 4.7.1 as erroneous verb placements. Variation in placement in declarative sentences is manifest from the earliest use of Vf.

The place of S in declarative sentences with a finite verb is in the prefield, preceding Vf, or in the middle field following Vf. In table 4.11 and figure 4.16 the incidence of sentences opening with S (null or overt), and with S in the middle field are shown. The data concerning noncopular and copular sentences are also presented separately. The percentage of all declaratives with S in the middle field increases as children develop syntactically from 25% in Stage III to 40% in Stage VI. Copular sentences show a far lower than average incidence of VS orders with a maximum of 15% in Stage VI. Noncopular sentences with VS order range from 32% in Stage III to around 45% in Stages V and VI.

Table 4.11 *The incidence of SV and VS order in all, noncopular and copular declarative sentences with a finite verb in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
All declaratives				
SV	357 (75%)	878 (70)	789 (64%)	738 (60%)
VS	121 (25%)	369 (30)	451 (36%)	502 (40%)
Noncopular declaratives				
SV	255 (68%)	694 (67%)	577 (57%)	553 (54%)
VS	118 (32%)	335 (33%)	428 (43%)	470 (46%)
Copular declaratives				
SV	102 (97%)	184 (84%)	212 (90%)	185 (85%)
VS	3 (3%)	34 (16%)	23 (10%)	32 (15%)

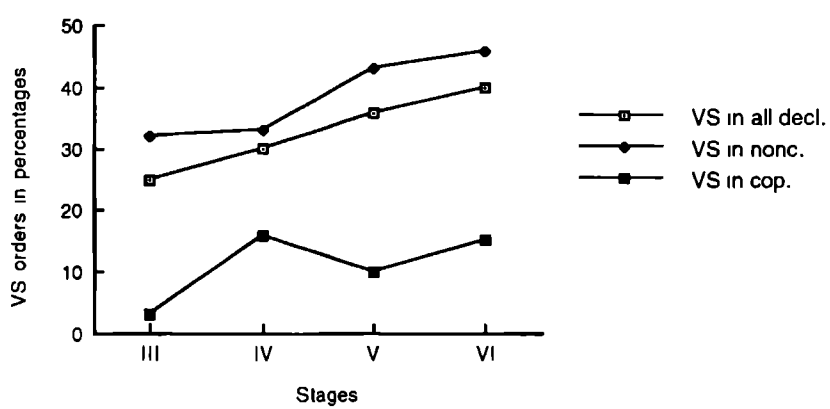


Figure 4.16 *The relation between the VS order and declarative sentence types in all declarative sentences, noncopular, and copular sentences.*

4.7.4 Summary and discussion: the position of the subject

The main results of the investigation concerning subject placement are:
1. Subject placement in subordinate clauses is error free.
2. Subject placement in independent clauses is error free.
3. The flexibility found in adult language is also found in child language: children place subjects both in the prefield and in the middle field.

The overall percentage of VS orders in the language samples of the Stage-VI children is 40%. This is in agreement with Verhulst-Schlichting (1985), who reported in her longitudinal study that in the language of Dutch children over 36 months of age the percentage of VS order is 42.3%. In Dutch spoken by adults the percentage of VS orders is somewhat lower, at least in De Vriendt-De Man's study (1969). She calculated the SV and VS orders in the first reactions to stimuli. In the total of 1478 declarative sentences containing a subject and a finite verb in this restricted corpus, the percentage of VS orders was 31.8% (De Vriendt-De Man 1969: 316). In discourse in less formal settings, and especially in situations in which the referents are concrete objects, the percentage of VS orders may well be higher than 31.8%. Klein (1974), who compared orders in the speech of two mothers and their children noted that both mothers used the VS order more often than the SV order.

The only data on SV versus VS order in German child language research are from Clahsen's longitudinal study. Clahsen and Muysken (1986) reported that sentence-initial positions of verbal elements with the finite verb appearing before the subject are not productive in Clahsen's data in their stage I (verbal patterns equivalent to those in Stages II - IV in the present study). One possible reason for this difference from Dutch data is the number of VS orders in the input language. Some data from Flemish may clarify this issue. On the whole Dutch and Flemish are considered to be regional varieties of the same language. One of the differences between Dutch and Flemish is in the frequencies of SV versus VS orders. In De Vriendt-De Man's study, mentioned above, the percentage of VS orders in first reactions in Flemish is only 5% as compared with the 31.8% in Dutch (De Vriendt-De Man 1969: 316). This indicates that Dutch/Flemish spoken by adults is flexible with regard to the position of the subject in relation to the verb. This difference between frequencies of SV versus VS is also seen in child language. Vleeschauer (1986), in her study of Flemish children aged 3;10 - 3;11, found that of the 729 declaratives with S and V in her corpus only 27 (3.7%) showed VS order. This again is very close to the adult 5% found by De Vriendt-De Man. It is clear that the percentages of inverted S + V order in Dutch/Flemish child language relate to the percentages in adult speech. The same probably holds for German. I suggest that Clahsen's subjects did not produce VS orders because in the input to his subjects the VS order did not have sufficient frequency. This is borne out by the data in Poeppel and Wexler's study of one German child (2;1 years old) in whose corpus 28% of the utterances with a finite verb in second position have a nonsubject in first position (Poeppel and Wexler 1993).

Copular clauses have a much lower proportion of VS orders than noncopular clauses. The main reason is that fronting of the Complement is always for reasons of focus, not for reasons of discourse cohesion, which is far more frequent generally.

4.7.5 The position of the direct object

The erroneous placements of (direct) objects following the nonfinite verb, were discussed above in subsection 4.7.1 on the placement of the verb. As in adult language, the correct placement varies. The object is in the prefield in 27% across all Syntactic Stages; other positions are mainly in the middle field as is shown in table 4.12. The frequency of fronted objects as children get more advanced syntactically is stable.

Table 4.12 *The number and percentages of direct objects in declarative sentences in prefield and middle field.*

	Stage III	Stage IV	Stage V	Stage VI
Middle field	52 (71%)	230 (73%)	279 (68%)	340 (78%)
Prefield	21 (29%)	87 (27%)	133 (32%)	95 (22%)

The object in first position in Stage III is almost always null (see table 4.8 above). Null objects are still very much part of children's language, as they advance in syntactic ability: in Stage VI 46% of fronted objects is still null. Null objects can always be identified. The main reason for fronting objects is discourse cohesion. This may be concluded from the fact that across all Stages 53% of fronting of O results in a null element, as in (161). Most other fronted objects are unstressed pronouns.

The position of the direct object in the middle field can be related to the indirect object, to the adverbial and to the lexical verb. The position of O in relation to the lexical verb will be treated in chapter 5. The position of O in relation to A in the middle field varies in adult language. Certain adverbials require certain positions in specific semantic/syntactic contexts. A complete study of the position of the adverbial is beyond the scope of this study. I shall only give an indication of the variety to be expected without taking the semantic/syntactic contexts into account. Three structures in the Stage-VI corpus with varying positions for A and O in the middle field were investigated. The division across the orders OA and AO is exactly 50%. The details are as follows:

41 -AOVnf, as against 40 -OAVnf;
20 SVfAO, as against 19 SVfOA;
14 SVfAOVnf, against 14 SVfOAVn.

The position of the direct object in its relation to the indirect object cannot be investigated because of the low frequency in the corpus (2 instances in Stage-IV corpus, 5 in the Stage-V and 7 in the Stage-VI corpus).

4.7.6 Summary and discussion: the position of the direct object

The main results concerning (direct) object placement are:
1. Object placement in subordinate clauses is error free.
2. Object placement in independent clauses is almost error free. Some erroneous placements in the postfield occur (see section 4.7.1).
3. The flexibility found in adult language is also found in child language.The object follows the finite and precedes the nonfinite lexical verb. Fronting to the prefield takes place in 27% of all objects correctly placed: this is not dependent on stage of acquisition. Fronting takes place mainly to forge discourse cohesion. In the first Stages this is almost the sole reason for fronting. Fronted objects are null in 90% in Stage III declining to 46% in Stage VI. The position of the object in relation to the adverbial in the middle field is flexible.

4.7.7 The position of the adverbial

Errors in the placement of adverbials are rare. As in adult language, the variation in placement of adverbials is extensive. There is a relation between the number of adverbials in a clause and their position.

A great proportion of the utterances in the corpus contains an adverbial. In table 4.13 the numbers and percentages of main clauses with a verb phrase and at least one/two adverbials (excluding negation) is shown. The number of main clauses with a verb phrase and at least one adverbial increases from 28% in Stage III to 64% in Stage VI. 25% of utterances with a verb phrase in Stage VI contains two adverbials or more. Some of these adverbials are arguments required by the verb (location), but most give temporal information, or (help to) express aspect or modality. It was shown above that the frequency of sentences consisting solely of an S and V decreases as children develop syntactically (see section 4.3.1 and figure 4.2). As we shall see in chapter 5, only a limited number of verbs take a direct object or a complement to the subject, the remainder is complemented by an adverbial and/or a negation. For examples see section 4.3. Hendriks, who studied motion and location in children's narrative discourse in Dutch and Chinese, also reported on this phenomenon. She found that Dutch children, like adults, tend to add spatial information, while the function of that information is not clear (Hendriks 1993: 205).

Table 4.13 *Number and percentages of main clauses containing a verb phrase and at least one/two adverbials: null or overt*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Main clauses containing verb phrase	982	1891	1588	1650
One adverbial or more	306 (28%)	986 (49%)	895 (53%)	1057 (64%)
Two adverbials or more	40 (4%)	198 (10%)	258 (16%)	408 (25%)

The more adverbials sentences have, the greater the tendency for one of the adverbials to be fronted. These may be null or overt. This is shown for noncopular declarative sentences with S and Vf (without O or C) in table 4.14 and in figure 4.17. Sentences with one adverbial show an (unstable) increase in fronted adverbials from 43% in Stage III to 64% in Stage VI. Sentences with two adverbials show a rise from 53% fronted adverbials in Stage III to 68% in Stage VI. The rise in fronted adverbials as children develop syntactically, may be explained either by the greater proficiency in the use of VS orders or by the more advanced use of connected discourse.

Table 4.14 *The incidence of fronted (null or overt) and non-fronted adverbials in noncopular declarative sentences containing one and two adverbials.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
One adverbial				
øS/SVfA	62 (57%)	203 (70%)	143 (61%)	129 (36%)
øA/AVfS	47 (43%)	86 (30%)	90 (39%)	74 (64%)
Two adverbials				
øS/SVfAA	10 (37%)	41 (38%)	43 (37%)	47 (32%)
øA/AVfSA	17 (53%)	67 (62%)	71 (63%)	97 (68%)

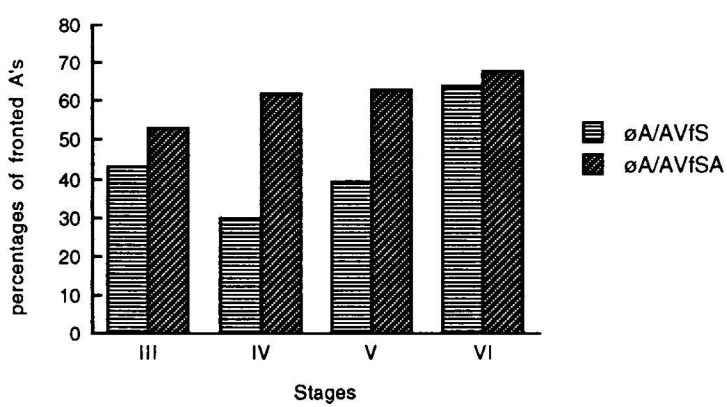


Figure 4.17 *The incidence of fronted (null or overt) adverbials in noncopular declarative sentences containing one and two adverbials.*

Because children's sentences grow longer as they advance in syntactic ability, the more advanced children's language samples contain more VS orders as can be seen in table 4.15. The mean percentage of declarative sentences containing a finite verb and at least one adverbial with a null or overt adverbial in first position is 46%.

Table 4.15 *The incidence of adverbials in the prefield in declarative sentences with a finite verb phrase and at least one (null or overt) adverbial .*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
A('s) only in Middle field	108 (56%)	402 (61%)	348 (53%)	368 (47%)
A in Prefield (null or overt)	86 (44%)	260 (39%)	305 (47%)	408 (53%)

Bloom (1990a) investigated the number of words following the verb in subjectless sentences in American child language. He concluded that subjectless sentences are longer in terms of having more words following the verb than sentences containing a subject, and explained the phenomenon of subjectless sentences from performance factors. The same explanation holds for the fronted adverbials in Dutch child language. As sentences with fronted adverbials grow longer, the fronted adverbial is more often deleted as is seen in figure 4.18.

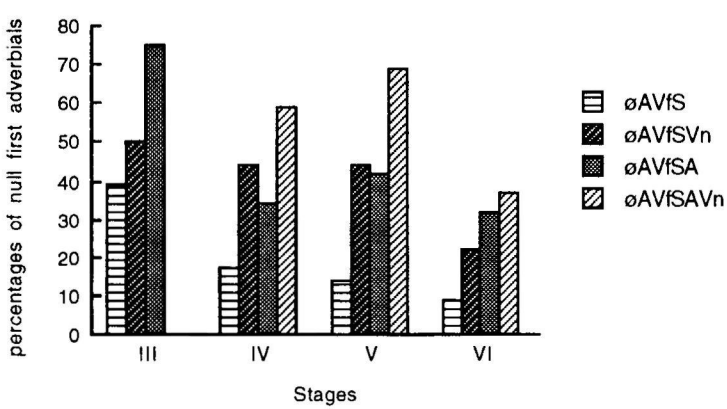


Figure 4.18 *The relation between sentence length and null adverbial in first position.*

Length is measured here by the number of adverbials, one or two, *ánd* by the number of verbs in the verb phrase: a finite verb with or without a verbal complement. This results in a comparison between øAVfS, øAVfSVn, øAVfSA and øAVfSAVn. Stage III and Stage VI show a clear picture of a gradual rise of the number of null adverbials as sentences grow longer. Both types of element,

Vn and A, add to the percentage of null adverbials opening the sentence. In Stages IV and V sentence length also relates to the number of null adverbials, but the additional Vn gives rise to slightly more null fronted adverbials than the additional adverbial.

The number of adverbials in the postfield, following the nonfinite verb, increases with syntactic ability. Stage III has 3 instances, Stage IV has 14; Stage V has 12 and Stage VI has 30 instances of this adverbial position. This position also occurs in adult language and is not considered erroneous.

4.7.8 Summary and discussion: the position of the adverbial

The main results of the study concerning adverbial placement is:
1. Adverbial placement in subordinate clauses is error-free.
2. Adverbial placement in independent clauses is error-free. Some placements in the postfield occur, but they are not considered erroneous.
3. The flexibility found in adult language is also found in child language.

The position of the adverbial vis à vis the object in the middle field is flexible. Both AO and OA happen to occur in exactly 50% of the cases.

Fronting of the adverbial to the prefield takes place in 46% of the sentences containing adverbials. As sentences have more adverbials, there is a greater tendency for one adverbial to be fronted and for that adverbial to be null. Fronting takes place mainly to forge discourse cohesion. In the first Stages this is almost the sole reason for fronting. Fronted adverbials are null in 52% in Stage III, declining to 28% in Stage VI (see table 4.8).

The question can be raised why the fronting of A (or O) resulting in a null first position as in (10) and (12) has such high frequencies in child language. A possible explanation might be that children imitate the word order in their input, even at the cost of deletion of the first element. There being constraints on the number of clause elements in her sentence, the child speaker gains by not expressing the first element, which can be understood without expression, thereby creating the possibility of expressing another clause element. Ease of production is a primary value for any speaker; this is probably even more so for children with production constraints. Null subjects in American English were explained similarly by Bloom (1990a).

4.7.9 Discussion of hypothesis 1.2a

The reader will recall hypothesis 1.2.a:
The order of the elements of clause structure in Dutch children's independent declarative, interrogative and imperative sentences and in subordinate clauses is in agreement with the order in Child Directed Speech. (The order in Child Directed Speech is taken to be in agreement with the order in adult language.)

The evidence supporting hypothesis 1.2a is completely satisfactory. Only 1.5% of syntactic structures showed a non-adult word order in this investigation. The data show that:
1. The order in subordinate clauses is always correct. Researchers of Dutch and German child language agree on this point.
2. The order in questions is always correct. As discussed in section 4.7.2 the error-free acquisition of questions is not in agreement with Slobin's 1985

statement concerning question inversion in German (Slobin 1985: 1234).
3. The order in imperative sentences is always correct.
4. Declarative sentences mainly show correct orders. There are two deviations in this area. One is the placement of the object in the postfield, an error also occasionally observed in adult speech. This is considered a performance error. The second type of deviation is subordinate-clause order in independent-clause contexts. This is explained as an error resulting from the immediate imitation of the last words of a subordinate clause, or from the competition between the two orders. Dutch (and German) children perceive two major word orders: the independent-clause word order and the subordinate-clause word order. The frequency of the independent-clause order in their input is assumed to be much higher than the subordinate-clause order. The Stage-III child generally uses the independent-clause order with an occasional use of the subordinate-clause order in independent-clause contexts. In Stages IV and V the subordinate-clause order in independent-clause contexts decreases while the child is discovering the function of the subordinate-clause order; in Stage VI no subordinate-clause order is found in the wrong context. In the literature some sentences which are considered to be correct in this investigation, are judged to have deviating order. This is a matter of perspective. According to the Principle of Inflation the child's sentence is imposed on the adult framework, without taking into account that a number of elements is missing for the sentence to be complete according to standards of adult written language. When this Principle is adhered to, Dutch children are rarely heard to produce erroneous word orders.

4.7.10 Discussion of hypothesis 1.2b

The reader will recall hypothesis 1.2b:
The first generally acquired order of sentences with S, Vf and O/A in Dutch child language is SVfO/A.
All independent clauses with a verb phrase in the present corpus were studied for clause patterns. The result is 601 different patterns in the entire sample of 6111 independent clauses. The 844 clauses with verb phrases in Stage III, the earliest stage of three clause-element clauses, contained a total of 119 different patterns, thus showing a great flexibility in their word order.

In the declarative sentence, which has most possibilities for flexible clause-element placement, there are variations in placement of subject, direct object and adverbial. The position of the adverbial varies greatly. It may occupy a position in the prefield, various positions in the middle field, and in a small number of cases its position is in the postfield. The position of the direct object is mainly in the middle field. It may precede or follow the adverbial there. In 27% the direct object is fronted to the prefield. The fronting of the adverbial or the direct object in pragmatic variations results in a position of the subject in the middle field, the VS order. The position of the verb does not show any variations in child or adult language.

In 4.1 the degree of flexibility of clause elements in adult language was summarized as A > O > S > V. I conclude that the same flexibility is found in child language. Therefore, Slobin and Bever's 1982 proposition that children first construct a canonical sentence schema as a basic framework cannot be supported.[6]

4.7.11 Discussion of hypotheses 1.2a and 1.2b

It is evident that hypothesis 1.2a and hypothesis 1.2b are in contrast. If hypothesis 1.2a is supported, various word orders are found in all sentence types, thus reflecting the variation in adult language. If hypothesis 1.2.b were supported, children would first acquire one word order: the neutral order. We have seen that hypothesis 1.2a was accepted and that 1.2b was rejected. Word order in Dutch child language is varied and correct from the beginning of the use of syntactic structures. These results are problematic in the light of Slobin and Bever's (1982) theory about the canonical sentence as the first sentence pattern that is acquired. In Dutch the early declarative sentence is structured in more than one pattern: the pragmatic variations of subject, direct object and adverbial placements emerge in the earliest stage of acquisition. Bowerman came to similar conclusions in her study on Finnish children:

> The Finnish children had also learned something about the permissable alternate orders of their language: the relative frequencies with which the children and their mothers produced various word orders of given construction patterns, such as subject-verb-object, were very similar. (Bowerman 1973: 221)

In Slobin's major summing up of cross-linguistic studies, he stated that the notion of the canonical sentence schema is expressed in the Operating Principle OP(UNITS: CANONICAL CLAUSE FORM): "If a clause has to be reduced, rearranged, or otherwise deformed when not functioning as a canonical main clause, attempt to use or approximate the full or canonical form of the clause." (Slobin 1985: 1220) If Dutch children's acquisition of subordinate clauses were in agreement with this principle, we would expect independent-clause orders in subordinate clauses. These do not occur. What Dutch children do if they want to express logical subordination and cannot produce a full multi-clause sentence with subordination, is preserve the word order, and express what items they can, giving precedence to lexical over functional categories. This has been stated by many authors in the literature (see section 4.2).

With regard to questions in Dutch we saw that if *wh*-questions cannot be produced according to the rules, they do not occur, or the *wh*-words are left unexpressed, while word order is preserved. Yes-no questions in the stage before they can be fully expressed do not show the declarative-sentence order with question intonation, acceptable in adult Dutch, but they do show deletions of auxiliary or auxiliary and subject, thus avoiding the expression of question inversion. OP(UNITS: CANONICAL CLAUSE FORM) applies to a certain extent to the absence of ellipsis in coordinated structures.

On the basis of the acceptance of hypothesis 1.2.a and the rejection of 1.2.b we can disambiguate for Dutch Slobin's Operating Principle C2 (1973), "Word order in child speech reflects word order in the input language" as follows:

Word orders in child speech reflect word orders in the input language.

Notes

1. Fletcher (1986: 144), who studied children from the age of three, adopted the criteria that two coordinated sentences are recognized as a unit:
a. if there is appropriate ellipsis or gapping in the second clause
b. if in the absence of ellipsis there is anaphoric reference inthe second clause to an NP in the first.
Fletcher's criteria result in the non-identification of coordinated sentences with different (lexical) referents.
2. This holds to a lesser extent for the two types of questions (see Crystal, Fletcher and Garman 1989: 202).
3. The following sentence types and clause elements were coded to describe clause patterns:
Sentence types:
- wh-questions, wh-questions with null question words
- yes/no questions (containing a finite verb followed by a subject)
- imperatives (beginning with a finite verb)
Verb phrase:
- finite verb
- nonfinite verb
- finite copula
- nonfinite copula
Subject, null subject in initial position
Arguments:
- direct object, null direct object in initial position
- indirect object
- complement, null complement in initial position
- adverbial, null adverbial in initial position
- negation
Subordinator.
4. In an earlier stage, not reaching the criterion for Stage II of 5% two-element utterances, Daantje showed final Vnf placement in his six utterances consisting of a babble and an infinitive as in: *(babble) kijken* '(babble)look' and *(babble) pakken* '(babble) take'. In his utterances consisting of a gesture, indicating a direct object and a verb, again the correct word order was realized.
5. In comparing the percentages of empty first positions in Dutch and English, it must be taken into account that in English the object and adverbial are not frequently in first position, so that null objects and adverbials in these positions are not to be expected in English child language. A comparison of the percentage of empty first subjects of the American children with the combined percentages of empty first subjects, objects and adverbials of Dutch children might be more relevant in this context.
6. Clahsen (1986) came to similar conclusions with reference to German. He stated that the dominant pattern in the earliest phases is SXV. In his Phases III and IV, case markings have not been acquired, which according to Slobin's version of the canonical sentence schema of 1981 (Slobin 1981) are characteristic of the German canonical sentence schema. As soon as case markings have been acquired, after Phase IV, first positions can be filled by complements and adverbials. Clahsen's conclusions are not wholly comparable with the conclusions reached in the present study, mainly for methodological reasons.

Chapter 5

The Verb phrase

This chapter describes the development of the verb phrase. Section 5.1 deals with the structure of the verb phrase in adult Dutch. Section 5.2 presents hypotheses concerning the verb phrase in the language of Dutch children. The first hypothesis postulates that children grow in their use of the verb phrase, both quantitavely and qualitatively, as their syntactic development increases according to the Clause Element Index (CEI). This is dealt with in sections 5.3 and 5.4. Section 5.3 presents two quantitative factors in verb phrase development: the increase in utterances with a verb phrase and the increase in finite verbs. Section 5.4 deals with the emerging verb phrase structures in the language of Dutch children under four, in the six developmental Syntactic Stages that were defined in chapter 3. Section 5.5 investigates the second hypothesis, which is concerned with the use of finite versus nonfinite verbs in child and adult language. All verbs in the corpus are classified according to Givón's verb classification and related to the form, finite versus nonfinite, in which they are used. In section 5.6 both hypotheses are discussed. Section 5.7 offers some conclusions.

5.1 THE STRUCTURE OF THE VERB PHRASE IN ADULT SPEECH

This section outlines the verb inflectional paradigm and complex verb phrases in adult Dutch. The outline is limited to those structures which generally occur in the language of Dutch children under four years old.

5.1.1 General notions

Four categories of verbs are distinguished: copulas, modal verbs, auxiliaries and lexical verbs.
Verbs are regular (weak) or irregular (strong, or mixed weak and strong). The inflection of the copula *zijn* 'be', the modal verbs and the auxiliaries is irregular. Lexical verbs are either regular or irregular in their past participle and past tense. The other inflected forms are regular.
Verb forms are finite or nonfinite. In chapter 4 (1.2) the position of finite and nonfinite verb forms in the sentence was discussed: in dependent clauses finite and nonfinite verbs are in sentence-final position while in independent clauses the finite verb is in first or second position, the nonfinite verb in sentence-final

position.

5.1.2 Inflection of the lexical verb

Inflectional prefixes and/or suffixes are added to the stem of the verb, which has the form of the infinitive without the ending- *en* .[1] There are nonfinite and finite forms.

A. Nonfinite forms. The following forms are distinguished:

a. Infinitive. The infinitive forms of all regular and most irregular verbs end in unstressed *-en* as in *pakken* 'take' and *roepen* 'call'. The *-en* is pronounced [∂] in most regions.

b. Past participle. Past participles generally have the prefix *ge-*. Regular verbs add the suffix [*-t*] (orthographically -t or -d) to the, hypothetical, verb stem, as in *gepakt* 'taken'. Irregular verbs are formed by:

1. a vowel change or gradation in the verb stem and an *-en* suffix as in *kijk* STEM 'look', *gekeken* PAST.PART 'looked', or

2. a change in vowel+consonant and a *-t* suffix as in *denk* STEM 'think', *gedacht* PAST.PART 'thought', or

3. the verb stem and an *-en* suffix, as in *roep* STEM 'call', *geroepen* PAST.PART 'called'.

B. Finite forms. In independent clauses Dutch requires a finite form in predicates. Finite forms indicate tense and number. The following finite forms are distinguished:

a. Present tense. There are three forms in the present tense paradigm: the verb stem, the verb stem + *-t*, the verb stem + *-en*. Compare the paradigm of *pakken* 'take'.

verb stem	*pak*
	1st person singular
	2nd person singular in VS order
verb stem + *t*	*pakt*
	3rd person singular
	2nd person singular in SV order
stem + *-en*	*pakken*
	1st, 2nd, 3rd person plural

The two singular forms are interchanged in some regional variations, among others in the Utrecht variety. Plural forms are identical with the infinitive.

b. Past tense. The past tense paradigm differs for regular and irregular verbs. Regular verb stems ending in a voiceless consonant have the suffixes *-te* (singular) and *-ten* (plural); verbs ending in a voiced sound form their past tense with the suffixes *-de/-den*. Irregular verbs have gradation in the stressed vowel of the stem, no suffix in the singular and an *-en* suffix in the plural, as in *riep/riepen* 'called'. Compare the paradigms of *pakken* 'take' and *roepen* 'call'.

verb stem *pak*	
verb stem + *-te*	*pakte* singular
verb stem +*-ten*	*pakten* plural
verb stem *roep*	
verb stem with gradation	*riep* singular
verb stem with gradation + *en*	*riepen* plural

5.1.3 Derivation of the verb

The only type of derivation in the language of Dutch children under four is in the separable prefix or compound verb, a highly frequent and productive phenomenon in Dutch. The infinitive has a particle (usually a preposition or an adverb) for its first member, and a verb for its second member, as in *weggooien* 'away throw'(= 'throw away'). In the past participles of the separable verbs, the *ge-* prefix becomes an interfix between the particle and the verb proper as in *ge-gooid* 'thrown', *weg-ge-gooid* 'thrown away'.

5.1.4 Complex verb phrases

Complex verb phrases combine a finite form with one or more nonfinite form(s), modal verbs or auxiliaries. Modal verbs and auxiliaries are not morphologically defective in Dutch. The following complex verb phrases are distinguished.
a. Modal verb + infinitive as in *zij kan lezen* 'she can read', or expressing the future, *ik zal je schrijven* 'I shall write to you'.
b. Auxiliary of aspect + infinitive as in *zij gaat lezen* 'she is going to read'.
c. Perfect and pluperfect: the perfect is an analytic tense formed with one of the auxiliaries *hebben* 'have' or *zijn* 'be' + a past participle. Intransitive verbs expressing a change of state take *zijn* 'be', as in *zij is gevallen* 'she has fallen'. All other verbs take *hebben* 'have', as in *zij heeft gelezen* 'she has read'. In these examples the auxiliary is in the present tense. In the pluperfect the auxiliary is in the past tense, as in *zij was gevallen* 'she had fallen' and *zij had gelezen* 'she had read'.
d. Separable prefix verbs are separated in independent clauses in their finite forms and thus form complex phrases. The inflected verbal member is in first/second position, the particle in sentence-final position. Compare *ik gooi het weg* 'I throw it away' with *weggooien* 'away-throw'.

The following two types of complex phrases are occasionally found in the corpus, but do not reach the criteria of emergence:
a. Passive. This is formed by the auxiliary of the passive *worden* 'be' + past participle as in *hij wordt gewassen* 'he is (being) washed'.
b. Complex phrases expressing a durative aspect. They may consist of an auxiliary + preposition *te* + infinitive, as in *zij zit te lezen* 'she sits reading', or of an auxiliary + preposition *aan* + article *'t* + infinitive, as in *zij is aan 't lezen* 'she is reading'.

5.1.5 Proform verbs

In Dutch, modal verbs may be used as independent verbs. A complement is required. This is a direct object as in *zij moet die* 'she must that one' or an adverbial as in *zij moet ook* 'she must also'. Behrens (1993: 23) interprets these structures as having an omission of the infinitive due to contextual ellipsis. However, it is often not possible to identify or supply the omitted verb. These independent modal verbs are more like proforms; together with their complement they stand for a complete predicate. I shall therefore refer to these verbs as Proform verbs and consider them as a class of lexical verbs. They are always intransitive.

5.2 RESEARCH HYPOTHESES

In this section the two hypotheses concerning the development of the verb phrase are discussed. The first hypothesis deals with quantitative aspects of the verb phrase as children develop syntactically according to the CEI, the second with a qualitative aspect of verb use: the relation between verb class and the distinction finite/nonfinite.

5.2.1 Validity of the CEI: frequency and variety of the verb phrase

In chapter 3 the CEI was introduced as an index of syntactic development. On the basis of the CEI all language samples were stratified. CEI considers only clause elements for the indexation of language samples. If the CEI indexation is valid we expect children to show developmental increases on other syntactic levels, e.g. the verb phrase, as they show progress according to the CEI. This leads to hypothesis 2.1.

Hypothesis 2.1
Verb phrases become more frequent and more varied as children develop syntactically according to their indexation by CEI.

This hypothesis is operationalized in the following predictions.
Prediction 2.1.1 The proportion of utterances with a verb phrase increases as children are indexed to a higher Syntactic Stage (see Wells 1985; Behrens 1993).
Prediction 2.1.2 The variation in verb categories: lexical verbs, copulas, modal verbs and auxiliaries, increases as children are indexed to a higher Syntactic Stage (see Behrens 1993).
Prediction 2.1.3 The variation in morphological verb forms and complex verb phrases increases as children are indexed to a higher Syntactic Stage.
Prediction 2.1.4 The proportion of verb phrases with a finite verb increases as children are indexed to a higher Syntactic Stage (see Klein 1974; Verhulst-Schlichting 1985; Jordens 1990; Behrens 1993).
These predictions are tested in sections 5.3 and 5.4.

5.2.2 Finite versus nonfinite forms across verb classes

Prediction 2.1.4 assumes that a larger proportion of verb phrases will contain a finite verb as children develop syntactically. The prediction deals only with the quantitative aspect of the increase in finite verbs. The qualitative aspects warrant a separate investigation into what verbs make up the expected increase in finite verbs. In the literature two principal ways are presented in which the proportions of finite verb phrases can grow.

1. The expansion of a nonfinite verb phrase by the addition of a finite form, a modal verb or an auxiliary. Jordens (1990), in the study of his daughter Jasmijn, claims that children's OV, where V is a nonfinite form, should be seen as precursors to complex phrases which include modal verbs or auxiliaries.
2. The use of finite instead of nonfinite forms of lexical verbs. In Dutch main clauses, lexical verbs are either nonfinite in basic sentence-final position or finite and in first/second position (see section 4.1.2). The child starts out with a nonfinite system: all lexical verbs are infinitives and sentence-final. It is generally assumed that the child changes from the nonfinite system to a finite system and is then able to use all verbs in finite forms in first/second position. The acquisition of the rule of verb fronting, the movement from sentence-final to first/second position with a change to added finiteness has been the subject of many theoretically oriented investigations of both German and Dutch, languages which show great syntactic similarity in verb placement (for an overview see Behrens 1993: 44 ff.). It is argued that the child who acquires a verb in finite form in first/second position, while previously she used the same verb only in nonfinite form in sentence-final position, recategorizes this verb. A conclusion of Behrens's investigation (1993: 116) is that the verbs which are first acquired in nonfinite forms are "gradually replaced by their finite counterparts".

Clahsen (1986), in his longitudinal study of three German children, also reported on this aspect of acquisition. The two verb categories used by his subjects in the first stage of development are either intransitive verbs requiring non-agents, in forms with *-t* morphology as in *dreht immer* 'turns always', and transitive verbs requiring agents in forms with no morphology or an *-en* suffix, as in *Purzel pierkorb rausraüm* 'Purzel waste paper basket remove' (=Purzel removes a wastepaperbasket) and *deckel drauftun* 'cover onput' (= put the cover on). Clahsen found no systematic distributional differences between nonfinite and finite forms.

De Haan (1987) came to opposite conclusions in his study of one Dutch child. He found that initially there is a distributional difference between verbs used in final position and those used in first/second position. The child has two distinct verbal categories: Aux, the auxiliary used as a finite verb in first/second position, mainly indicating time and modality, and V, the lexical verb which is used in sentence-final position. Later the category 'Aux' is enlarged with members which also have a regular infinitive, by recategorization.

Jordens (1990) came to the same main conclusion as De Haan: there are two verb categories which are distributionally different. Jordens did not support De Haan's categorization into Aux and V or the distinction intransitive/transitive found by Clahsen. Jordens assigned Jasmijn's verbs to three categories:

a. stative or nonmovement verbs, which are used in a finite form in first/second

position. For example *lusten* 'like' and *wonen* 'live';
b. resultative verbs, which are used in finite form in first/second position or in past participle form in sentence-final position. For example *vallen* 'fall';
c. activity verbs, which are used in infinitive and past participle form in sentence-final position, for example *kleuren* 'colour'. Jordens suggests that one explanation for the distributional differences is that they reflect the differences in the input language. According to him there is another possible explanation, viz. that the child is able to interpret distributional input differences as semantically systematic in terms of aktionsart (aspect) categories, and this is the explanation for which he seeks evidence.

Behrens studied seven German children longitudinally (among them Clahsen's subjects). Her conclusion with regard to distributional differences was that modal verbs and copulas are first acquired in finite forms; lexical or content verbs are first acquired in nonfinite forms (Behrens 1993: 116). Her explanation is that modals and copulas are frequently finite in the input language and are therefore first acquired in finite form. This supports Jordens' first, rejected, explanation of the distributional differences.

Schlichting and Wijnands (1992) studied the spontaneous language of Dutch adults in several linguistic contexts. They analysed 750 utterances containing a direct object and a verb and categorized the verbs according to Givón's scale of semantic transitivity (Givón 1984: 89 ff.). Schlichting and Wijnands concluded that the degree of semantic transitivity determines to a considerable extent the position and morphology of the lexical verb. Verbs with strong prototypical transitivity such as *bouwen* 'build', are rarely found in first/second position in finite form. Verbs with weak semantic transitivity such as *zien* 'see' are found both in first/second position and in sentence-final position. On the basis of these findings it seems possible to extend Behrens' findings. While she concluded that, in agreement with their frequency in adult language, copulas and modal verbs are acquired in finite form and content verbs in nonfinite form, I hypothesize a more general principle of verb acquisition. It is proposed that all verbs which are more frequent in finite forms in adult speech are acquired in finite forms and all verbs which are more frequent in nonfinite forms are acquired in nonfinite forms. (1993:116).
These assumptions are expressed in hypothesis 2.2.

Hypothesis 2.2
A verb which is more frequent in finite form(s) than in nonfinite form(s) in Child Directed Speech is (first) acquired in finite form(s); a verb which is more frequent in nonfinite form(s) than in finite form(s) in Child Directed Speech is first acquired in nonfinite form(s). (The frequencies in Child Directed Speech agree with the frequencies in non-Child Directed adult speech.)

To study the development of finiteness all verbs in the corpus are classified into verb classes (see section 5.5). The prevalence of finiteness of a number of verbs in these classes is compared with the prevalence of finiteness of the same verbs in adult speech.

5.3 VALIDITY OF THE CEI: TWO QUANTITATIVE FACTORS IN DEVELOPMENT

This section relates to predictions 2.1.1 and 2.1.2. It deals with two quantitative factors in verb phrase development: the growing number of utterances with a verb phrase and the growing number of verb phrases with a finite verb.

5.3.1 Utterances with a verb phrase

A main requirement for the child's syntax to develop is the increase in the proportion of utterances which contain a verb phrase. Calculations of verb phrases show a systematic increase in the proportions of verb phrases as children develop. Table 5.1 shows mean numbers of utterances containing verb phrases with the standard deviations in the 200-utterance language samples per child, ranging from 16 in Stage II to 98 in Stage VI. The standard deviations become smaller, relatively. Table 5.1 also shows the percentages of utterances containing a verb phrase across the Stage corpora in Stages II - VI. In the Stage-II corpus, which comprises 12 language samples, only 8% of utterances contains a verb phrase; this percentage increases to 49% in the Stage-VI corpus. This is shown graphically in figure 5.1.

Table 5.1 *Incidence of utterances containing at least one verb phrase in Stages II - VI.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Per language sample					
Total no. of utterances	200	200	200	200	200
Mean no. of utter. with VP	16	49	76	85	98
SD	9	21	16	14	13
Per Stage corpus					
Number of utterances	2400	4000	5000	3800	3400
No. of utterances with a VP	196	985	1906	1609	1674
Percentages	8%	25%	38%	42%	49%

The differences between the Stages were tested with the t-test and found to be significant in three out of four transitions. The significance levels are as follows:

Stage II/III: significant (p= .000)
Stage III/IV: significant (p= .000)
Stage IV/V: a trend (p= .078)
Stage V/VI: significant (p= .005)

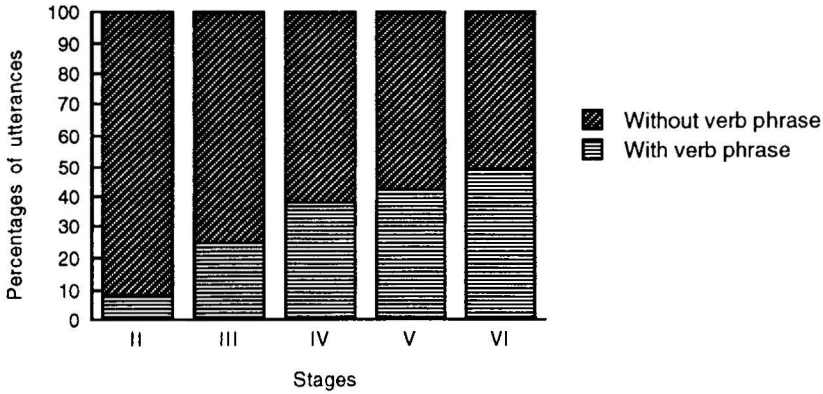


Figure 5.1 *Utterances containing at least one verb phrase in Stages II - VI.*

5.3.2 Verb phrases with a finite verb

As children develop syntactically, more of their verb phrases are expected to contain a finite verb. In the present study this results in an increase in the proportion of finite verb phrases as children are indexed to a higher Syntactic Stage; this was briefly mentioned in chapter 4 (7.1). Numbers and percentages of finite verb phrases are given in table 5.2. In Stage II the percentage of verb phrases containing a finite verb is 29%. This high percentage is not in agreement with reports in the literature (see 5.6). The percentage rises to 92% in Stage VI.

Table 5.2 *Incidence of finite verb phrases in main clauses in Stages II - VI.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Number of VP	196	985	1906	1609	1674
Number of finite VP	57	567	1528	1445	1548
Percentages	29%	58%	80%	90%	92%

The differences between the Stages were tested with the t-test on arcsine transformed values (Sokal and Rohlf 1994), with the following results:

Stage II/III: significant (p= .000)
Stage III/IV: significant (p= .000)
Stage IV/V: significant (p= .003)
Stage V/VI: not significant (p= .367)

These data show that the main development in the proportion of finite verb phrases is from Stages II - V. This is shown graphically in figure 5.2.

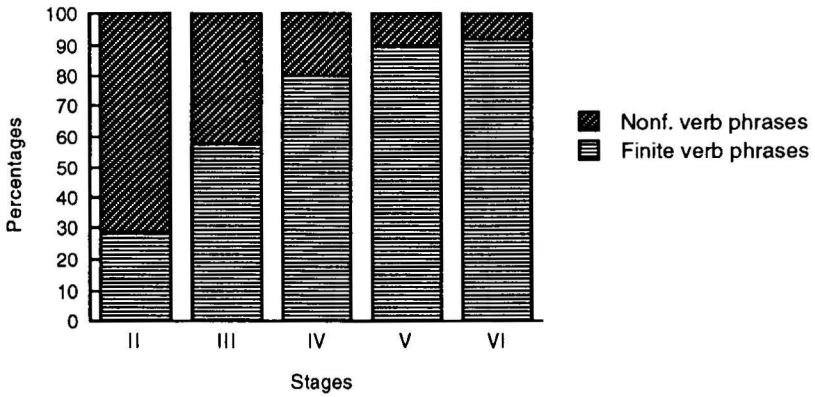


Figure 5.2 *Finite and nonfinite verb phrases in Stages II - VI.*

5.4 THE DEVELOPING VERB PHRASE

The purpose of this section is to describe the emergence and use of verb phrase structures in children under four, and to study its relation to the syntactic development as indicated by the CEI. The newly emerging forms are studied irrespective of whether other forms of the same verb are used; it does not concern the acquisition of morphological contrast.

This section contains five subsections dealing with the emerging verb phrase structures in Syntactic Stages I - IV and Stage VI (Stage V contains no newly emerging verb phrase structures). In these subsections the emerging inflectional forms in a given Stage are presented first, followed by the emerging complex verb phrases. In Stage III there is also an emerging derivational form. The criteria for emergence of forms or phrases are similar to those of clause structure: 50% of language samples in a Stage corpus should show at least one occurrence of the relevant structure for that structure to be entered as emerging in that Stage (see chapter 3 (3.5). For all structures three types of frequency are given:

a. Subject Frequency. This indicates the number of subjects in the corpus of a particular Stage, in whose language samples the structure occurs. In appraising these, the total numbers of subjects in the five corpora, varying from 12 - 25, must be taken into account.

b. Frequency of Occurrence. This is the total number of occurrences of a given structure in a Stage corpus.

c. Mean Token Frequency per language sample. This is calculated across only those language samples in which the given structure occurs.

5.4.1 The Verb Phrase in Stage I

In Stage I the infinitive of the lexical verb emerges.

The Infinitive of the lexical verb

In the language samples indexed as Stage I (n=7) the infinitive as the sole element of the verb phrase, i.e. the single infinitive of the lexical verb, occurs in all speech samples. In this respect Dutch differs from a language like English, in which children do not acquire verbs in their single-word phase (for examples and explanation see chapter 2). The single infinitive is still the most frequent form of verb phrases in Stage II and continues to be used, with decreasing frequencies, up to Stage VI.

Table 5.3 shows the frequency data with regard to the prevalence of infinitives, irrespective of whether they are combined with an auxiliary or not, in Stages II - VI. The Subject Frequencies are 100% in all Stages. The Mean Token Frequencies show a fairly stable number of infinitives from Stage III - Stage VI, with a range of 21 - 27. Table 5.3 also shows the number of types of infinitives. This number increases sharply up to Stage IV, and appears to remain fairly constant from Stages IV - VI, with a range of 122 - 130. However, as the number of language samples declines from Stage IV to Stage VI from 25 to 17, the number of types may still be considered to increase. This is also evident from the number of types covering 50% of the tokens, which increases from 4 in Stage II to a stable number of 13 in Stages V and VI. In the notes to table 5.3 the types covering 50% of the tokens are shown.

Table 5.3 *The infinitive of the lexical verb: incidence and types.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Subject Frequencies	12	20	25	19	17
Frequencies of Occurrence	134	417	684	438	466
Mean Token Frequencies	11	21	27	23	27
No. of types	27	74	122	121	130
No. of types in 50% of tokens	4[a]	6[b]	9[c]	13[d]	13[e]

a. *kijken* 'look', *draaien* 'turn', *drinken* 'drink', *zitten* 'sit'.
b. *kijken* 'look', *pakken* 'take', *slapen* 'sleep', *doen* 'do', *maken* 'make', *lopen* 'walk'.
c. *doen* 'do', *maken* 'make', *kijken* 'look', *tekenen* 'draw', *pakken* "take', *zitten* 'sit', *lopen* 'walk', *hebben* 'have', *eten* 'eat'.
d. *doen* 'do', *maken* 'make', *pakken* "take', *hebben* 'have', *spelen* 'play', *kijken* 'look', *eten* 'eat', *staan* 'stand', *meedoen* 'join', *zitten* 'sit', *halen* 'fetch', *liggen* 'lie', *rijden* 'drive/ride'.
e. *doen* 'do', *zitten* 'sit', *maken* 'make', *hebben* 'have', *staan* 'stand', *kijken* 'look', *spelen* 'play', *eten* 'eat', *opeten* 'eat up', *pakken* 'take', *versieren* 'decorate', *rijden* 'drive/ride', *zoeken* 'find'.

5.4.2 The Verb Phrase in Stage II

In Stage II the copula emerges; it is the first finite verb to be acquired.

The copula: present tense singular
In Stage II the copula is mostly used for identification, as in (1).

(1) *is koe* Maarten
is cow

Table 5.4 shows the frequencies of the copula. The Subject Frequencies range from 50% of subjects in Stage II to 100% of subjects in Stages IV - VI. The Mean Token Frequencies per sample range from 5 in Stage II to 12 in Stage VI.

Table 5.4 *The copula* zijn *'be': incidence of the present tense singular, and Frequencies of Occurrence of other finite forms in Stages II - VI.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Present tense singular					
Subject Frequencies	6	16	25	19	17
Frequencies of Occurrence	31	126	246	205	199
Mean Token Frequencies	5	8	10	11	12
Frequencies of Occurrence of other finite forms					
Present tense plural	1	4	13	28	17
Past tense (all singulars)	-	-	1	19	21
Total Frequencies of Occurrence	32	130	260	252	237

Nearly all copulas in the corpus are finite forms of the present tense of *zijn* '(to) be'. In Stage II only the 3rd person present singular, *is* 'is' occurs. The 1st person present singular *ik ben* 'I am' first meets the criterion of emergence in Stage V. The 2nd person present singular occurs infrequently; the 11 occurrences in Stage VI were all found in 3 speech samples. This low Subject Frequency is possibly caused by situational factors during the observation as well as by a late moment of acquisition.

Children in Stage II only produce the full form *is*. The enclitic form *'s* emerges in Stage III. Sometimes the form *isse* 'is' occurs; it consists of the regular form *is* with a schwa-ending. This schwa is sometimes interpreted as a precursor of the indefinite article *een* 'a'. (For explanations see chapter 4 (7.1).)

Copulas other than *zijn* 'be' are far less frequent and emerge much later. *Worden* 'become' has 21 occurrences, *heten* 'be called' has 12 and, *lijken* 'seem' has 5.

5.4.3 The Verb Phrase in Stage III

In Stage III the first finite forms of lexical verbs emerge. Other developments are the past participle, the nonfinite separable prefix verb and the first complex phrases consisting of a modal verb followed by an infinitive complement.

Present tense singular of the lexical verb
In Stage III we see the emergence of the present tense singular of the lexical verb. Examples are (2) and (3).

(2) *kan ie niet* — Nicky
can he not (he can't do that)
(3) *ik heb ook* — Desmond
I have too

Frequencies are given in table 5.5. The Subject Frequency of singular present tense form users in Stage III is already 95%; in Stages IV - VI it is 100%. The Mean Token Frequencies per sample show a sharp increase from Stages III - IV, viz. 17 to 29.

Table 5.5 *The inflection of lexical verbs: incidence of the present tense singular and Frequencies of Occurrence of other finite forms, in Stages II - VI .*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Present tense singular					
Subject Frequencies	5	19	25	19	17
Frequencies of Occurrence	18	329	777	696	721
Mean Token Frequencies	4	17	29	37	44
Frequencies of Occurrence of other finite forms					
Present tense plural	-	9	34	63	84
Past tense	-	2	6	27	30
Total Frequencies of Occurrence	18	340	817	786	835

The person ratios in the present tense singular change as children develop. The portion of the 1st person increases from 19% in Stage III to 29% in Stage VI. The child more often refers to herself with the personal pronoun than previously when she mainly used her first name. The 2nd person runs from only 3% in Stage III to 14% in Stage VI. This increase can be ascribed to the social development of the children: they become more communicative in their speech and are more aware of the interviewer as a person. The portion of the 3rd person in the lexical verbs decreases from 77% in Stage III to 57% in Stage VI.

As children develop, the Mean Token Frequencies increase, as we saw in

table 5.5. There is also a predictable increase of the number of types used. This is shown in table 5.6. In Stage II, 10 verb types occur, in 5 speech samples, gradually increasing towards 92 verb types in Stage VI in all the 17 speech samples in the corpus. The small number of verbs which are used with a high frequency is also considered in table 5.6. In Stage III, 11 types cover 75% of the tokens, and this number shows but a small rise to 15 types, covering 75% in Stage VI. The types are given in the notes to table 5.6 in descending frequencies. Looking at the types that cover 50% of tokens, we see that 4 types in Stage II cover 50% of tokens, gradually increasing to 7 types in Stage VI. The lexical categories of these verbs will be discussed in section 5.5.3.

Table 5.6 *The present tense singular of lexical verbs: number of types in the Stage II - VI corpora.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Subject Frequencies	5	19	25	19	17
Frequencies of Occurrence	18	324	720	703	746
No. of types	10	45	67	70	92
No. of types in 75% of tokens	-	11[b]	10[c]	11[d]	15[e]
No. of types in 50% of tokens	4[a]	5	5	4	7

a. *doen* 'do', *moeten* 'must', *staan* 'stand', *zijn* 'be'; (=53%; others are single occurrences).
b. *kunnen* 'can', *moeten* 'must', *zijn* 'be', *gaan* 'go', *doen* 'do', *hebben* 'have', *komen* 'come', *mogen* 'may', *vallen* 'fall', *willen* 'want', *zien* 'see'.
c. *moeten* 'must', *kunnen* 'can', *mogen* 'may', *hebben* 'have', *zijn* 'be', *(be)horen* 'ought', *gaan* 'go', *komen* 'come', *vallen* 'fall', *zitten* 'be (in)'.
d .*hebben* 'have', *moeten* 'must', *zijn* 'be', *kunnen* 'can', *mogen* 'may', *doen* 'do', *gaan* 'go', *(be)horen* 'ought', *zitten* 'be (in)', *passen* 'fit', *vallen* 'fall'.
e. *hebben* 'have', *moeten* 'must', *kunnen* 'can', *zijn* 'be', *gaan* 'go', *weten* 'know', *doen* 'do', *komen* 'come', *mogen* 'may', *zitten* 'be(in)', *passen* 'fit', *willen* 'want', *(be)horen* 'ought', *staan* 'stand', *vallen* 'fall'.

Regional variations. A variation found in Utrecht and some other regions is ø morphology, by omission of the obligatory *-t* suffix of the 3rd person singular, as in (4). The same phenomenon occurs in the 2nd person singular in the SV order. The reverse of the *-t* deletion also occurs: *-t* is added to the stem of the verb in the 1st person singular, as in (5), and to the second person singular in the VS order. These variations are not accepted in the standard language. Another regional variation in the corpus, also common in nonstandard adult language, is the stem vowel change from *-a-* to *-e-* in *kan* -> *ken* 'can', as in (6). A nonstandard formation of the 3rd person singular of the verb *hebben* 'have', common in adult as well as child language, is the regular formation *heb* 'has', as in (7), while the standard language has the irregular form *heeft* 'has'.

(4) *paard loop(t)* — Anouck
horse walk

(5) *ikke haal-t die los* — Nico
I make that loose

(6) *ken niet* Chantal
cannot

(7) *mama heb ook radio* Nico
mummy has also radio

Past Participle

In Stage III the past participle reaches the criterion of emergence; it is the first verb form expressing a reference to the past. Examples are (8) and (9).

(8) *papa (ge)daan* Marije
daddy done (daddy has done that)

(9) *Paul (ge)keege* Vanetta
Paul got (I got it from Paul)

In table 5.7 the frequencies are shown. In Stage III the Subject Frequency is 60%; it increases towards 100% in Stage V. The Mean Token Frequencies are low and remarkably stable: they run from 4 in Stage III to 5 in Stage VI. In Stage III the past participle is mainly used as the sole verb in the verb phrase. As children develop, there is a growing use of an auxiliary of tense (see section 5.4.4).

Table 5.7 *The past participle: incidence in Stages II - VI.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Subject Frequencies	3	12	20	19	17
Frequencies of Occurrence	3	45	63	85	77
Mean Token Frequencies	1	4	3	4	5

The numbers of verb types used in past participle form are shown in table 5.8. We see a rise from 15 types in Stage III to 39 in Stage VI. The number of types covering 75% of tokens is 6 in Stage III; it is a stable 16/17 in Stages IV - VI. These are given in the notes to table 5.8 in descending frequencies. The number of types covering 50% of the tokens is also stable from Stages IV - VI, as shown in table 5.8. Most past participles found are from irregular verbs. Some regular past participles occur: *maken* 'make' and its derivatives is the principal representative.

Table 5.8 *The past participle: number of types in Stages II - VI.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Frequencies of Occurrence	3	45	63	85	77
Types	2[a]	15	38	36	39
No. of types in 75% of tokens	-	6[b]	16[c]	17[d]	17[e]
No. of types in 50% of tokens	-	3	7	9	8

a. *doen* 'do', *vallen* 'fall'.
b. *doen* 'do', *maken* 'make',*vallen* 'fall', *hebben* 'have', *krijgen* 'get', *blijven* 'stay'.
c. *maken* 'make', *krijgen* 'get', *doen* 'do', *vallen* 'fall', *hebben* 'have', *blijven* 'stay', *kapotgaan* 'break down', *komen* 'come', *aflopen* 'be finished', *duwen* 'push', *horen* 'hear', *kapotmaken* 'break', *kopen* 'buy', *schoonmaken* 'clean', *stoten* 'hit', *vinden* 'find'.
d. *doen* 'do', *hebben* 'have', *pakken* 'take', *vinden* 'find', *maken* 'make', *meenemen* 'bring', *schrijven* 'write', *bijten* 'bite', *eten* 'eat', *kopen* 'buy', *krijgen* 'get', *vallen* 'fall', *zijn* 'be', *aflopen* 'be finished', *geven* 'give', *gooien* 'throw', *omvallen* 'fall'
e. *zien* 'see', *doen* 'do', *krijgen* 'get', *maken* 'make', *vallen* 'fall', *vinden* 'find', *zijn* 'be', *dichtstoppen* 'fill', *hebben* 'have', *kapotgaan* 'break', *kijken* 'look', *kopen* 'buy', *meenemen* 'bring', *opeten* 'eat', *rijden* 'drive', *winnen* 'win', *aanlopen* 'walk'

In the early stages of participle formation the prefix *ge-* is often dropped, as in *(ge)-daan* 'done and *(ge)-kregen* 'got/received'. The omission of unstressed prefixes is a well known phenomenon in child language (Mills 1985: 168). It is classified as an Error of Deletion, type 2 (see chapter 1 (2.2). The percentage of dropped prefixes decreases as children develop syntactically, from 64% in Stage III to 1% in Stage VI. This is shown in table 5.9.

The second type of error in the formation of past participles is the misapplication of rules. This error is classified as an Error of Context, type 3 (see chapter 1 (2.2). Contrary to the *ge-* omission, this error increases as children advance in syntactic ability. Table 5.9 shows the percentages of rule-based errors in the various Stages. In Stage III this phenomenon is rare, with 1% of past participles, while in Stage VI it is more common, with 10% of past participles and a Subject Frequency of 50%.

Table 5.9 *The past participle: Frequencies of Occurrence of* ge- *deletions and rule-based non-adult forms in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Frequencies of Occurrence	45	63	85	77
With *ge-* deletion	29 (64%)	28 (44%)	13 (15%)	1 (1%)
Rule-based variations	1 (1%)	5 (8%)	3 (3%)	7 (10%)

Mills (1985: 168) reported for German that there is a frequent overgeneralization of rules from the regular to the irregular verb. This type of error was also found in the present study. For example, the past participle *gegeven* 'given' of the irregular verb *geven* 'give' becomes *ge-geeft*, by the application of the rule for the regular verbs (see section 5.1.2). In the corpus, 16 types of rule-based erroneous past participles occurred. Thirteen out of 16 types showed overgeneralizations of the rules from the regular to the irregular verb, mainly in the use of the stem vowel of the infinitive and/or in the use of the suffix *-t* instead of *-en*. The instances are all given in table 5.10. In one instance the prefix *ge-* was deleted (IVc). Only three verbs showed aspects of irregular verb inflection in regular verb formation (see table 5.10). Overgeneralizations from the vowel of the past tense to the past participle were not found. This is only to be expected as the past tense emerges relatively late, in Stage VI.

Table 5.10 *The past participle: correct and rule-based erroneous forms. Roman numbers refer to Stages (III-VI) of occurrence.*

Regular formation of irregular verb: irregular *-en* becomes regular suffix *-t*, absence of required gradation.	
	IVa *doodgeschoten-> doodgeschiet* 'shot dead'
	Va *opgebeten->opgebijt* 'bitten up'
	VIa *gegeten->geeet* 'eaten'
	VIb *gevochten->gevecht* 'fought'
Partly regular formation of irregular verb. irregular-*en* becomes regular suffix *-t*.	
	III *opgegeten->opgeeet* 'eaten up'
	Vb *gegeven->gegeef(t)* 'given'
	Vc *gegeven->gegeeft* 'given'
Partly regular formation of irregular verb: absence of the required gradation.	
	IVb *opgezocht->opgezoekt* 'found'
	IVc (*-ge*) *gekocht->(ge)koopt* 'bought'
	VIc *gekocht->gekoopt* 'bought'
	VId *gerejen->gerijen* 'driven'
	VIe *uitgekeken->uitgekijken* 'looked out'
Partly regular formation of irregular verb: irregular *-en* becomes regular suffix *-t*.	
	VIf *gekeken->gekeekt* 'looked'
Partly irregular formation of regular verb: regular *-t* becomes irregular suffix *-en*	
	IVd *weggedraaid->weggedraaien* 'turned away'
	VIg *bewaard->bewaren* 'kept'
Neologistic irregular formation of regular verb· regular *-t* becomes suffix *-en* and a vowel change.	
	IVe *weggewaaid-> weggewejen* 'blown away'

In the past participles of separable prefix verbs placement of the prefixes as an interfix between the particle and the stem of the verb is always in accordance with the adult rule, as in (10). In Stage VI 50% of the subjects have at least one instance in their sample. The interfix *-ge-* is sometimes dropped, as in (11).

(10) *open-ge-maakt* Claudia
opened

(11) *ikke klaar(ge)maakt* Femke
I prepared

Regional variations of the past participle show deletion of the *-t* suffix, as in (12).

(12) *patat en ballon kapotgemaak(t)* Nico
chips and balloon broken

Infinitive of the separable prefix verb

The separable prefix verb is the only derivational development in the acquisition of the verb. Examples are (13) and (14).

(13) *even uitdoen* Emil
just take off

(14) *zo vasthouden* Jeffry
so hold

Frequencies are given in table 5.11. The separable prefix verb is a highly frequent structure: in the present corpus 13% of infinitives are separable prefix verbs. The Subject Frequencies in table 5.11 show that the separable prefix verb in its infinitive form is a sudden emergence in Stage III, with 15 out of 20 subjects having at least one occurrence, while in Stage II only one subject uses this structure. Table 5.11 also shows the mean numbers of types covering 50% of the tokens. They range from 4 - 11 and are given in the notes to table 5.11.

Table 5.11 *The separable infinitive: incidence. Frequencies of Occurrence of types.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Subject Frequencies	1	15	25	19	17
Frequencies of Occurrence	2	25	97	67	77
Mean Token Frequencies	-	2	4	4	5
No. of types	1[a]	14	49	34	45
No. of types in 50% of tokens	-	4[b]	11[c]	7[d]	9[e]

a. *aandoen* 'put on'.
b. *opeten* 'eat up', *vasthouden* 'hold', *schoonmaken* 'clean', *afdrogen* 'dry'.
c. *opeten* 'eat up', *aankleden* 'get dressed', *opschrijven* 'write down', *kapotmaken* 'break', *vasthouden* 'hold', *afstappen* 'get off', *omvallen* 'fall over', *openmaken* 'open', *ophouden* 'stop', *opstaan* 'get up', *uitdoen* 'take off'.
d. *meedoen* 'join in', *opeten* 'eat up', *meenemen* 'take along', *opruimen* 'tidy', *afmaken* 'finish', *aandoen* 'put on', *afglijden* 'slide down'.
e. *opeten* 'eat up', *meedoen* 'join in', *aandoen* 'put on', *uitknippen* 'cut out', *vasthouden* 'hole', *afplakken* 'paste', *dichtdoen* 'close', *inschenken* 'pour out', *kapotmaken* 'break'.

Modal verb + infinitive: present tense singular

The first complex verb phrase to be acquired is the modal verb with an infinitive complement, as in (15) and (16). In Stage III the use of the structure is restricted to the present tense singular. The structure in (16) is discontinuous, a phenomenon which occurs almost from the beginning of the use of the structure. The meaning and phonological representation of the early modal verb are often diffuse.

(15) *moet slapen* Jasper
must sleep

(16) *deze kan nie(t) slapen* Vanetta
this can not sleep

Table 5.12 shows the frequencies. The Subject Frequency in Stage III is 60%; from Stage IV onwards it is 100%. The Mean Token Frequencies range from 3 in Stage III to 11 in Stage VI.

Table 5.12 *The modal verb + infinitive: incidence of the present tense singular, and Frequencies of Occurrence of other finite forms.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Present tense singular					
Subject Frequencies	3	12	25	19	17
Frequencies of Occurrence	5	37	211	177	192
Mean Token Frequencies	2	3	8	9	11
Frequencies of Occurrence of other finite forms					
Present tense plural	-	1	11	7	24
Past tense	-	-	-	1	14
Total Frequencies of Occurrence	5	38	222	185	230

Table 5.13 shows the Freqencies of Occurrence of the various types of modal verbs. The verbs *moeten* 'must/need to' and *kunnen* 'can/to be able to' are by far the most frequent. The auxiliary *zullen* 'shall/will', which is the formal expression of the future, shows a sudden increase in Stage VI, where its Subject Frequency is 9, while it was rarely used in previous Stages.

Table 5.13 *The modal verb: Frequencies of Occurrence of types.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Frequencies of Occurrence	5	38	222	185	230
moeten 'must/have to'	4	16	84	77	96
kunnen 'can/be able to'	-	11	79	54	70
mogen 'be allowed to'	-	7	41	35	23
willen 'want to'	1	4	12	10	12
hoeven 'need to'[a]	-	-	4	1	-
zullen 'shall/will'	-	-	2	8	29

a. always in a negative context

An infrequent performance error (Deviancies, type 1) found in this structure is the deletion of the infinitive, as in (17) and (18), an error which occasionally occurs in adult language.

(17) *moet natuurlijk (kijken) of die aanstaat* Renske
must of course (look) whether it is turned on

(18) *kan je die nog niet d'rop (zetten)* Amerens
can you that yet not there-on (put)

5.4.4 The Verb Phrase in Stage IV

In Stage IV the following structures emerge: in the area of inflections the present tense plural; in the area of complex phrases: the auxiliary of aspect + infinitive, the inflected separable prefix verb, and the auxiliary + past participle, forming the perfect.

Inflection of the verb: present tense plural

In Stage IV we see the emergence of the plural present tense. In the calculation of the criteria of emergence no subdivision has been made as to the type of verb occurring in the plural. Examples show a copula (19), a modal verb (20), and a lexical verb in (21). The agreement expressed may be between subject and verb, as in (20) and (21) or between verb and complement to the subject, as in (19).

(19) *zijn kindjes* Famke
are children

(20) *ze moeten eten* Melanie
they must eat

(21) *nou staan ze allemaal op een rij* Famke
now stand they all in a row

The frequencies are given in table 5.14. The Subject Frequency of plural present tense form users in Stage III, before emergence, is 20%, in Stage IV it is 56% and in Stage V the Subject Frequency is 100%. This indicates that this structure is not acquired rapidly. Its speed of acquisition is comparable to that of the modal verb and the past participle. (For a discussion see section 5.6.1.) In Stage VI there is a decline of the Subject Frequency to 88%, while we expect all

children in this Stage to be able to use the plural present tense. The reason is that in two of the 17 language samples in the Stage-VI/VII corpus no plural subjects or plural complements to the subject occur and consequently, no plural verb forms are required The Mean Token Frequencies show a steady increase across the Stages from 4 - 11

Table 5.14 *Present tense plural incidence in Stages III - VI*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Subject Frequencies	4	14	19	15
Frequencies of Occurrence	14	80	128	170
Mean Token Frequencies	4	6	7	11

In Stage III the 3rd person plural is almost the only person used with 12 out of 14 occurrences These proportions gradually change as children develop and in Stage VI the 1st and 3rd person are almost equally frequent The 2nd person plural (with the plural 2nd person pronoun *jullie* 'you') occurred only once in the entire corpus, in Stage VI. The emergence of the plural present tense coincides with the emergence of the personal pronoun *zij/ze* 'they', the increase in the use of the 1st person plural is related to the emergence of the plural personal pronoun *wij/we* 'we' in Stage V (see Schlichting 1993)

Table 5.15 *Present tense plural Frequencies of Occurrence of copulas, modal verbs and auxiliaries, and lexical verbs Types of lexical verbs.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Frequencies of Occurrence	14	80	128	170
Copula *zijn* 'be'	4	13	28	18
Modal verbs and Auxiliaries	1	33	37	68
Number of types covering 75%	-	4[a]	3[b]	3[c]
Lexical verbs	9	34	63	84[g]
Number of types covering 75%	2[d]	10[e]	8[f]	11[h]

a *gaan* 'go', *kunnen* can', *moeten* must, *komen* 'come
b. *gaan* 'go',*hebben* 'have', *moeten* 'must', *kunnen* can
c *gaan* 'go', *moeten* 'must',*hebben* have
d *gaan* 'go', *komen* 'come'
e *gaan* 'go', *zitten* 'be', *zwemmen* 'swim', *doen* 'do', *moeten* must/need, *staan* 'stand', *bijten* 'bite', *kapotmaken* 'break', *come* 'come', *kunnen* 'come
f *hebben* 'have', *zijn* 'be', *gaan* go', *doen* 'do', *zitten* be', *draaien* 'turn', *kunnen* 'can', *eten* 'eat'
g. Including 4 past tense plural forms
h. *hebben* 'have', *moeten* 'must/need', *zijn* 'be', *gaan* 'go', *(be)horen* 'ought', *doen* 'do', *kunnen* 'can', *passen* 'fit', *staan* 'stand', *vallen* fall, *zitten* be'

Table 5.15 shows what types of verbs emerge in plural form. In Stage IV we see a number of copulas and about equal numbers of modal verbs or auxiliaries and lexical verbs, indicating that the plural present tense emerges at the same time in all four categories of verbs. In Stages V and VI the proportion of lexical verbs has increased. The number of types of lexical verbs covering 75% of plural verb forms (tokens) is small, ranging from 2 in Stage III to only 11 in Stage VI. In the notes to table 5.15 these types are given.
In the early stages children's utterances do not often require the plural verb form. In Stage III, before the emergence of the present tense plural, there are only 21 instances where a plural verb form is required: in 14 of these the plural is expressed and in 7 a plural subject occurs with a singular verb form (see table 5.16).

Mastery of agreement is a late development. Errors are classified as Errors of Context, type 2. An example from Stage V is (22). According to the criterion of 90% correctness, which is often adopted to measure mastery (cf. Brown 1973: 258), the plural present tense is not mastered in Stage VI. This is an area in which adults also make errors. The most frequent type of error is the plural subject in combination with a verb in the singular.

(22) *hier hoort de motors op* Maarten
here belongs the engines on

The other type of error is the plural verb form with a singular subject, as in (23). This type of error is infrequent as is shown in table 5.16.

(23) *dit zijn opa baardje* Gerline
this are granddad litle beard

Table 5.16 shows the frequencies of these two types of errors. In Stage IV, 30% of all predicates with a plural meaning have a singular verb form, in Stage V it is 20% and in Stage VI it is still 14%.

Table 5.16 *Present tense plural: Frequencies of Occurrence of correct and erroneous forms in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Frequencies of Occurrence (correct forms)	14	80	128	170
Frequencies of Errors	9	36	34	31
Plural subject/singular verb	7	34	32	27
Singular subject/plural verb	2	2	2	4

Auxiliary of aspect + infinitive

The first complex phrase to emerge in Stage IV is the auxiliary of aspect + infinitive. Auxiliaries of aspect combine with an infinitive (without *te* 'to') into a finite verb phrase, as in utterance 199 of Sofie's speech sample in (24). In

Sofie's utterance 198 we see a modal verb + infinitive, which is acquired in Stage III. Sofie improves on this structure, which is acceptable, in her utterance 199.

(24)

Observer	Sofie
is het huisje al af? has the house been finished?	
	196 *nee* no
	197 *nog niet* not yet
	198 *moet ik nog even afmaken* must I still just finish I must finish this
	199 *ga ik nog even afmaken* go I still just finish I'll finish this

Table 5.17 shows the frequencies of the auxiliary of aspect + infinitive. Some other auxiliary verbs which are combined with an infinitive complement are included.

Table 5.17 *The auxiliary of aspect (including other verbs): incidence of the present tense singular, and Frequencies of Occurrence of other finite forms in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Present tense singular				
Subject Frequencies	5	24	19	17
Frequencies of Occurrence	14	115	80	104
Mean Token Frequencies	3	5	4	6
Frequencies of Occurrence of other finite forms				
Present tense plural	-	20	26	36
Past tense	-	2	4	3
Total Frequencies of Occurrence	14	137	110	143

The main representative of the auxiliary of aspect is *gaan* 'go', as is shown in table 5.18, which displays the Frequencies of Occurrence of the various types.

Table 5.18 *The auxiliary of aspect, and other verbs with an infinitive complement: Frequencies of Occurrence of types.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Auxiliaries of aspect				
Frequencies of Occurrence	12	131	106	138
gaan 'go'	12	119	100	125
komen 'come'	-	9	1	3
blijven 'stay'	-	3	1	7
staan (followed by *te*) 'stand'	-	-	2	2
zitten (followed by *te*) 'sit'	-	-	2	1
Other verbs				
Frequencies of Occurrence	2	8	3	5
doen 'do'	2	5	2	3
laten 'let'	-	1	1	2
zien 'see'		-	-	-
horen 'hear'	-	-	1	-
Total Frequencies of Occurrence	14	137	110	143

The auxiliary of aspect is found in infinitive form followed by an infinitive complement in 5 Stage-VI language samples. These verb phrases have a modal verb as their finite verb form.

The inflected separable prefix verb

The inflected separable prefix verb emerges in Stage IV. It is inflected differently in independent and dependent clauses. In (25) we see an example of *ophebben* 'wear' in an independent clause in which the verb part is placed in first/second position and the particle in sentence-final postion. In (26) we see an example of the same verb in a dependent clause. The verb is not separated, and is in sentence-final position. Table 5.19 shows the frequencies of the separated prefix verb in independent and dependent clauses. In (27) we see an example of the separated verb in the imperative.

(25) *deze heeft een pet op* — Famke
this has a cap on (this one is wearing cap)

(26) *wie die muts opheb* — Sebas.
who that cap wears

(27) *doe maar even de deur open* — JanWil
do just yet the door open (open the door please)

The inflected separable prefix verb occurs mostly in the present person singular as is shown in table 5.19. The verbs are mostly derived from a proform verb or an independent auxiliary. For example, *weggaan* 'leave' and *dichtgaan* 'close' are derived from *gaan* 'go'. Examples are in the notes to table 5.19.

Table 5.19 *The inflected separable prefix verb: incidence of the present tense singular, and other finite forms, in independent and dependent clauses in Stages III - VI. Numbers of types.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Subject Frequencies	8	15	15	15
Frequencies of Occurrence	51	165	115	153
Mean Token Frequencies	6	11	8	10
Independent clause				
Present tense singular	51	164	111	151
Present tense plural	-	3	4	9
Past tense	-	-	3	-
Dependent clause (all present tense singular)	-	1	4	2
Total Frequencies of Occurrence	51	168	121	162
Types in present tense singular	17	35	20	38
No. of types in 50% of tokens	2[a]	6[b]	8[c]	7[d]

a. *weggaan* 'leave', *kapotgaan* 'break'.
b. *kapotgaan* 'break', *omvallen* 'fall over', *ophebben* 'have eaten/drunk', *dichtgaan* 'close', *thuiskomen* 'come home', *weggaan* 'leave'.
c. *omvallen* 'fall over', *vastzitten* 'be fixed', *weggaan* 'leave', *aanhebben* 'wear', *doodschieten* 'shoot', *loszitten* 'be loose', *omhooggaan* 'go up'.
d. *omvallen* 'fall over', *weggaan* 'leave', *dichtgaan* 'close', *ophebben* "have eaten/drunk', *aanstaan* 'be turned on', *aanzetten* 'turn on'.

There appears to be an interesting difference between Dutch and German in the emerging separable prefix verb in independent clauses. Dutch children use forms like (26): *opheb* 'have on' (=wear) as inflected separable prefix verbs in dependent clauses. According to Clahsen and Muysken (1986,44) German children regularly use these forms, e.g. *auf-setz* 'on-put' (=put on) in independent clauses. Clahsen coded these forms as PrV (Particle Verb); its emergence was placed in his Phase II. In the Dutch corpus there is no instance of this form in an independent clause. Separable prefix verbs in independent clauses are either infinitives, complete with the *-e(n)* ending, emerging in Stage III, in which case the first and the second member constitute one word, or they are finite and separated. In subordinate clauses the verb is not separated and is sentence-final. There are two instances of the inflected nonseparated form in the Dutch corpus in simple clauses, but these clauses are introduced by a subordinator, as in (26).

An explanation for the different forms of separable verbs in German and Dutch might be that Clahsen's corpus, collected from three children in one family, two of which are twins, is not representative of German child language development on this issue, as twins are more likely to use deviant linguistic forms (Schaerlaekens 1994). As we saw in chapter 4 (7.2), finite forms in

sentence-final position in independent clauses are an infrequent type of error in Dutch. It seems possible that a particular pair of twins produce more of these errors.

Perfect: auxiliary of tense + past participle

A late emergence in Stage IV is the perfect. All but one of the occurrences in Stage IV are in the singular, as in (28) and (29).

(28) *dees is (g)evallen* — Mirjam
this has fallen

(29) *ik heb zelf huisje gemaak(t)* — Nico
I have myself house made

Table 5.20 shows the frequencies. The Subject Frequencies show an increase across development from 50% in Stage IV to 94% in Stage VI. The Mean Token Frequencies are low, around 3, and stable.

Table 5.20 *The perfect: incidence of singular, plural and pluperfect constructions in Stages III - VI.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Perfect singular				
Subject Frequencies	5	13	17	16
Frequencies of Occurrence	11	42	59	52
Mean Token Frequencies	2	3	3	3
Frequencies of Occurrence of other forms				
Perfect plural	-	2	5	5
Pluperfect	-	-	7	8
Total Frequencies of Occurrence	11	44	71	65

From the beginning perfects are formed with the correct auxiliary verbs: *hebben* 'have' and *zijn* 'be', as in (28) and (29). In child language the auxiliary *hebben* 'have' is three times more frequent than *zijn* 'be', as is shown in table 5.21. In Stages III and IV children have either structures with *hebben* 'have' or with *zijn* 'be'. Because of the low Mean Token Frequencies this may be coincidental. However, in Stage V with a similar Mean Token Frequency, most children use constructions with *zijn* as well as *hebben*

Table 5.21 *The perfect: incidence of constructions with* hebben *'have' and* zijn *'be'.*

	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17	Total
Frequencies of Occurrence	11	44	71	65	191
hebben 'have'	7	29	58[a]	47[c]	141
zijn 'be'	4	15	13[b]	18[d]	50

a. 3 are pluperfects
b. 3 are pluperfects
c. 3 are pluperfects
d. 4 are pluperfects

In Stages III and V there are no errors in the choice of auxiliary, in Stage IV there is one: (30). In Stage VI two subjects erroneously use *hebben* 'have' as an auxiliary with *gevallen* 'fallen' where *zijn* 'be' is obligatory. These errors are classified as Errors of Context, type 3. The fact that these errors are so rare indicates that there is a close link for the child between the verb and the auxiliary. Other errors are seen in the deletion of the past participle, as in (31), an Error of Deletion, type 1.

(30) *heb jij de dierentuin in egaan* Pascal
have you the zoo in gone (have you gone into the zoo)

(31) *ik heb wel d'r uit (gehaald)* JanWil
I have indeed there-out (taken) (I have taken it out)

One child produced a blend of a perfective construction and an auxiliary of aspect + infinitive construction. See (32).

(32) *ik gaat ook koekjes bij oma gekregen* Gerja
I will also biscuits at Granny's got (I'll get biscuits at Granny's too).

Pluperfect constructions
There are 6 pluperfect constructions in Stage V, and 7 in Stage VI (see table 5.21). An example is (33).

(33) *we waren met de auto er doorheen geweest* Hendrik
we were with the car there through been (we had gone through by car)

As to the verb types used in the perfect, the reader is referred to table 5.10, which presents the types used in past participle form.

There are no newly emerging verb phrase structures in Stage V.

5.4.5 The Verb Phrase in Stage VI

With the emergence of the subordinate clause in Stage VI, the inflected verb in sentence-final position emerges. This was treated in chapter 4 (5.3). The only

emergence discussed here is the inflection of the verb in the past tense.

Past tense

In Stage VI we see the emergence of the past tense. In the calculation of the criteria for emergence no subdivision was made as to the type of verb occurring in the past tense. The past tense emerges relatively late in Dutch as compared with American English (Fletcher 1981), approximately 9 months after the perfect. Examples show a copula in (34), a modal verb in (35), and a lexical verb in (36). Most instances of the past tense are in the singular.

(34)	*m'n koffie was koud* my coffee was cold	Chantal
(35)	*ik moest een paar dierendokters halen* I had to a few vets fetch	Annabel
(36)	*want de kerstklokken konden er niet zo goed in* for the Christmas bells could there not so well in (for the Christmas bells did not fit in)	Domin

Table 5.22 shows the frequencies of all occurrences of the past tense and of its distribution across the various categories of verbs. The Mean Token Frequency in Stage V is higher than in Stage VI. The types of the lexical verbs are all shown in the notes to table 5.22. They are all irregular verbs.

Table 5.22 *The past tense: incidence. Frequencies of Occurrence of copulas, auxiliaries, lexical verbs. Types of lexical verbs.*

	Stage IV n=25	Stage V n=19	Stage VI n=17
Subject Frequencies	8	8	14
Frequencies of Occurrence	9	57	76
Mean Token Frequencies	1	7	5
Copulas	1	19	21
Modal verbs	0	1	14
Auxiliaries of aspect	2	4	4
Auxiliaries of tense	-	6	7
Lexical verbs	6	27	30
Types of lexical verbs	4[a]	9[b]	11[c]

a. *hebben* 'have', *kennen* 'know', *zijn* 'be', *zitten* 'sit',
b *zijn* 'be', *doen* 'do', *hebben* 'have', *vallen* 'fall', *weggaan* 'leave', *willen* 'want', *gaan* 'go', *loszitten* 'be loose', *zitten* 'be',
c. *zijn* 'be', *hebben* 'have', *liggen* 'lie', *zeggen* 'say', *zien* 'see', *willen* 'want', *denken* 'think', *doen* 'do', *kunnen* 'can/be able', *moeten* 'must/need', *weten* 'know'

The past tense is occasionally indicated by an adverb while the past tense form is not used, as in (37). This error is classed as an Error of Context, type 2.

(37) *toen lust ie het niet* Inger
then likes he it not (then he does not like it)

Overgeneralizations from the rules for regular verbs to irregular verbs are not found. This is self-evident if we consider that the past tense of regular verbs has not been acquired yet. There is one erroneous past tense inflection in the corpus, (38), where the past singular form of *zijn: was* 'was' is used to make up the past plural form by adding the regular plural ending *-en* . This is an Error of Context, type 3.

(38) *toen wassen (=waren) wij am (= aan het) eten* Michiel
then were we eating

5.5 THE ACQUISITION OF FINITE FORMS

As children develop syntactically, the proportion of verb phrases with a finite verb form increases from 29% in Stage II to 92% in Stage VI (see section 5.3.2 above). In this section the relation between the verb category or class, and its use in finite form is investigated. The first research question is which verbs are first acquired in finite form, which in nonfinite form, and which are acquired early in both finite and nonfinite form. The second question is how children's use of the finite/nonfinite distinction compares with adults' use. In this investigation a distinction is made between non-lexical verbs: copulas, modal verbs and auxiliaries, which are dealt with in section 5.5.1, and lexical verbs, which are treated in section 5.5.2 up to 5.5.

5.5.1 Non-lexical verbs

Behrens (1993: 116) found that in German child language copulas and modal verbs are first acquired in finite form. This is confirmed by the Dutch data. The same holds for the auxiliaries of aspect (including some other auxiliary verbs, see table 5.18) and of tense. In table 5.23 the incidence of copulas, modal verbs and auxiliaries and their percentages of finite forms are shown. One hundred per cent of copulas, modal verbs and auxiliaries of tense are finite; a small percentage of auxiliaries of aspect are nonfinite: 7% (1 instance out of 15) in Stage III, and 3/4% in the higher Stages.

The proportions of finite forms in table 5.23 may be compared with the percentages of finite forms of copulas, modal verbs and auxiliaries in adult language. For the data of the language of adults I relied on the frequencies of tokens of lexical codes in De Jong's corpus (De Jong, 1979: 135). De Jong interviewed adult speakers of Dutch in 80 formal and 37 informal interviews and analysed the resulting language corpus of 120,000 words. In her corpus 89% of the combined categories of copulas, modal verbs and auxiliaries is finite. This provides the evidence that the first acquisition in finite forms of copulas, modal verbs and auxiliaries reflects adult usage.

Table 5.23 *Non-lexical verbs: percentages of finite forms in Stages II - VI.*

Verb categories	Stage II	Stage III	Stage IV	Stage V	Stage VI
Copulas	32	130	260	252	237
Finite	100%	100%	100%	100%	100%
Modal verbs	5	38	222	185	230
Finite	100%	100%	100%	100%	100%
Auxiliaries of aspect	-	14	137	110	143
Finite	100%	93%	97%	97%	96%
Auxiliaries of tense	-	11	44	71	65
Finite	-	100%	100%	100%	100%

5.5.2 Lexical verbs

The focus in this section is on the proportion of finite lexical verbs in child and adult language. In table 5.24 the numbers and percentages of finite and nonfinite forms of lexical verbs in child and adult language are shown. In the child corpus we see an increasing proportion of finite lexical-verb forms: from 12% in Stage II to a stable 61% in Stages V/VI. The proportion of finite lexical-verb forms in the entire De Jong corpus is 63% (of 8345 tokens). The closeness in percentages of finite and nonfinite lexical verbs between Stages V and VI and the adult language is striking.

Table 5.24 *Finite and nonfinite lexical verbs: Frequencies of Occurrence in Stages II - VI and in adult language.*

	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Finite	18	340	817	786	835
	(12%)	(44%)	(51%)	(61%)	(61%)
Nonfinite	137	440	775	503	526
	(56%)	(49%)	(39%)	(39%)	(37%)

The problem must now be addressed how the proportion of finite verbs increases in Stages II - V. Does it grow because children acquire certain verbs or verb classes first in nonfinite and later in finite form, or are certain classes of verbs immediately acquired in finite form at a later Stage, thus adding to the proportion of finite verb forms? To study these questions all lexical verbs in the corpus were classified into nine classes and separated out into finite and nonfinite forms. This investigation was not restricted to the Stages II - V, but extended to Stage VI, because it remains to be seen whether in the Stages V and VI the almost equal proportions of finite verbs reflect finiteness of the same

verbs.

5.5.3 Verb classification

A classification of verbs was drawn up, based on Givón (see table 5.25).

Table 5.25 *Verb classification according to Givón and its adaptation in the present study.*

	Verb class Givón	Examples	Verb class adapted	Examples
I	Subjectless verbs	it is raining	-	
II	Copulas	she is tall	Copula	*zijn* 'be'
III	Objectless verbs	he is brave	Copula	*zijn* 'be'
		he fell	1 Objectless verbs	*vallen* 'fall'
IV	Verbs requiring sentential subject	It is true that ...	-	-
V	Semantically transitive verbs			
Va	Prototypical	she made a dress	2 Prototypical transitive verb	*bouwen* 'build'
Vb	Less prototypical	'enter', 'see', 'have'	3 Verbs with a dative-experiencer subject	*denken* 'think'
			4 Other less prototypical transitive verbs	*hebben* 'have'
VI	Verbs with a			
VIa	locative object	'sit', 'go', 'leave'	5 Verbs with a locative object	*gaan* 'go'
VIb	directional object	'talk to'	6 Verbs with a prepositional object	*kijken naar*
VIc	abstract directional object	'be angry at'		'look at'
VII	Verbs with two nominal objects	'put ... on', 'give' 'elect'	7 Verbs with two nominal objects	*zetten* 'put'
VIII	Verbs with three nominal objects	'exchange', 'sell'	-	-
IX	Verbs with verbal/sentential complements			
IXa	Modality verbs	John wants to work		
IXb	Cognition-utterance verbs	Joe said ...	8 Cognition-utterance verbs	*zeggen* 'say'
			9 Proform verbs	
			without *te*	*kunnen* 'can'
			with *te*	*(be)horen* 'ought'

Givón (1984: 89 ff) distinguishes nine verb classes. His classification was adapted to the present investigation as follows:

a. The classes of Subjectless verbs, Verbs requiring a sentential subject and Verbs with three nominal objects are omitted, because they are infrequent in child language.

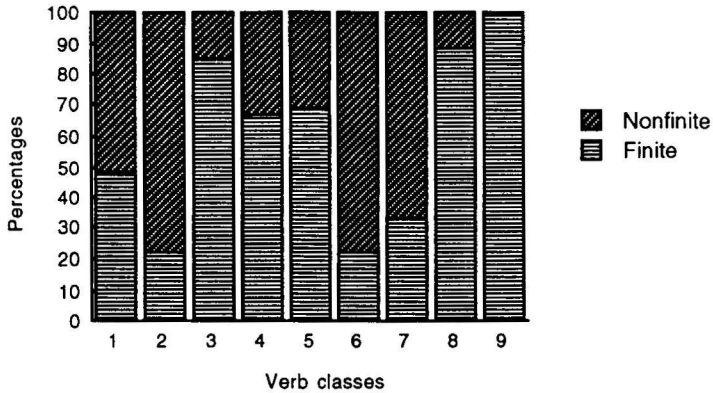
b. The Copula class and one subclass of Objectless verbs are combined into the Copula category. This category as well as the Modality verbs are not included in this analysis; they have been dealt with in section 5.5.1.

c. The class of Less prototypical transitive verbs is subdivided into Less prototypical transitive verbs with a dative-experiencer subject and Other less prototypical transitive verbs, because the Verbs with a dative-experiencer subject are construed in a special way.
d. The subclasses of Verbs with a directional object are combined into the class of Verbs with a prepositional object.
e. The class of Proform verbs has been added (see section 5.1.5).

All lexical verbs in the child corpus were classified according to the classes in table 5.26 and according to the finite/nonfinite distinction. In the classification no distinction was made between verbs with realized and non-realized arguments. The results of the verb classification are shown in table 5.26.
Three main groups of verb classes can be distinguished:
A. Verb classes with a finiteness percentage of 75% or more, the Finite-form-First (FF) verbs, comprising the following:
class 3: Less prototypical transitive verbs with a dative-experiencer subject;
class 8: Cognition-utterance verbs;
class 9: Proform verbs.
B. Verb classes with a nonfiniteness percentage of 75% or more, the NonFinite-form-First (NFF) verbs, comprising the following:
class 2: Prototypical transitive verbs;
class 6: Verbs with a prepositional object.
C. Verb classes with an intermediate finiteness percentage of between 25% and 75%, the Finite/NonFinite-form-First (F/NFF) verbs, comprising the following:
class 1: Objectless verbs;
class 4: Other less prototypical transitive verbs;
class 5: Verbs with a locative object;
class 7: Verbs with two nominal objects.
Figure 5.2 shows the results of the verb classification across the entire child corpus graphically.

Table 5.26 *Lexical-verb classes: finite and nonfinite forms in Stages III - VI and in the whole group.*

Verb classes	Stage III n=774	Stage IV n=1566	Stage V n=1289	Stage VI n=1361	Total n=4990
1 Objectless verbs					
Finite	42 (39%)	79 (45%)	45 (48%)	77 (58%)	243 (48%)
Nonfinite	67 (61%)	97 (55%)	48 (52%)	55 (42%)	267 (52%)
2 Prototypical transitive verbs					
Finite	30 (12%)	46 (10%)	92 (26%)	82 (26%)	250 (22%)
Nonfinite	228(88%)	409 (90%)	264 (74%)	234 (74%)	1135 (78%)
3 Less prototypical transitive verbs with a dative-experiencer subject					
Finite	12 (86%)	44 (86%)	50 (88%)	80 (82%)	186 (85%)
Nonfinite	2 (14%)	7 (14%)	7 (12%)	17 (18%)	33 (15%)
4 Other less prototypical transitive verbs					
Finite	23 (50%)	73 (54%)	123 (75%)	119 (74%)	338 (67%)
Nonfinite	23 (50%)	62 (46%)	42 (25%)	42 (26%)	169 (33%)
5 Verbs with a locative object					
Finite	97 (65%)	197 (62%)	188 (73%)	206 (68%)	688 (69%)
Nonfinite	53 (35%)	122 (48%)	70 (27%)	96 (32%)	341 (31%)
6 Verbs with a prepositional object					
Finite	14 (18%)	19 (24%)	15 (23%)	18 (24%)	66 (22%)
Nonfinite	65 (82%)	61 (76%)	51 (77%)	56 (76%)	233 (78%)
7 Verbs with two nominal objects					
Finite	1 (33%)	5 (23%)	9 (31%)	15 (39%)	30 (33%)
Nonfinite	2 (67%)	17 (77%)	20 (69%)	23 (61%)	62 (67%)
8 Cognition-utterance verbs					
Finite	-	6 (100%)	4 (100%)	10 (70%)	20 (88%)
Nonfinite	-	- (0%)	- (0%)	3 (30%)	3 (12%)
9 Proform verbs					
Finite	121 (100%)	348 (100%)	260 (100%)	228 (100%)	957 (100%)
Nonfinite	- (0%)	- (0%)	1 (0%)	- (0%)	- (0%)



1 Objectless verbs
2 Prototypical transitive verbs
3 Less prototypical transitive verbs with a dative-experiencer subject
4 Other less prototypical transitive verbs
5 Verbs with a locative object
6 Verbs with a prepositional object
7 Verbs with two nominal objects
8 Cognition-utterance verbs
9 Proform verbs

Figure 5.2 *Lexical-verb classes: proportions of finite and nonfinite forms in the entire child corpus.*

The overall picture is that verb classes vary strongly in their proportions of finite forms. Verbs taking a (potential) object, direct or prepositional, which register a change caused by the action of the verb, are mainly nonfinite. Verbs whose object does not register any change are generally finite; Proform verbs are always finite. Other groups take an intermediate position.

The results do not reveal any possible developmental increases in proportions of finite forms in particular verb classes, as children develop syntactically across the Stages. In most classes these increases are not substantial (see table 5.26). Some percentages of finite forms are remarkably stable across the Stages. For example, in class 3, the Less prototypical transitive verbs with a dative-experiencer subject the finite forms range from 82% to 88%. Some verb classes show an increase in finite forms, as children develop syntactically. Class 2, the Prototypical transitive verbs, has a finiteness percentage of 11% in Stages III and IV, and a percentage of 26% in the higher Stages, an increase of 15%. A fairly substantial increase in finite forms of ca. 25% is seen in class 4, the Other less prototypical transitive verbs. These increases will be discussed below.

A Spearman Rank Correlation testing the agreement between the individual Stages in their percentages of finiteness across all verb classes, resulted in correlation coefficients of .90 (Stages IV and VI) or higher. This indicates that, calculated across all lexical verb classes, the use of finite versus nonfinite forms within particular verb classes is not significantly related to the particular Stages.

5.5.4 Lexical verb classes in child and adult language

As the correlation between percentages of finite versus nonfinite forms in the consecutive Syntactic Stages is very high, indicating that in this respect the Stage corpora can be treated roughly as one corpus, the question becomes more urgent in what way children differ from adults in their behaviour with relation to the finiteness of lexical verbs. Therefore the finiteness percentages in child language are compared per verb with those in adult language. Again I shall make use of the data provided by De Jong (1979), collected in formal and informal interviews with adults.

For the 39 types of verbs with a minimum token frequency of 20 in the entire child corpus of Stages III - VI, the percentages of finite forms have been calculated (see table 5.27). These percentages are compared with the percentages of finite forms of the same verbs in De Jong's corpus. (One of the 39 types could not be compared with adult language because it has a homonym: *(be)horen/horen* 'belong/hear'.) Verbs with an absolute frequency lower than 20 in the adult corpus are ignored in the statistics. In total it was possible to compare 26 verbs statistically. Table 5.27 presents the data as well as the differences in percentages of finite forms between children and adults.

Table 5.27 *Frequent lexical verbs in child language : Frequencies of Occurrence; percentages of finite forms in child and adult language (adult frequencies under 20 in absolute numbers); differences in proportions of finite forms between children and adults.*

Verb class		Child	Adult	Differences in finiteness
1 Objectless verbs				
1 *vallen* 'fall'	No. of tokens	125	34	
	Percentage Finite	56%	56%	0%
- *passen* 'fit'	No. of tokens	70	4	
	Percentage Finite	99%	(4)	-
- *slapen* 'sleep'	No. of tokens	59	16	
	Percentage Finite	12%	(3)	-
- *draaien* 'turn'	No. of tokens	28	8	
	Percentage Finite	29%	(3)	-
- *wachten* 'wait'	No. of tokens	20	6	
	Percentage Finite	40%	(2)	-
2 Prototypical transitive verbs				
2 *doen* 'do'	No. of tokens	364	540	
	Percentage Finite	35%	33%	2%
3 *maken* 'make'	No. of tokens	183	175	
	Percentage Finite	14%	25%	11%
- *pakken* 'take'	No. of tokens	147	18	
	Percentage Finite	14%	(6)	-

Table 5.26 continued

Verb class		Child	Adult	Differences in finiteness
4 *eten* 'eat'	No. of tokens	74	25	
	Percentage Finite	9%	24%	15%
- *opeten* 'eat up'	No. of tokens	43	-	
	Percentage Finite	2%	-	-
- *tekenen* 'draw'	No. of tokens	41	7	
	Percentage Finite	2%	(0)	-
5 *halen* 'fetch'	No. of tokens	32	52	
	Percentage Finite	9%	38%	29%
- *gooien* 'throw'	No. of tokens	28	5	
	Percentage Finite	21%	(2)	-
- *zoeken* 'find/seek'	No. of tokens	27	18	
	Percentage Finite	11%	(0)	-
- *drinken* 'drink'	No. of tokens	24	5	
	Percentage Finite	13%	(0)	-
3 Less prototypical transitive verbs with a dative-experiencer subject				
6 *zien* 'see'	No. of tokens	78	287	
	Percentage Finite	77%	69%	8%
7 *weten* 'know'	No. of tokens	67	554	
	Percentage Finite	96%	94%	2%
4 Other less prototypical transitive verbs				
8 *hebben* 'have'	No. of tokens	367	1196	
	Percentage Finite	76%	82%	6%
9 *krijgen* 'get'	No. of tokens	38	278	
	Percentage Finite	45%	79%	34%
5 Verbs with a local object				
10 *zijn* 'be'	No. of tokens	260	342	
	Percentage Finite	87%	89%	2%
11 *gaan* 'go'	No. of tokens	182	395	
	Percentage Finite	93%	79%	14%
12 *zitten* 'sit/be'	No. of tokens	173	369	
	Percentage Finite	51%	75%	24%
13 *komen* 'come'	No. of tokens	141	409	
	Percentage Finite	89%	77%	12%
14 *staan* 'stand'	No. of tokens	97	166	
	Percentage Finite	48%	78%	30%
15 *lopen* 'walk'	No. of tokens	59	63	
	Percentage Finite	12%	76%	64%

Table 5.26 continued

Verb class		Child	Adult	Differences in finiteness
16 *rijden* 'ride/drive'	No. of tokens	48	24	
	Percentage Finite	13%	58%	45%
17 *liggen* 'lie'	No. of tokens	34	57	
	Percentage Finite	32%	81%	49%
- *weggaan* 'leave'	No. of tokens	27	4	
	Percentage Finite	85%	(0)	-
6 Verbs with (potential) prepositional object				
18 *kijken* 'look'	No. of tokens	191	85	
	Percentage Finite	30%	29%	1%
19 *spelen* 'play'	No. of tokens	54	24	
	Percentage Finite	2%	33%	31%
7 Verbs with two (potential) nominal objects				
20 *geven* 'give'	No. of tokens	32	156	
	Percentage Finite	44%	33%	11%
21 *zetten* 'put'	No. of tokens	25	42	
	Percentage Finite	28%	29%	1%
8 Cognition-utterance verb				
22 *zeggen* 'say'	No. of tokens	25	767	
	Percentage Finite	88%	64%	24%
9 Proform verbs				
23 *moeten* 'must/have to'	No. of tokens	349	93	
	Percentage Finite	100%	95%	5%
24 *kunnen* 'can/be able'	No. of tokens	275	158	
	Percentage Finite	100%	76%	14%
- *mogen* 'may/be allowed'	No. of tokens	154	15	
	Percentage Finite	100%	(15)	-
- *willen* 'want'	No. of tokens	56	91	
	Percentage Finite	100%	76%	24%
- *(be)horen*[a] 'belong/fit'	No. of tokens	102		
		99%		
26 *hoeven* 'need'	No. of tokens	29	158	
	Percentage Finite	100%	92%	8%

a. cannot be compared with adult usage because of its homonym *horen* 'hear'.

There is a great similarity between children and adults in the proportion of finiteness of the individual verbs. The differences in finiteness percentages between child and adult verb use are summarized as follows:

a. 10 verbs:	0%	- 9%
b. 6 verbs:	10%	- 19%
c. 4 verbs:	20%	- 29%
d. 3 verbs:	30%	- 39%
e. 2 verbs:	40%	- 49%
f. 0 verb:	50%	- 59%
g. 1 verb:	60%	- 60%

Sixteen out of 26 verbs had differences in finiteness between child and adult language under 20%. A Spearman Rank Correlation test of the percentages of finite verbs of the 26 pairs yielded a correlation coefficient of .70, with a significance level of 0.000. Figure 5.3 shows the results of these comparisons graphically. figure 5.3 shows that most verbs show a great similarity between child and adult language in the use of finite forms, though some verbs show a considerable difference; the main class is that of the Verbs with a local object, nos. 12 -17.

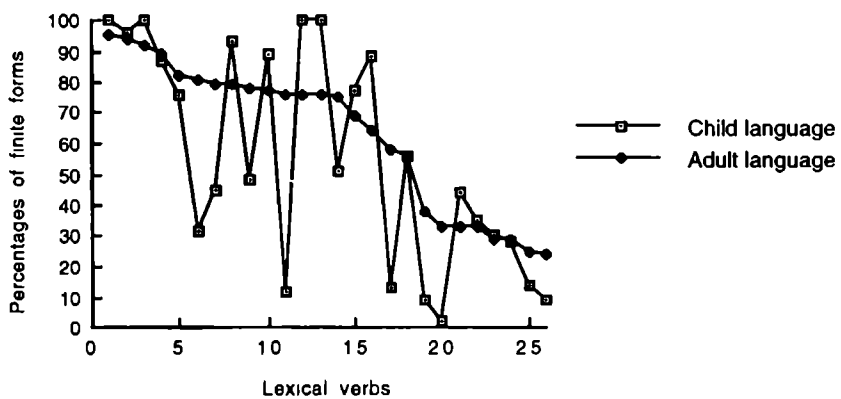


Figure 5.3 *Percentages of finite forms of 26 lexical verbs in child and adult language.*

The finite and nonfinite use of a number of verbs in child and adult language will now be discussed in some detail. Some of these belong to the group that show a similarity in the use of finiteness, others show a marked difference.

a. In the verb class with the largest number of tokens, the Prototypical transitive verbs, three out of four verbs which have sufficient frequencies to allow comparison show a higher frequency of finite verbs in adult language. As the numbers of tokens are so large the percentages of finite forms can be relied upon. The most frequent verb in this class is *doen* 'do': 38% of all tokens of Prototypical transitive verbs in the child corpus are of this type! (Compare Rice and Bode (1993) on General All Purpose verbs in American English.) Children and adults differ by only 2% in the proportion of finite verb forms: 35% and 33%. In the child corpus *doen* 'do' mainly occurs with a modal verb expressing intention, as in *ik wil dat even doen* 'I want to do that'. The modal verb requires a nonfinite form, the infinitive, and this results in a large number

of nonfinite forms. The finite form often indicates that someone is doing something at speech time or will do something shortly after speech time. There is no doubt in these instances that the event will take place. It is the time and the modality dimensions that determine the selection of a finite or nonfinite form.

Another frequent verb in the class of Prototypical transitive verbs is *eten* 'eat' with 9% finites in the child and 24% in the adult corpus, i.e. a difference of 15%. For this, and similar verbs I assume the following use. Children, like adults, use the verb *eten* 'eat' in nonfinite forms to refer to the act of eating as an event in speech time, as in *ik ga een koekje eten* 'I am going to eat a cookie'. However, a frequent use of the finite forms in adult language is without reference to specific time to indicate a habit, as in *ik eet altijd volkorenbrood* 'I always eat wholemeal bread', which results in a higher frequency of finite forms. Another possible use of the finite form of *eten* 'eat' is to indicate the future, as in *we eten spruitjes vanavond* 'we eat (=are having) Brussels sprouts (for dinner) tonight'. Children under four are mostly not capable of freeing themselves from the immediate situation (Weist 1986) and thus, do not use finite forms of *eten* 'eat' in more abstract contexts. This implies that it is a cognitive factor that increases the proportion of finite forms.

b. The main representative of the Other less prototypical transitive verbs is *hebben* 'have'. This is as frequent as the lexical verb *doen* 'do' in the child corpus and by far the most frequent lexical verb of the 39 verbs in the adult corpus (see table 5.27) and therefore a reliable source of information. It has 76% finite forms in the child and 82% in the adult corpus, a difference of only 6% between children and adults. The finite forms of *hebben* 'have', present as well as past tense, indicate different propositional attitudes with respect to possession: e.g. *zij heeft/had donker haar* 'she has/had dark hair'; *zij heeft/had een kopje* 'she has/had a cup.' The nonfinite forms express different meanings. The infinitive is used, with a modal verb, when the speaker wants to express a contrary notion: a wish or intention to possess, e.g. *die wil/moet ik hebben* 'that I want to have/must have', a contrast in modality which is felt and expressed by children. The other nonfinite form, the past participle, again expresses different meanings: for example, possession with a reference to event time immediately before speech time, e.g. *ik heb een koekje gehad* 'I got a cookie'. In this context *gehad* 'had' refers to the act of receiving or it expresses that the moment of possession was before speech time. Possession and nonpossession are fairly concrete meanings. The fact that children and adults use the various semantically based syntactic forms in almost the same proportions is a strong indication that when children and adults think alike, they speak alike.

The second main representative in this class is *krijgen* 'get' with only 45% finite forms in child language and 79% finite forms in adult language. Young children tend to tell an enquiring observer from whom they *hebben gekregen* 'have got' a certain object. This notion is expressed in the perfect and consequently leads to a large number of nonfinite forms. Adults are less likely to express this notion: 12 out of 57 nonfinite forms in the adult corpus are past participles as against 19 out of 21 in the child corpus. So, in the case of the verb *krijgen* 'get', it seems to be a matter of conversational topics which leads to differences in the proportions of finite and nonfinite forms in child and adult language. The theoretical assumption is that from the earliest use of the verb,

children distinguish the semantic contexts of the use of the finite and nonfinite forms and gradually acquire the expressions of tense, modality and aspect appropriate to these semantic distinctions.

c. In the class of Verbs with a local object, some verbs show differences between children and adults; in the case of *lopen* 'walk' as much as 64%. However, it seems probable that *lopen* 'walk' and similar verbs are used with different shades of concreteness of meaning. Let us first look in greater detail at no. 12, *zitten* 'sit' with the following frequencies:

Verb		Child	Adult	Difference in finiteness
zitten 'sit/be'	No. of tokens	173	369	
	Percentage Finite	51%	75%	24%

Zitten 'sit' is a verb that is chiefly used in two meanings: 'be seated', as in *ik ga daar zitten* 'I am going to sit there' and 'be in the location (of)', as in *het zit daarin* 'it sits therein'. What we see when the two meanings of the verb are distinguished in the child corpus is that the be-seated meaning is expressed in mainly nonfinite forms, while the location meaning is almost entirely expressed in finite forms.

zitten be seated	No. of tokens	103	Percentage Finite	19%
zitten location	No. of tokens	70	Percentage Finite	99%

The difference in meaning seems to explain the differences in the proportional use of the finite forms in the adult and the child corpus. The former meaning of 'be seated' is apt to occur more often in child observations where there are constant changes in seating arrangements, dolls are made to sit in cars, etc. than in adult interviews. This meaning of 'be seated' is also expressed in nonfinite forms in adult language according to my nonsystematic observations (there are no data available), while the meaning, 'be in the location' is mostly expressed in finite forms. This seems to indicate that children not only pay attention to the form in which a verb is modelled but also include in their observation which specific meaning the verb expresses.

I suspect that it is possible to find similar explanations for other verbs in this class which show a substantial difference in the use of finiteness. For example, the verb *rijden* 'drive/ride' has only 13% finite forms in the child corpus, while the adult finite percentage is 58%, i.e. a difference of 45%. Children tend to use this verb without a local object in nonfinite form, as in, *hij gaat strakjes rijden* 'it is going to ride in a minute', while they use a finite form when a local object is mentioned, as in *als ik erlangs rijd* 'when I drive past it'. I suppose that adults use this verb more often with a local object, in a finite form, as in *hij rijdt morgen naar Maastricht* 'he drives to Maastricht tomorrow'. A verb like *lopen* 'walk' is also mostly nonfinite in child language, where it is almost exclusively used in the literal sense, mainly without a local object, while it is mainly finite in adult language where it is probably chiefly used in a figurative sense, as in *dat loopt goed* 'it works well'.

The distinction discussed in the paragraph on the Prototypical transitive verbs above with regard to *eten* 'eat' also seems to apply in the case of the Verbs with a local object. The verb *rijden* 'ride/drive', used without a reference to time, is finite, also when there is no local object, as in *hij rijdt goed* 'he drives well',

and this type of statement is rather expected from adults than from children. So, children use more concrete shades of meaning than adults because they are interested in different topics, which results in differences in the finite/nonfinite dimension. To fully investigate the issue requires the use of an adult corpus and is beyond the scope of this study.

5.5.5 Changes between verb classes

Having given evidence in section 5.5.3 that children under four do not substantially increase their proportion of finite forms within verb classes as they develop syntactically, and, in section 5.5.4 that, generally, children's proportion of finite forms per verb correlates highly withthat of adults', we now turn to a possible difference in the proportional use of verb classes per Syntactic Stage to explain the changes in young language learners. In table 5.27 we saw that, with regard to the particular verb classes mentioned, children use more Proform verbs than adults: 863 versus 515 (excluding *(be)horen* 'belong/fit', which cannot be calculated for the adult corpus), while in the class of Cognition-utterance verbs there are only 25 tokens in the child corpus, and 767 in the adult corpus. This suggests that children use different verb classes from adults and that possibly there are developmental trends in the child corpus as children advance syntactically from Stage III to Stage VI. In table 5.28 percentages are shown of the use of particular verb classes per Syntactic Stage. For example, in Stage III 14% of lexical verbs consists of Objectless verbs, 33% of Prototypical transitive verbs.
The proportional changes from early to later development were tested by calculating the Spearman Rank Correlation test for the percentages of classes beween Stages. This calculation yielded the following results (significance levels at 0.001 or higher):

Stage III as compared with Stage IV	.96
Stage IV as compared with Stage V	.97
Stage V as compared with Stage VI	99
Stage III as compared with Stage V	.93
Stage III as compared with Stage VI	.91

These very high correlation coefficients show that calculated across all verbs there are no substantial changes in the proportions of verb classes used across the Stages. However, a tendency towards change can be seen if we look at the verb classes individually in table 5.28. For example, Prototypical transitive verbs, mainly nonfinite, decrease from 33% in Stage III to 23% in Stage VI. Verbs with two nominal objects show an increase from 0% in Stage III to 3% in Stage VI. There appears to be a decrease in the percentage of Proform verbs, which are mainly finite, from 22% in Stage IV to 17% in Stage VI.

Table 5.28 *Incidence of lexical verb classes in percentages in Stages III - VI.*

Verb classes	Stage III n=774	Stage IV 1566	Stage V 1289	Stage VI 1361
1 Objectless verbs				
	14%	11%	7%	10%
2 Prototypical transitive verbs				
	33%	28%	28%	23%
3 Less prototypical transitive verbs with a dative-experiencer subject				
	2%	3%	4%	7%
4 Other less prototypical transitive verbs				
	6%	9%	13%	12%
5 Verbs with a locative object				
	19%	20%	20%	22%
6 Verbs with a prepositional object				
	8%	4%	4%	5%
7 Verbs with two nominal objects				
	0%	1%	2%	3%
8 Cognition-utterance verbs				
	0%	0%	0%	1%
9 Proform verbs				
	17%	22%	20%	17%

5.6 SUMMARY AND DISCCUSSION OF THE HYPOTHESES

5.6.1 Discussion of hypothesis 2.1

The reader will recall hypothesis 2.1

Hypothesis 2.1
Verb phrases become more frequent and more varied as children develop syntactically according to their indexation by CEI.

Hypothesis 2.1 distinguishes four Predictions.

Prediction 2.1.1 The proportion of utterances with a verb increases as children are indexed to a higher Syntactic Stage.

The proportion of utterances with a verb phrase increases from 8% in Stage II to 49% in Stage VI (see section 5.3.1). Three out of four transitions from one Stage to the subsequent Stage are significant on a .00 level as tested with a t-test; the change between Stages IV and V is significant on a .01 level. These data strongly support Prediction 2.1.1.

The Stage-VI percentage of utterances containing a verb phrase of 49% is close to the 40%-43% of utterances containing a verb phrase found in the longitudinal data of two children who are slightly younger than the Stage-VI subjects, namely Cilia (aged 3;0 -3;5) and Daantje (aged 3;3 - 3;8) in Verhulst-Schlichting's study (1985).

The utterances without verb phrases are not all immature utterances. The reader will recall that 28.5% of utterances consists of Formulae, mostly Social expressions (see chapter 3 (5.2)). If, in the Stage-VI corpus, only the Analytic units are considered, the percentage containing a verb phrase is 69%.

Prediction 2.1.2 The variation in verb categories: lexical verb, copula, modal verb and auxiliary, increases as children are indexed to a higher Syntactic Stage.

In Stage I the lexical verb emerges according to the criteria (see table 5.3). The criteria for emergence were set out in chapter 3. (5.1).

In Stage II the copula emerges, with as its only form the 3rd person present tense singular: *is* 'is' (see table 5.4).

In British English the copula is also an early emergence (Wells 1985: 214). The data in Brown's study of American English refer to mastery, not to emergence of the copula, and cannot be compared with British or Dutch data. The early emergence of the copula in Dutch and in British English is not compatible with the notion that children acquire lexical before functional categories. I suspect that the copula's early emergence is due to a combination of two factors. Firstly, its extremely high frequency in spoken language. In adult Dutch the form *is* 'is', representing several verb categories (lexical verb, copula and auxiliary), is the most frequently occurring verb form. According to De Vriendt-De Man (1969: 198) it is 4.6 times as frequent as the following verb form in the sequence of verb forms in descending frequencies. In De Jong's corpus of spoken Dutch *is* 'is' is the ninth most frequent word in the informal interviews. The second factor is the salient position of *is* 'is' in Child Directed Speech in short sentences identifying persons, objects and pictures. These sentences are highly frequent and often repetitive. This supports Richards and Robinson (1993), who showed that the frequency of questions opening with the copula in the children's environment correlates significantly with the increased use of the (contracted) copula. The eighth most frequent word in adult Dutch, probably less salient than the copula, is the indefinite article *een* 'a'. It emerges at about the same time as the copula (Schlichting 1993: 64). So, it seems that according to the criteria of emergence of this study functional

categories which are frequent in the target language emerge early.
In Stage II there are some occurrences of modal verbs. In Stage III the frequencies increase, reaching the criteria for emergence (see table 5.12). The early emergence of the modal verb is also reported for German (Behrens 1993). In British English the modal verb emerges after the auxiliary of tense (Wells 1985: 214ff), while in Dutch the auxiliary of tense emerges late in Stage IV, after the modal verb (see table 5.29). The modal verbs in Dutch have little meaning initially; they indicate tense and number rather than modality.

In Stage III there are small numbers of auxiliaries of aspect and tense. In Stage IV the auxiliaries of aspect and tense reach the criteria for emergence (see tables 5.17 and 5.20). In Stages V and VI there are no newly emerging verb categories (auxiliaries of the passive and of duration are expected to emerge in Stage VII or Stage VIII).

We may conclude that, with one category of verbs emerging in Stage I, one in Stage II, two in Stage III, and again two in Stage IV, Prediction 2.1.3 proves to be true, but it should be noted that the emergence of these categories takes place at a very early period of language acquisition, i.e. in Stages I - IV.

Prediction 2.1.3 The variation in morphological verb forms increases as children are indexed to a higher Syntactic Stage.

In Stage I the only verb form used is the infinitive of the lexical verb. The first finite forms tend to be the present tense singular forms: of the copula in Stage II, of the lexical verb and the modal verb in Stage III and of the auxiliaries of aspect and tense, and the separable prefix verb in Stage IV. In Stage IV the present tense plural of most categories of verbs emerges (see table 5.15) at the same time, and in Stage VI the past tense emerges (see table 5.22), also across all verb categories. In the area of nonfinite forms we see that in Stage III the past participle of the lexical verb emerges (see table 5.7), with the exception of the separable prefix verb. The infinitives and past participles of modal verbs and auxiliaries do not reach the criteria in any Stage.
The only derivational development, the separable prefix verb, emerges in Stage III (see table 5.11). The separated form of the prefix verb emerges in Stage IV (see table 5.19) and its past participle in Stage V. Table 5.29 summarizes the emergence of all forms emerging in Stages I-VI. The increasing morphological variety clearly supports Prediction 2.1.3.

Table 5.29 *The emergence of the various forms of verb categories.*

	Stage I n=7	Stage II n=12	Stage III n=20	Stage IV n=25	Stage V n=19	Stage VI n=17
Lexical verb.	Infinitive		Present tense singular Past participle	Present tense plural		Past tense[a]
Copula:		Present tense singular		Present tense plural		Past tense
Modal verb:			Present tense singular	Present tense plural		Past tense
Aux. of aspect:				Present tense sing. plural		Past tense
Aux. of tense:				Present tense sing. plural		Past tense
Separable prefix verb:		Infinitive	Present tense sing. plural	Past participle	Past tense	

a. Past tense forms of all verb categories are mostly in the singular.

Children's acquisition of morphological structures is a gradual process. This can be concluded from the Mean Frequencies of Occurrence of the plural verb forms and past tense forms, calculated across all verb categories, (see figure 5.4). (Mean Frequencies of Occurrence are calculated across all language samples of a particular Stage, irrespective of the Subject Frequency in that Stage.)

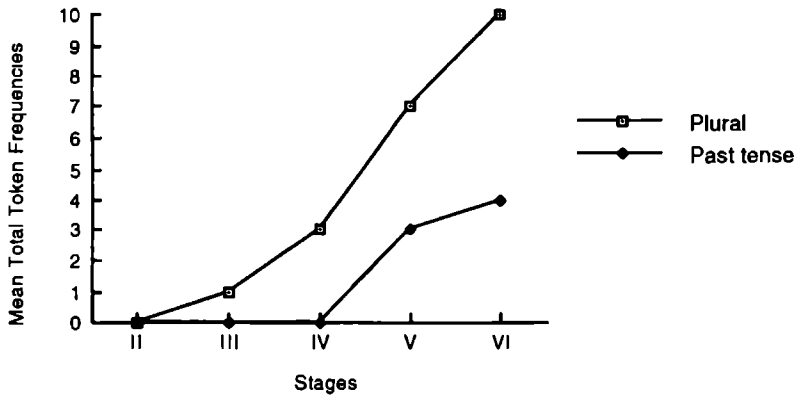


Figure 5.4 *The Mean Frequencies of Occurrence of plural verb and past tense forms in Stages II - VI, calculated across all verb categories.*

In the literature the acquisition of morphological structures is sometimes considered to be a sudden development (Meisel 1995), often described as the 'setting of a parameter'. It might be argued that the gradual picture of development is an artefact of the cross-linguistic study, while the individual children develop with sudden transitions. However, Behrens (1993: 180) also stressed the gradual development towards target-like structures. Her conclusions are based on longitudinal studies of the acquisition of temporal reference in German child language. Leopold (1949: 80), in the longitudinal study of his daughter Hildegard, commented on the acquisition of plural nouns as follows: "The use of nouns without a plural ending continued along with the sporadic use of nouns with a plural ending (even beyond the two-year limit) (Quoted in Brown 1973: 278).

To gain insight into the process of the acquisition of the plural verb forms in a longitudinal study, Daantje's speech samples were studied. All instances of plural present and past tense forms, and of contexts where a plural form should have been used were listed (see Appendix 4). Daantje had been in Stage IV for 6 months, when at the age of 2;6, plural verb forms occurred for the first time in his monthly language sample. He used two instances of the same verb, the auxiliary of aspect *gaan* 'go. In the sample at 2;7, he again produced two instances of the plural form of one verb, of the auxiliary *zijn* 'be'. At 2;8 he produced 9 tokens of 3 verb types: *zijn* 'be', *hebben* 'have', and *doen* 'do'. At the age of 2;9 no plural verb forms occurred in his sample. At the age of 2;10 there are five types: the same types he used in previous samples and the proform verb *moeten* 'must/have to'. At 2;11 there is, apart from two previously used types, again a new verb type in the plural: the proform verb *kunnen* 'can/be able', and at 3;0 two new verbs in the plural, the proform verb *mogen* 'may/be allowed', and the modal verb *zullen* 'shall/will'. In this sample he also used four verbs in the plural that were produced in earlier samples. The number of types of verbs, and of verb categories gradually increased as we

follow his development up to the age of 3;11, when he used a plural verb form in a subordiate clause. A plural past tense form occurred for the first time at 3;5. Throughout the period of 2;6 - 3;8 there were 8 instances when a plural subject occurred with a single verb form. What we can learn from these samples is firstly, that Daantje's plural forms are all of the most frequent verb types; secondly, that he seems to acquire these verbs almost one by one. We can conclude that in the case of Daantje, the acquisition of plural verb forms is a gradual process.

I noted a similar gradual development in the weekly diary study of my granddaughter Lisa. Her first plural verb form was *gaan* 'go' in stereotyped sentences: *daar gaan we weer* 'there go we again', and *daar zijn we weer* 'there are we again' at the age of 1;11. At 2;0 she began to comment frequently on the fact that there were two similar objects or people in a particular situation. She did this mostly by counting, as in *een, twee konijntje* 'one, two rabbit' or by using the word *allebei* 'both' with the noun in the singular, as in *allebei ring* 'both ring', when I was wearing two rings while I normally wear one. It seemed that she was discovering the notion of contrast. At around 2;1 she began to express the plural of nouns whose plural is formed by adding the suffix *-s* . She also began to use the plural verb form *gaan* 'go' in another context, viz. *gaan we schaapjes* (plural form) *kijken* 'go we sheep look' (= we are going to look at the sheep). A little later the plural verb form *zijn* 'are' began to be used in correct contexts, as in *zijn beer* (plural noun form requires *-en*) 'are bear'. One week later she addressed two people at the same time, using *allebei* 'both' for the plural form *jullie* 'you (plural meaning) with a plural verb form, in *willen allebei mes?* 'want both knife?' In this period, a first, hesitating, plural noun with the suffix *-en* was produced, in *honden* 'dogs' and I observed the overextension of the plural noun suffix *-s*, in *stoks* (=stokken) 'sticks' and *lamps* (=lampen) 'lamps'. From this case study, which will be continued in a forthcoming publication, we can learn that the discovery of the concept of plurality of objects and persons is closely connected with the discovery of agreement between plural subjects and verb forms, and that both can be characterized as gradual developments.

Prediction 2.1.4 The proportion of verb phrases with a finite verb increases as children are indexed to a higher Syntactic Stage.

The proportion of verb phrases with a finite verb form increases from 29% in Stage II to 92% in Stage VI (see table 5.2). Three out of four transitions from one Stage to the subsequent Stage are significant on a .00 level as tested with a t-test; the change from Stages V to VI is not significant. This indicates that Prediction 2.1.4 holds good up to Stage V when the proportion of finite verb phrases begins to resemble adult proportions.

In Stage VI 92% of the verb phrases contains a finite form. In this respect the Stage-VI child has approached adult usage. De Vriendt-De Man (1969: 322) found that in her corpus of Dutch adult speakers 5.9% of the sentences contained nonfinite verb phrases.

Finite verbs in Stage II

A remarkable outcome of the data above is the 29% of finite verb phrases in Stage II. Stage II is the very early two-word stage (a minimum of 5% of Analytic units consists of at least two clause elements). In the literature of German and Dutch child language the verb in the early stages of syntactic combinations is reported to be nonfinite (Klein 1974; Clahsen 1982; Mills 1985; Jordens 1990; Behrens 1993: 44). The percentage of 29% found in this study is surprisingly high, and is mainly due to the high incidence of the copula. I found 32 copulas, 21 lexical verbs in the present tense singular or the imperative and 5 modal verbs. In the analysis, routine sentences were analysed as Analytic units. This may partly explain the high proportion of finite forms. Another part of the explanation may be that most researchers do not give exact data of the proportion of nonfinite forms, but present the general statement that children start out with a nonfinite system.

The increase in finite forms

The increase in the proportion of verb phrases containing a finite verb form in Stages II-V/VI from 12% to 92% can be attributed to four factors. In the literature the main factor mentioned is the replacement of the nonfinite verb of lexical verb forms by finite forms. Two points can be made on this issue.

Firstly, it is often assumed that one of the targets of verb development is the acquisition of all possible forms of all verbs. This is not a realistic target. Children do not use all verbs in all forms even when they have acquired all structures. In the child corpus some verbs occur only in one or two forms. For example, the impersonal verb *lukken* 'succeed' occurs almost exclusively in the present tense singular with one occurrence as a past participle. Another example is *zwemmen* 'swim', which occurs almost exclusively in the infinitive; only one child uses a finite form, the present tense plural. The phenomenon that some verbs are used in a restricted number of forms was also found in adult language. De Vriendt-De Man (1969: 207) studied the 56 most frequent verbs in her corpus and reported that only 11 verbs occurred in the present tense, the past tense, the imperative, the infinitive and the past participle; 3 verbs occurred in the present tense only; 14 verbs did not occur in the past tense. This implies that the developmental target of children is not the acquisition of all verbs in all forms. Secondly, the replacement of the nonfinite verb by the finite verb turns out to be a minor factor. Three other factors contributed more to the increasing use of finite forms:

a. the increasing use of the copula, which is mainly finite (see table 5.4).
b. the increasing number of modal verbs and auxiliaries, which are mainly finite (see tables 5.12, 5.17 and 5.20).
c. the change in the frequencies of the use of the various lexical verb classes. For example, the decreasing use, proportionwise, of the Prototypical transitive verbs, which are mainly nonfinite, and the increasing use of the Less prototypical transitive verbs, which are mainly finite (see table 5.28).

Children's acquisition of the finite verb phrase is a gradual process. This was argued above for the plural present tense. It can also be concluded from the Mean Total Token Frequencies of the copula, the inflected lexical verb, the

modal verb, the auxiliary of aspect and the auxiliary of tense as is shown graphically in figure 5.5.

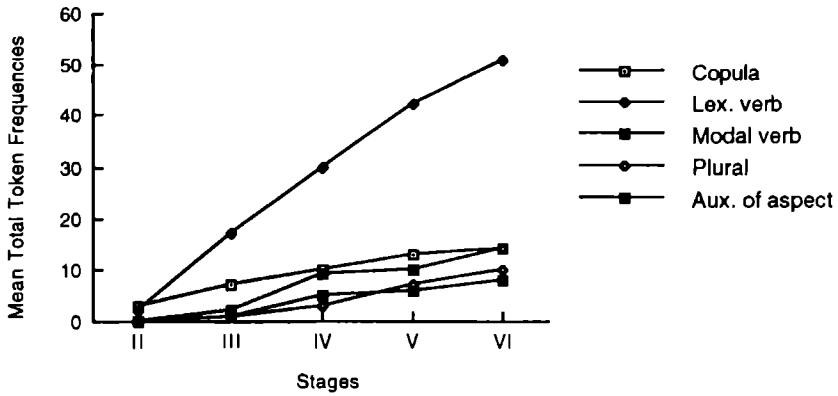


Figure 5.5 *The Mean Total Token Frequencies of finite forms in the five verb categories in Stages II - VI.*

In conclusion we can say that hypothesis 2.1 can be accepted. Verb phrase development is related to the CEI in the sense that with an increasing CEI there is a more advanced level of verb phrase development, thus supporting the validity of the CEI as an index of syntactic development.

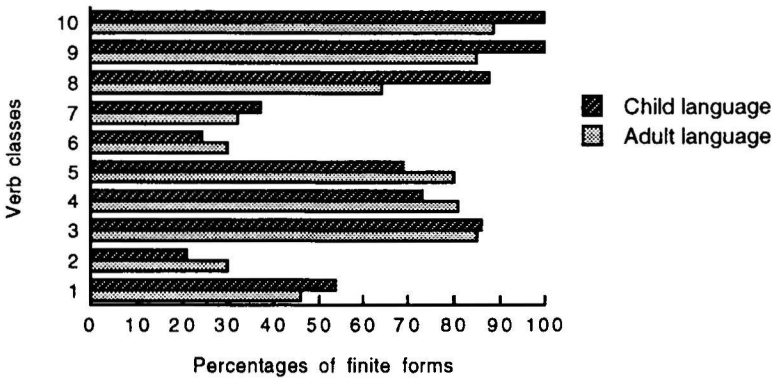
5.6.2 Discussion of hypothesis 2.2

The reader will recall hypothesis 2.2

Hypothesis 2.2
A verb which is more frequent in finite form(s) than in nonfinite form(s) in Child Directed Speech is (first) acquired in finite form(s); a verb which is more frequent in nonfinite form(s) than in finite form(s) in Child Directed Speech is first acquired in nonfinite form(s). (The frequencies in Child Directed Speech agree with the frequencies in non-Child-Addressed adult spoken language.)

Finiteness in child and adult language varies per verb category, and within the lexical verb category per verb class. Children's use of finite and nonfinite forms correlates highly and significantly with that of adults, i.e. a correlation coefficient of .70 as measured with a Spearman Rank correlation test.

In figure 5.6 I summarize the data on the relation between finiteness and verb category or class in child and adult language. Copulas, modal verbs and auxiliaries are taken together as one category whereas in the lexical verb nine classes are distinguished, resulting in ten categories/classes. (Only those verbs with a minimum frequency of 20 in the child corpus have been included in this calculation, resulting in 38 lexical verbs; for items see table 5.27.) Six verb categories/classes are found to have a larger proportion of finiteness in child language, four have a larger proportion of finiteness in adult language.



1 Objectless verbs
2 Prototypical transitive verbs
3 Less prototypical transitive verbs with a dative-experiencer subject
4 Other less prototypical transitive verbs
5 Verbs with a local object
6 Verbs with a prepositional object
7 Verbs with two nominal objects
8 Cognition-utterance verbs
9 Proform verbs
10 Copulas, Modal verbs and Auxiliaries

Figure 5.6 *Percentages of finite and nonfinite forms in the child and adult corpus.*

Determinants of finiteness

Children have little or no difficulty with the placement of finite verbs in first/second position or the placement of nonfinite verbs in sentence-final position. The main determinants of using the finite form or nonfinite form of a verb are the following:

1. Semantic transitivity. The degree of semantic transitivity of the lexical verb determines the finite/nonfinite dimension in child and adult language (Schlichting and Wijnands 1992). Prototypical transitive verbs whose object registers a change caused by the action of the verb, like *bouwen* 'build' are therefore mainly nonfinite; verbs that have no real direct object in the sense that it does not register such a change, e.g. *zeggen* 'say', a cognition-utterance verb, are mainly finite. In these verbs it is rather the subject that experiences a change (Givón 1984:100).
2. The degree of abstraction in the use of a transitive verb. I assumed that a number of lexical verbs is used by adults in a finite form to express a more abstract meaning, and in a nonfinite form to express a more concrete meaning. Children tend to talk about the concrete and the here and now, adults more about the abstract and general, and the there and then. Gradually children will acquire the more abstract uses, thus increasing their types of verbs to be used in both finite and nonfinite form(s).
3. Tense, aspect and modality. Together with the transitivity dimension, which

is important in the lexical verb, the Dutch system of tense, aspect and modality plays an important role in the allocation of a verb to the finite/first-second position and nonfinite/ sentence-final position. All sentences have tense, aspect and modality as a basic component. They are part of the preverbal message (Levelt 1989). From the tense, aspect and modality of a proposition follows the requirement of a finite or nonfinite verb form.

I suggest that the acquisition of finiteness and nonfiniteness in themselves do not pose a special challenge to the child, but that the child needs to acquire a more abstract use of language, including the extremely complex system of tense, modality and aspect.

The issue of finiteness in the literature

Clahsen (1986), De Haan (1987) and Jordens (1990) all investigated the acquisition of the verb with respect to finiteness (see section 5.2.2 above). In Clahsen's Phase II the various morphological forms were used without distributional differences: verb stems, verb stems with *-t* and verb stems with *-en* were found in first/second position and in sentence-final position. According to him, in this phase children do not yet use nonfinite forms in sentence-final position and finite forms in first/second position. Clahsen categorized lexical verbs according to a transitivity scale based on Hopper and Thompson (Clahsen 1986). He came to the conclusion that there are two main categories, intransitive and transitive. The verb inflection system initially serves to encode the different degrees of transitivity in the sentences used by the children.

De Haan distinguished two verb categories in early Dutch: Aux, which is finite, in first/second position, and V, with semantic notions indicating change or action, as a nonfinite lexical verb in sentence-final position.

Jordens also distinguished two verb categories with the same morphological and distributional characteristics as De Haan's, but with differences in the semantics. He saw three semantic classes across the two verb categories: stative or nonmovement verbs, resultative verbs, and activity verbs. Jordens did not support the distinctions made by Clahsen and De Haan as to the verb categories transitive/intransitive and Aux/V, but some of his findings may be interpreted in these terms.

In the present study, the verb in the independent clause was found to be finite and in first/second position, or nonfinite and in sentence-final position (see chapter 4), thus concurring with Jordens and De Haan in their distributional findings of finite and nonfinite forms. The modal verbs and auxiliaries in this study are finite and in first/second position. This concurs with Behrens (1993: 115), who found that in German copulas and modal verbs are first acquired in a finite form, and supports De Haan's distributional differences of finite Aux and nonfinite V. The transitivity dimension discovered by Clahsen was also found in the present study. Like Clahsen, I found the use of highly transitive verbs mainly in nonfinite forms. However, Clahsen concluded from his data that children "initially use verb endings to encode other functions, the degree of transitivity being one of these". He does not link child verb use to adult use. I suggest that the different uses of transitive and nontransitive verbs are linguistically determined in the target language, and not a child's temporary

interpretation of her language input. Adults also use finiteness differentially according to the semantic transitivity of the verb. This was suggested by Schlichting and Wijnands (1992), who concluded from their investigations of verb use in the spontaneous language of Dutch adult males that verbs with a strong semantic transitivity are rarely found in VO orders. Generally it may be said that features of the above studies by Clahsen, De Haan and Jordens, based on data of one to three children, were found in the results of the present study, which concerned data of 100 children.

The growth from child language to adult language

As children develop after the age of four towards the target of adult syntax we expect them (1) to increase their proportion of nonfinite verb forms in the six categories/classes which are more often nonfinite and (2) to increase the proportion of finite forms in the four categories/classes which are more often finite in adult language than in child language.

1. Increase in nonfinite forms

The expansion of the use of nonfinite forms of lexical verbs after the age of four may be expected to take place in three main ways:

a. by the growing use of modal verbs and auxiliaries which have already been acquired, for example with copulas, auxiliaries and proform verbs as nonfinite forms. For example, the use of complex verb phrases with the proform verb *moeten* 'must/have to' in a nonfinite form requires a more abstract level of thinking than the finite forms. In the child corpus the modal verb *moeten* 'must/have to' is always finite as in *nou moet ie naar bed* 'now he must to bed'. In adult language the use of a modal verb might lead to a sentence like *nou zal ie toch naar bed moeten* 'now will he yet need to bed' (=he will have to go to bed now).

b. by the acquisition of new auxiliaries in structures which require the use of nonfinite forms: e.g. the durative aspect and the passive. The acquisition of nonfinite subordinate clauses will also lead to an increase in an advanced type of nonfinite verb phrases.

2. Increase in finite forms

The expansion of the use of finite forms of lexical verbs may be expected to take place in three main ways:

a. by the more frequent use of previously known verbs that are mainly finite. For example, *zeggen* 'say', which has a very high frequency in adult language and a low frequency in child language (see table 5.27).

b. by the acquisition of new types of verbs; some of these will be mainly finite in adult and therefore also in child language. Among these are, in particular, mental verbs such as *denken* 'think', *bedoelen* 'mean/intend', *beloven* 'promise'.

c. by the expanding use of verbs which are nonfinite in concrete contexts and finite in abstract contexts, more away from the 'here and now', with a more advanced use of the modality, aspect and tense system. This may be the case with the expression of the relation of speech time to event time in the perfect or the past tense. The former leads to the use of a nonfinite form of *zeggen* 'say', as for example in *ik heb dat gezegd* 'I have said that', the latter to the use of a finite form as in *ik zei dat* 'I said that'. Another instance is *lopen* 'walk', which

is used in finite form in 12% in the child corpus, while adults use this verb in finite form in 76%.
d. by a change in conversational topics. The change from nonfinite to finite may have to do with the differences in topics of conversation between children and adults. For example, the Less prototypical transitive verb *krijgen* 'get' is used in a finite form in 45% of the instances that the verb occurs in the child corpus while adults use the finite form of this verb in a larger proportion, 79%. Children use this verb often in the past participle to express that they have received an object. I assume that adults use this verb less frequently to express the reception of an object and more often in one of the other meanings which lead to the use of a finite form.

Child Directed Speech

The comparison of child and adult language in the present study took place between child speech and adult directed adult speech. In hypothesis 2.2 the frequencies in Child Directed Speech are taken to be in agreement with the frequencies in non-Child-Directed adult Speech. However, from the literature we learn that there are systematic differences between Child Directed Speech and adult addressed speech (Snow 1995). A comparison of child speech and Child Directed adult Speech might well result in an even higher correlation between child and adult use of finiteness in lexical verbs. Such a comparison, however, is beyond the scope of the present study.

My findings are that there is a correlation in the use of finite forms of individual verbs between child language and adult language of .70. This seems to indicate that hypothesis 2.2 can be accepted. My assumption is that child and adult use of finiteness is entirely parallel if the verbs concerned are used to encode the same message.

5.7 CONCLUSIONS

In conclusion the following points concerning the development of the verb phrase can be made.

1. The validity of the CEI
The CEI seems to be a valid indicator of syntactic development.
As children develop syntactically according to the CEI, the proportion of utterances with a verb phrase increases (see table 5.1), the variation in verb categories increases (see table 5.29), and the morphological variation increases (see table 5.29). Also, as children are indexed to a higher CEI, the proportion of verb phrases containing a finite verb form increases. This development almost reaches adult proportions in Stage V (see table 5.2).

2. Gradual development and developmental target
From the above points and from figures 5.4 and 5.5, it has become clear that the development of the verb phrase is gradual.

3. Frequent lexical verbs
A small number of lexical verbs is used in high frequencies. The total corpus of Stages III-VI contains 5259 lexical verb tokens. Of these 50% is covered by 11 types: viz. *hebben* 'have', *doen* 'do', *moeten* 'must/have', *kunnen* 'can/be able, *zijn* 'be', *kijken* 'look', *maken* 'make', *gaan* 'go', *zitten* 'sit', *mogen* 'may/be allowed', *pakken* 'take' (in descending frequencies).

4. Verb classes and finiteness
Verb categories and, within the lexical verb category (see table 5.26), verb classes differ as to proportions of finite versus nonfinite forms in child and adult language. Three groups of verbs may be distinguished.
a. A number of verb categories: copulas, modal verbs and auxiliaries and some lexical verb classes, e.g. the Proform verbs, is first acquired in a finite form.
b. A number of lexical verb classes is first acquired in nonfinite forms, notably the verbs with a high degree of semantic transitivity, i.e. the Prototypical transitive verbs and the Verbs with a (potential) prepositional object.
c. A number of lexical verb classes is acquired in proportions of between 25% and 75% of finite and nonfinite forms, e.g. the Verbs with a local object.

5. Finite/nonfinite distinctive use
Semantic transitivity, the degree of abstractness, and the system of tense, aspect and modality play major roles in the assignment of verbs to the finite/first-second position and nonfinite/sentence- -final position.

6. Finiteness in child and adult language
The use of finite forms of lexical-verb types in child language correlates highly with adult language (Spearman .70). Verbs which are mainly finite in adult language are mainly finite, verbs which are mainly nonfinite in adult language are mainly nonfinite in child language. The high correlations between child and adult language may be ascribed to the influence of the input language.
The relatively small discrepancies between finite and nonfinite use of lexical verbs in children and adults go into two directions. Adults use more finite verbs than children in four verb classes, which is in agreement with the literature, but in four other verb classes children use more finite forms than adults (see figure 5.6, ignoring the class of Other less prototypical verb). Differences per verb vary from 0% to 64%. Some of the quantitative differences between child and adult use of verb forms are primarily explained by the difference in topics between children and adults. Other differences are related to the dimension of concrete-abstract use of a verb, which is different for children and adults.

7. Implications for future research
- Behrens (1993: 187) suggested in her implications for future research that it would be helpful to have frequency data for adult language in the study of child language. I should like to put it stronger: it is not advisable to study the development of the verb in child language, viz. its possible deviations from adult language, unless these aspects are compared with adult data.
- Givón (1984: 269) argued that the study of tense, aspect and modality as a subsystem should be considered relatively early in the study of syntax, because they form an obligatory category without which simple sentences cannot be

produced. I suggest that the investigation of the acquisition of finite forms in child language (as compared with adult language) be combined in future studies with the acquisition of the system of tense, aspect and modality. In such an investigation the differences between children's and adults' verb use may prove to be even smaller if the data are collected in similar ways: in observational settings with little talk away from the 'here and now', while doing practical jobs or playing games.

8. The final discussion ending chapter 4, on word order in child language, was summarized in "Word orders in child speech reflect word orders in the input language", stressing the agreement between child and adult language. Bowerman (1985: 1312, 1989: 161) claimed that children are highly sensitive from the beginning to the semantic-categorization system displayed in their language. My general conclusion with regard to the use of the finite/nonfinite distinction in verbs complies with my summarizing remark of chapter 4 and with Bowerman's claim. I suggest that when children and adults express the same semantic notions, the use of finiteness and nonfiniteness is the same:

When children and adults think alike, they speak alike.

Chapter 6

Validation and Theoretical Conclusions

This final chapter focuses on two main issues: the validation of the Clause Element Index and the theoretical conclusions of the study. Various aspects of the validation of the Clause Element Index as a yardstick of syntactic development are dealt with in section 6.1. The first aspect is content validity, which is concerned with the question whether the elements constituting the CEI are indeed elements of syntax. The second is internal construct validity. Do the populations indexed as Stage groups I - VI show systematic development in their use of the syntactic system? The third aspect of validity is external construct validity: correlations with age, sex and socio-economic background are dealt with. The fourth is criterion referenced validity. The clause element as an index of syntactic development is validated to MLU measures. A separate section is devoted to the MLU as an index of syntactic ability. The fifth aspect of validity which is treated is reliability. Intrarater and interrater reliability are discussed as well as some evidence concerning the CEI's sensitivity to change.

In section 6.2 I will discuss the outcomes of this study in the light of some theoretical topics. First the relation between child and adult language is briefly gone into. Then the main topic is dealt with: children's growth from the pragmatic mode, concerned with the concrete, towards the syntactic mode, which can be highly abstract. This is presented in an adaptation of a framework proposed by Givón. A third issue is the language-specificity of input. Next some similarities and differences in the first-50-word vocabularies are discussed, and the section ends with the study of errors.

In section 6.3 I make some recommendations for the future study of child language.

6.1 VALIDATION

Validation is a broad concept, which mainly deals with the question of the adequacy of measures. Cronbach's point of view, as formulated in *Essentials of Psychological Testing*, that all validation is essentially construct validation has been adopted as the basis of this section (Cronbach 1984: 126). The reader will recall that the speech samples in the present study were stratified with the Clause Element Index (CEI), by selecting the longest clauses in terms of clause elements as indicative of the syntactic level (see chapter 3 (4)). In this section I hope to show that the CEI is a valid index of syntactic development.

6.1.1 Content validity

Content validity refers to agreement between the content of a test or assessment technique and the skills which this test or assessment technique is meant to measure. For the validity of the CEI this means that its categories, i.e. the various combinations of clause elements, are indeed regarded as syntactic categories.

It has been argued in chapter 3 that on theoretical and empirical grounds the clause element is a primary unit in speech, and that it is suitable as a unit in the measurement of child speech. The clause element is described in handbooks of structural grammar such as *A Grammar of Contemporary English* (Quirk et al. 1984), and the *Algemene Nederlandse Spraakkunst* (Geerts et al. 1984). Combinations of clause elements are described in a number of influential descriptions of the syntax of normal children (Clahsen 1982; Wells 1985) as well as of language impaired children (Crystal et al. 1976; Crystal 1979). This may also be taken as evidence that the clause element and its combinations reflect syntactic development.

6.1.2 Construct validity: internal

The CEI is the index by which the stratification of speech samples into subsequent Syntactic Stages was established. The main evidence for the validity of the CEI is internal (see Groot 1990). This indicates that the evidence for its internal construct validity must be looked for in the changes in frequencies of the various structures as children progress according to this index. Subject Frequencies as well as Mean Token Frequencies will be considered. There are two main areas in which the evidence can be found: the first is the development of the structures which make up the CEI, i.e. the combinations of clause elements and the multi-clause sentences, as discussed in chapter 4. Mature structures are expected to increase and immature structures to decrease in frequency as children progress in syntactic development. This should also be the case in the second area, which concerns the other domains of syntactic ability, such as the development of the verb phrase, which was dealt with in chapter 5, as well as the noun phrase, the adjective phrase etc., which emerge in the subsequent Syntactic Stages (for a survey see the developmental syntactic scale TARSP in Appendix 1 and Schlichting 1993).

In chapter 4, I summarized the validatory evidence with regard to the combinations of clause elements and the multi-clause sentences. To a certain extent this evidence is circular because the syntactic level of the speech samples is indexed by the sentence length in terms of clause elements and multi-clause sentences.

With regards to the Mean Token Frequencies of the clause-element structures and multi-clause sentences, it was found that all two-element declarative structures show a decrease of Mean Token Frequencies, as children are indexed to a higher CEI, including the SV structure. All other clause structures and multi-clause sentences show stable or increasing Token Frequencies. With regard to the Subject Frequencies it was found that:

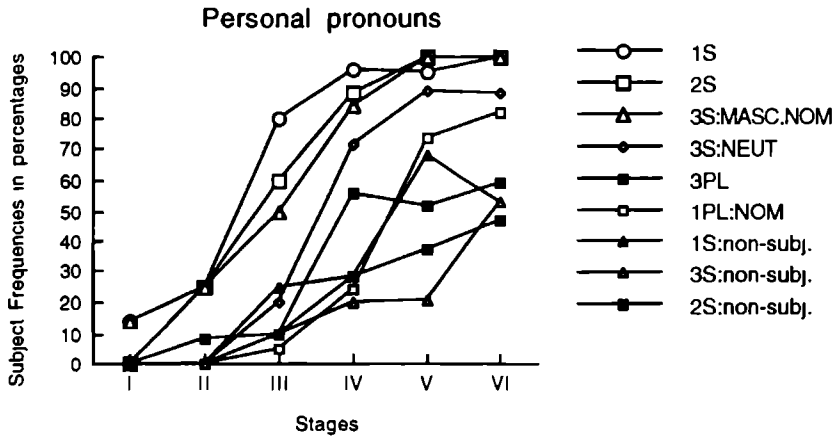
1. As children are indexed to a higher CEI, there is generally an increasing Subject Frequency in declarative structures containing a subject and a verb

phrase, a stable Subject Frequency in structures containing a verb phrase but no subject, and a decreasing Subject Frequency in structures containing no verb phrase.
2. As children are indexed to a higher CEI, yes/no questions and wh-questions generally show an increase in Subject Frequencies with the exception of the øwh-question, which disappears almost entirely, and the tag, which decreases somewhat after Stage IV, when the yes/no question is acquired.
3. The multi-clause sentences were all found to show an increase in Subject Frequencies.
We may conclude that the mature sentence defined as containing a subject, a verb phrase and at least one other clause element shows a stable increase in both types of Frequency, while less mature sentences of only two elements and sentences containing no verb phrase decrease in at least one type of Frequency. Sentences containing a verb phrase and no subject are stable. I consider these findings to be evidence that for the level of clause elements and multi-clause sentences the CEI has internal construct validity.

In chapter 5 I summarized the evidence with regard to the development of the verb phrase. I accepted Hypothesis 2.1.1 that verb phrases become more frequent and more varied as children develop syntactically, i.e. are indexed to a higher CEI. From one Stage to the subsequent Stage the proportions of utterances with a verb phrase increase. Children use more verb categories, more morphological categories, and their proportions of verb phrases with a finite verb increase. All verb phrase structures show increasing Subject Frequencies in the subsequent Stages. The same holds for the Token Frequencies with the exception of the past participle, which has a stable Token Frequency, and the past tense, which shows a decrease from Stages V - VI. The increasing Subject and Token Frequencies provide evidence that the CEI is a good predictor of the development of the verb phrase.

More evidence for the validity of the CEI is found in the TARSP scale (Appendix 1 and Schlichting 1993). Beside the one-word sentence, the developing clause structure and the multi-clause sentences, coordinators and subordinators, and the verb phrase structures, which were dealt with in chapters 2, 4 and 5 of the present study, the scale comprises noun phrase, adjective phrase and prepositional phrase structures. Like the verb phrase structures, these structures were assigned to a particular Stage if they reached the criterion of a Subject Frequency of 50% of the speech sample in the corpus of that particular Syntactic Stage and were used at least once. For example, the personal pronoun *ik* 'I' was assigned to Stage III, because 80% of the subjects in Stage III used this pronoun at least once, while in Stage II it was only used by 25%. If the CEI is a valid indicator of syntactic ability, the mature structures in the TARSP scale should show increasing frequencies, as children are indexed to a higher CEI.

The first piece of evidence concerns the personal pronouns. Figure 6.1 shows that with one exception all personal pronouns show higher Subject Frequencies as children develop syntactically according to the CEI. The Token Frequencies of subject forms of the personal pronouns increase; the non-subject forms show some instabilities, especially in the 1st-person form, which shows a decrease in Stage VI.



1. 1S: 1st person singular, nominative: *ik* 'I'
2. 2S: 2nd person singular, nominative: *jij/je* 'you'
3. 3S: MASC.NOM: 3rd person singular, masculine, nominative *hij/ie* 'he'
4. S:NEUT: 3rd person singular, neutral, nominative and non-subject: *het* 'it'
5. 3PL: 3rd person plural, nominative: *zij/ze* 'they'
6. 1PL:NOM: 1st person plural, nominative: *wij/we* 'we'
7. 1S:non-subj.: 1st person singular, non-subject form: *mij/me* 'me'
8. 3S:non-subj.: 3rd person singular, masculine, non-subject form: *hem* 'him'
9. 2S:non-subj.: 2nd person singular, non-subj form: *jou/je* 'you'

Figure 6.1 *Subject Frequencies of personal pronouns in Stages I - VI.*

In figure 6.2 the development of the complex adjective phrase is shown. The only structure in the language of children under four to reach the criterion is the adjective preceded or followed by an adverb, mostly of degree, as in *heel moeilijk* 'very difficult'. The Subject Frequency reaches the criterion rather suddenly in Stage IV and increases slightly in Stages V and VI. The Token Frequency of the complex adjective phrase increases from Stage IV onwards.

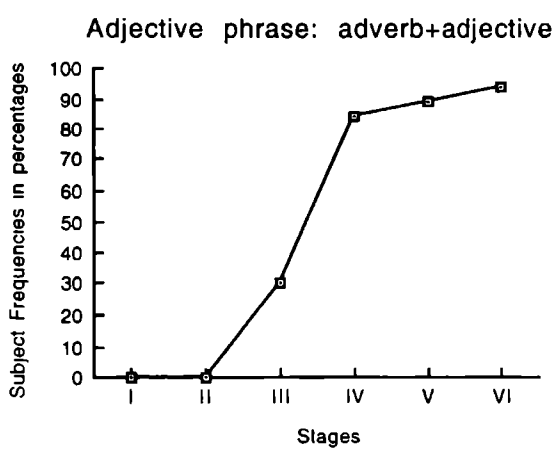
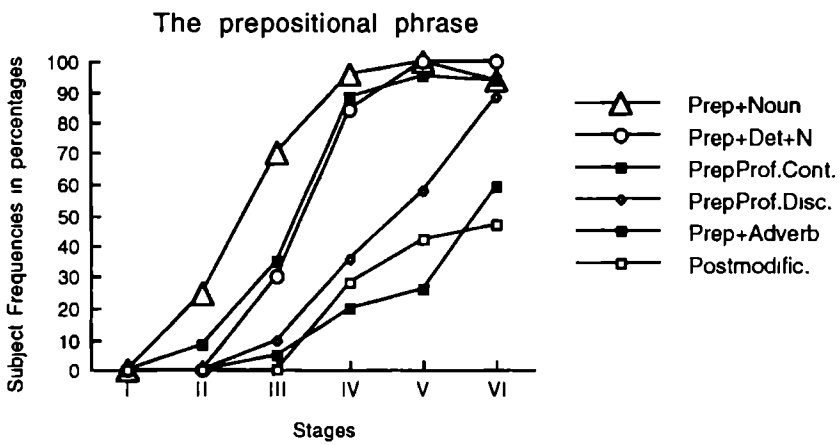


Figure 6.2 *Subject Frequencies of the complex adjective phrase in Stages I - VI.*

The last piece of evidence given of the internal construct validity of the CEI concerns the development of the prepositional phrase. Figure 6.3 shows that all six prepositional structures increase in Subject Frequencies as children are indexed to a higher CEI.

As for the Mean Token Frequencies: all Token Frequencies are stable or increase as children advance in syntactic ability with the exception of the Preposition + Noun structure as in *op tafelkleed* 'on tablecloth', which increases towards a Mean Token Frequency of 10 in Stage V and then decreases to 6 in Stage VI. This decrease can be explained by the fact that the Preposition + Noun structure is infrequent in adult language; the full prepositional phrase mostly requires a determiner preceding the noun, and thus becomes Preposition + Determiner + Noun, as in *op het tafelkleed* 'on the tablecloth'. The data in TARSP (1993) show that the structure Preposition + Determiner + Noun increases in Token Frequency from 7 in Stage V towards 10 in Stage VI. The decrease of the often immature Preposition + Noun structure contributes to the validity of the CEI.



1. Prep+N: Preposition + Noun or pronoun e.g. *inne tas* 'in bag'
2. Prep+Det+N: Preposition + Determiner + Noun e.g. *op een stoel* on a chair
3. PrepProf.Cont.: Prepositional proform, continuous e.g. *erin* 'there-in'
4. PrepProf.Disc.: Prepositional proform, discontinuous e.g. *er niet in* 'there-not-in'
5. Prep+Adverb: Preposition + Adverb e.g. *naar beneden* 'to downstairs'
6. Postmodific.: Postmodification, e.g. *de rug van het paard* 'the back of the horse'

Figure 6.3 *Subject Frequencies of prepositional phrase structures in Stages I - VI.*

I can conclude that the CEI is able to predict the development of other levels than the clause and multi-clause level, and as such is a valid indicator of syntactic development.

6.1.3 Construct validity: external

The issues of validity in this section relate to the external evidence of the validity of the CEI. If the CEI is a valid index of syntactic development, we expect the results of the indexation to agree with the variation that is generally found between groups. Three sources of variance, viz. age, sex and socio-economic background, will be explored.

Age and syntactic ability

The natural assumption regarding the relation between age and any measure of child development is that there is a high correlation between the two. The variation in rate of development requires that the size of the groups and the span of the periods compared need certain minimum values for the relation to show. The data of the present study are displayed in a scatterdiagram in figure 6.4. There is a clear relation between the two sets of values; the Spearman correlation is .81. Still, the relationship is by no means perfect. Figure 6.4 shows that this is especially so at the age of 1050 days (2;9 years) with subjects ranging from Stages III - VI. Large variations in rate of syntactic development were also found by Wells (1985). (See table 3.2 in chapter 3.)

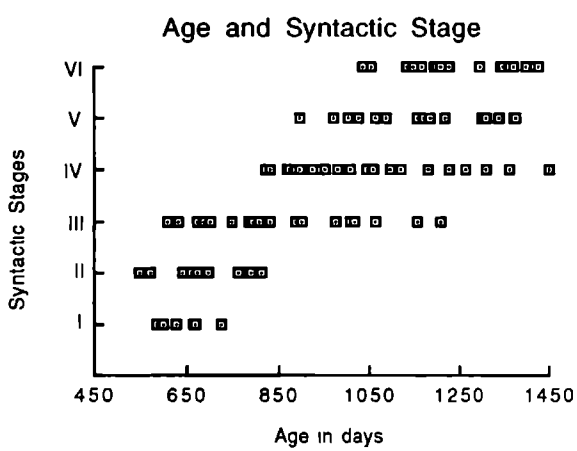


Figure 6.4 *The relation between Syntactic Stages and age in days.*

Sex and socio-economic background

If the CEI is a valid measure, a difference in the rate of development is expected between boys and girls, and between children from different socio-economic backgrounds (McCarthy 1954). The values of the syntactic development in the 20 subgroups are displayed in table 6.1, in cells of 5 subjects with the variables age group, sex and socio-economic levels A and B.

Table 6.1 *Mean Syntactic Stages of the five age groups 2-6 across the four subgroups (scores corrected for ages deviating from the medians of age spans).*

Age groups	Ages	Boys A	Girls A	Boys B	Girls B	Means Age groups
2	1;6-2;0	1.75	1.54	1.79	2.55	1.91
3	2;0-2;6	2.99	3.67	2.51	3.33	3.13
4	2;6-3;0	3.31	4.34	4.53	4.73	4.23
5	3;0-3;6	3.90	5.35	4.93	5.21	4.85
6	3;6-4;0	4.73	5.19	5.57	5.92	5.35
Means Subgroups		3.34	4.02	3.87	4.35	
					Grand mean 3.89	

Most subjects deviate from the median age of their age group. Therefore the values in table 6.1 have been corrected for ages deviant from the median ages of the subgroups. The relation between the corrected values of the subgroups and Syntactic Stages is displayed graphically in figure 6.5.

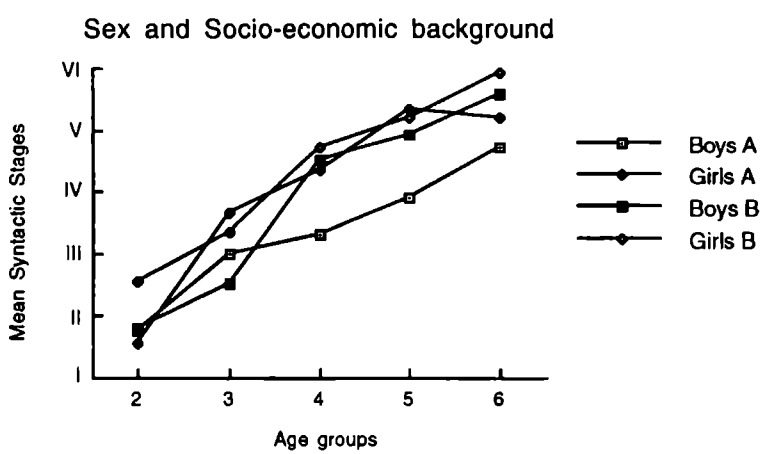


Figure 6.5 *The Mean Syntactic Stage per age subgroup.*

The variance between the four main subgroups, boys and girls from two levels of socio-economic background, ignoring age, was tested with a one way variation analysis from SPSS across the 100 children, with the following results:

1. Girls develop faster than boys (significance of F: .001). This is especially so in the early Stages; only two out of the twelve subjects who were assigned to Stage II are girls, one from each socio-economic group. Girls seem to skip Stage II almost; they probably pass to Stage III so rapidly that with small cells the investigator may miss them in Stage II. By the time the children are in age group 6: 3;6 - 4;0, the differences between boys and girls have become far smaller. A similar result was found by Swets-Gronert in a Dutch longitudinal

study concerned with the link between temperament, language competence and behavioural problems. The results of her study showed that the girls' language score is higher than the boys' at the age of two (nearly significant, p=.08) and significantly so at the age of three (p=.01). At the age of five the girls are still in the lead, but this is no longer significant (p=.35) (Swets-Gronert 1986: 126).

One other point must be made. It is sometimes stated in the literature that differences between boys and girls are found only when the investigator sets out to look for them. This was not the case in the present study. The difference between the sexes was a side issue. All observers in the cross-sectional study were female, but I doubt that this had a negative influence on the display of syntactic ability in boys.

2. Children from parents with a higher educational level (group B) develop faster than children from less educated parents (group A) (significance of F: .01). This is particularly clear in age group 6: 3;6 - 4;0; most B children are in Stage VI, the A children are generally in Stage V. The main reason is that the latter use hardly any subordinate clauses. In an additional study of A boys in the ages of 4;0 - 4;6, Wehmeyer (1994) found that these boys had reached Stage VI, six months later than the B children. These results are in agreement with Van der Geest, Gerstel, Appel and Tervoort (1973: 72), who compared the language of boys aged between three and four from 'lower' socio-economic backgrounds middle class boys. One of their conclusions was an estimation that the increase per month in the mean length of sentence was .035 and .089 in the lower class groups, and .26 in the middle class group. Similar differences in language levels between groups of children from various socio-economic backgrounds were reported by Kohnstamm, who assessed large groups of Dutch 4 to 7-year-olds on various linguistic aspects. In his 1968 investigation he found a correlation of .60 between the educational level of parents and the test results. The differences between levels of parental education have become smaller in the Netherlands since 1968, owing to a general rise in educational levels, but there were still substantial differences in test results between the various groups in 1978 (Kohnstamm 1983: 32). Significant differences between three socio-economic groups were also found in a test of syntactic development of 1049 children from 1 to 6 years of age, with mean standard scores of 96.1 for the lowest group and 103.6 for the highest group, a difference of exactly .5 standard deviation (Schlichting, Van Eldik, Lutje Spelberg, Van der Meulen and Van der Meulen 1995).

Wells, in his *Language Development in the Preschool Years* concluded that socio-economic background contributes little to the variance among children's language skills. He claimed that

> ...for the majority of the population there is very little evidence of a systematic relationship between Family Background and rate of language development in the preschool years. It is true, however, that the extremely fast developers are significantly more likely to be found...in the homes of the highly educated professional or managerial parents and that, conversely, the extremely slow developers are significantly more likely to be found in the homes of minimally educated parents in semi-skilled or unskilled occupations.
> (Wells1985: 349)

In his calculations Wells included linguistic variables of a wider range than morphosyntaxis, e.g. the functions and the pragmatics of the utterances. Wells would probably have found greater differences if he had looked at syntax alone. I think it unlikely that if children are selected from families with a variety of parental educational backgrounds, this variety is not reflected in the children's skills. The lack of linguistic skills in children from a low socio-economic background is a common concern of governments and has led to many remedial programmes.

One subgroup seems to run a double risk of a less advanced language development: boys from less educated parents (see table 6.1 and figure 6.5). Their results show they have the lowest means across the socio-economic subgroups, viz. 3.34 compared with the grand mean of 3.89. The difference between A boys and B girls is a full Syntactic Stage. In the first-50-word study described in chapter 2, boys from the lowest socio-economic groups were already seen to be significantly slower than boys from more educated parents or than girls from any socio-economic background (see also Verhulst-Schlichting, Morelli-Kayser and Peddemors-Boon 1987). McCarthy (1954: 577) reported that sex differences are more marked among children of the lower socio-economic levels. I found that this is true but, as was shown above, these differences have decreased by the time the children are four years of age.

6.1.4 Criterion referenced validity

To assess the criterion referenced validity, the question to be answered is whether the CEI correlates with other measures on the same data. The only available measure is the Mean Length of Utterance (MLU). MLU as a measure of syntactic ability was discussed in chapter 3 (3.2). In the present study MLU has been calculated in words, not, in morphemes. This choice was made on the basis of the findings of Moerman-Coetsier and Van Besien (1987). In their study of Flemish children they calculated the correlation between MLU in words and MLU in morphemes. In the 40 speech samples they studied, a correlation of .98/99 was found between the word and the morpheme as a basic unit for the Mean Lenghth of Utterance in children under four (Moerman-Coetsier & Van Besien 1987: 87). There are many ambiguities in the calculation of morphemes in Dutch, which makes MLU in words preferable. Park, who studied German child language did not use MLU because the calculation of morphemes was too problematic (see Brown 1973: 71). Dutch is less inflectional than German, nevertheless there are a great many arbitrary decisions in the calculations of morphemes. A practical reason for using MLU in words is that it can be calculated fairly easily by means of a computer programme, which was done in the present study.

MLU was calculated across all utterances (excluding unintelligible and unfinished utterances and the parts of utterances which were repaired or repeated). Many researchers find that some categories of utterances, e.g. social expressions tend to make MLU less reliable. Therefore, a slightly more sophisticated utterance measure has been used beside MLU: MLU special (MLUsp), from which the utterances consisting of the reaction signals *ja* 'yes' and *nee* 'no' have been excluded. Ranges of yes/no utterances are exceedingly wide (Schlichting 1993: 102) and may therefore make MLU less reliable. The

third MLU-measure used is the means of the ten longest utterances: MLUL. The MLU scores of the six Stage groups are shown in table 6.2. (For individual scores, see Appendix 3.)

Table 6.2 *The Mean Lengths of Utterance of the Stage groups; number of subjects in six Syntactic Stages; Mean Lengths of Utterance (MLU) and SD; Mean Lengths of Utterance excluding* ja *yes' and* nee *'no' (MLUsp) and SD; Intervals between MLUsp's; Means of the ten Longest Utterances (MLUL).*

Stage	n	MLU	SD	MLUsp	Inter-val	SD	MLUL	SD
I	7	1.1	0.12	1.12		0.12	1.11	.22
					.15			
II	12	1.22	0.1	1.27		0.12	2.27	.45
					.47			
III	20	1.6	0.3	1.74		0.35	3.39	.82
					.79			
IV	25	2.23	0.27	2.53		0.33	5.48	.57
					.61			
V	19	2.65	0.20	3.14		0.24	6.50	.63
					.72			
VI	16	3.24	0.32	3.86		0.41	9.25	1.56

The CEI and MLU-measures correlate highly, as calculated with the Spearman Correlation: CEI/MLU: .95; CEI/MLUsp: .96 and CEI/MLUL: .96.
Figure 6.6 shows the relation between MLUsp's and the Syntactic Stages graphically. These correlations contribute highly to the validity of the CEI. A major difference between the CEI and MLU-measures is that CEI measures only the number of clause-elements, while MLU also takes the other words in a phrase into account. A second difference is that CEI considers only the longest sentences, and MLU counts all sentences.

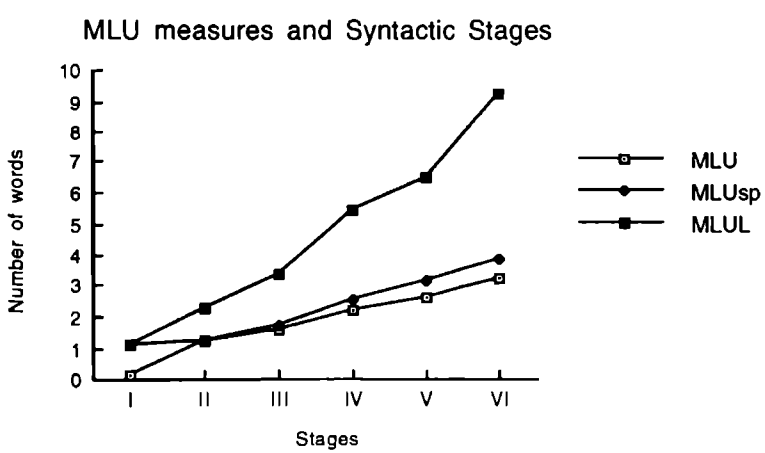


Figure 6.6 *The relation between Syntactic Stages and MLU measures.*

In this section we have seen that the external evidence - correlation with age, the diverging evidence concerning sex and socioeconomic background, and the criterion validation - contributes highly to the validity of the CEI.

6.1.5 MLU versus CEI

The high correlation between CEI and MLU measures might imply that both are reliable indicators of syntactic development in Dutch. In chapter 3 (3.2), I concluded from the literature that for the present study MLU was not a suitable index of syntactic ability and I rejected it as a means to stratify the speech samples into stages. In the light of the high correlation found between CEI and MLU this rejection may not seem justified. The main difference between the MLU as measured in the literature and in the present study is that MLU is generally calculated in morphemes, while I calculated it in words. Apart from this factor the apparent reliability of MLU in the present study can be attributed to a combination of the following factors:
a. the number, 100, of subjects, which is large when compared with the number of subjects in some other studies (compare 18 in Klee and Fitzgerald 1985, and 21 in Rondal et al. 1987).
b. the size, 200 utterances, of the speech samples, which is fairly large (compare Moerman-Coetsier and Van Besien 1987, Bol and Kuiken 1988). Brown, who applied MLU as an index of syntactic ability, used much larger speech samples (713 complete utterances) (Brown 1973: 56). This must have considerably increased the reliability of his MLU's.
c. the calculation of multi-clause sentences as one utterance. This increases the differences in lengths of the utterances, which increases the reliability in statistical calculations.
d. the fairly wide ranges of MLU's: MLU 1.01 - 3.90; MLUsp 1.03 - 4.55 and MLUL: 1.1 - 11.9.
e. the sufficiently wide range of the ages of the subjects: 18 months - 48 months (compare 25 - 47 months in Klee and Fitzgerald 1985, and 17 - 59 months in Miller and Chapman 1981).
f. the fairly low lower age boundary: 18 months.
g. the upper boundary of the age group, 45 months (MLU ceases to be very reliable after the age of 42 months according to Wells 1985: 122).
h. the uniform setting of the speech sampling: at home.
In addition to this there may have been a language-specific factor, viz. that Dutch would be a language whose developmental syntax in children could reliably be measured with MLU. This was not expected, because of the different outcomes of MLU measurements of Dutch children as measured by Bol and Kuiken (1988) and Flemish children as measured by Moerman-Coetsier and Van Besien (1987), while the syntactic differences between Dutch and Flemish are few. Additional evidence for distrusting MLU as a yardstick for syntactic development in Dutch was found in a cross-sectional study in which the mean MLU's of 4- and 5 year-olds, calculated in words, were reported to be 6.0 words for both age groups (Van den Dungen and Verbeek 1994).

The main reason for my rejection of MLU as an index of syntactic ability was its low correlation with age in some studies in the literature (see chapter 3 (3.2).

In the present study the correlation of age in days with MLU is .83, with MLUsp it is .82, and with MLUL .80. These correlations are fairly high and close to Miller and Chapman's: r=0.88 (Miller and Chapman 1981). They are far higher than the correlation found by Klee and Fitzgerald (1985), who studied a group of 18 children, with a resulting r=0.26. It must be concluded that group size as well as the age range of the subjects in this type of study are main variables. This is further confirmed when we look at the correlations between age and MLUsp in the five age groups of the present study as shown in table 6.7. Only in age groups 2, 1;6-2;0 and 3, 2;0-2;6, is there a significant correlation between age and MLUsp.

Table 6.7 *The relation between the Mean Length of Utterance and age in the five Age groups (n=20). Mean numbers of days; Mean Length of Utterances excluding* ja *yes' and* nee *'no' (MLUsp) and SD; Spearman's correlation coefficients between age and MLUsp and significance levels.*

Age group	Mean no. days	SD	MLUsp	SD	Spearman	Significance
2 1;6-2;0	648	48	1.31	.27	.45	0.045
3 2;0-2;6	829	48	1.87	.59	.65	0.002
4 2;6-3;0	1007	48	2.63	.63	.32	0.165
5 3;0-3;6	1173	46	2.93	.69	.40	0.083
6 3;6-4;0	1354	46	3.36	.57	.16	0.502

The question can be raised whether the same description of syntactic development could have resulted, if an MLU measure instead of the CEI had been used to stratify the language samples, as was done by Brown (1973). The procedure would have been to measure all speech samples for MLU, create groups or 'bands' of certain values of MLU indicating MLU stages and consequently code the syntactic structures emerging in these MLU stages. In chapter 3, I rejected the MLU as a syntactic measure beyond a certain value (between 2.0 and 3.0 morphemes) on the basis of evidence from the literature. I will now provide evidence that my rejection of MLU was justified. One way of doing this is to study the distribution of speech samples across MLU bands. For that purpose the speech samples were assigned to 7 MLUsp bands of .50, the results of which are shown in table 6.8.

As has already become clear in figure 6.6, MLUsp band 1 shows a great range among the Stages; it seems as if a range of .50 MLUsp is too broad, not quite subtle enough for the very first beginnings of the two-word sentences. MLUsp band 2 coincides almost entirely with Syntactic Stage II. MLUsp band 3 ranges from Stage III to IV, while MLUsp bands 4 and 5 show an almost identical distribution across Stages III, IV and V. The subjects in bands 6 coincides almost completely with Stage VI, but the four subjects in band 7 are also in Stage VI.

If we look at the range of ages across one Syntactic Stage, we see that especially Stage III shows a wide range. Children from MLUsp bands 1 to 5 are in Syntactic Stage III.

Table 6.8 *The relation between MLUsp in seven 0.50 MLUsp bands, and CEI as indicators of syntactic ability.*

MLUsp band	values		Stage I	Stage II	Stage III	Stage IV	Stage V	Stage VI	Stage VII
1	1.0	- 1.50	7	11	6	-	-	-	-
2	1.50	- 2.0	-	9	1	-	-	-	-
3	2.0	- 2.50	-	-	5	9	-	-	-
4	2.50	- 3.0	-	-	1	13	5	-	-
5	3.0	- 3.50	-	-	2	13	4	-	-
6	3.50	- 4.0	-	-	-	-	1	8	1
7	4.0+		-	-	-	-	-	4	-

The conclusion must be that in spite of the high correlations between CEI and MLUsp: .96, there are major differences between CEI and MLUsp when we look at the actual distribution of CEI across these MLUsp bands. The validity of the CEI for Dutch has been demonstrated in this investigation, the validity of the MLU seems doubtful, on the evidence from this study and from previous studies of Dutch child language (Arlmann-Rupp et al. 1976; Moerman-Coetsier and Van Besien 1987, Bol and Kuiken 1988; Van den Dungen and Verbeek 1994).

6.1.6 Aspects of reliability

Reliability deals with accuracy of measurement. In the design of this study a number of decisions were taken which were arbitrary to a certain extent. I shall consider one of these decisions as an issue of the reliability of the CEI, viz. the decision with regard to the size of the speech samples. An important point in any assessment technique is the dependency on the speech pathologist for the reliability of its results. Therefore, the interrater and intrarater reliability will be discussed. Another point of interest is the sensitivity to change of an instrument, which is mainly a matter of predictive validity. Two intervention studies which used the CEI will be reported on.

The size of the speech samples

The size of the speech samples in any investigation must relate to the purpose of the study. The main purpose of the TARSP study, for which the CEI was designed, was to explore what syntactic structures emerge in children between ages 1;6 and 4;0. The maximum of information must be collected, but with a minimum of effort. The longer the speech sample the greater the possibility that occurring structures have already been produced in previous utterances (see also Wells 1985: 129). Experience with the longitudinal studies reported on in chapter 3 suggested that 200 utterances seemed an adequate number for this purpose.

An investigaton was carried out with some of the material of the cross-sectional study to verify that the second half of the 200-utterance speech

samples still yields new information. From each of the Stages II - VI corpora four speech samples were selected from the middle age ranges. The syntactic analyses of the first and second 100 utterances were compared. Clause-element structures, multi-clause sentences, coordinators, verb, noun, adjective and prepositional phrases were analysed. Structures occurring in the first half, but not in the second half of the speech samples and vice versa were noted. The result was that across the whole group of 20 subjects, 20.6% structures in the speech samples occurred only in the first half of the speech samples, and 20.3% only in the second half. The latter percentage justifies the selected length of the speech samples of 200 utterances for this purpose.

A different purpose is the determination of the syntactic level of a child by applying the CEI. This is of importance because transcribing and analysing spontaneous data in the remediation of language impairment are time-consuming activities for the speech pathologist. Forty-five speech samples were randomly selected to investigate this matter. They had been indexed to a CEI-level on the basis of 200 utterances. For 91% of the speech samples the previously assigned Syntactic Stage could be determined in 60 utterances. This is close to Darley and Moll's findings (1960) that in their study of 150 five-year-olds, 50-utterance speech samples yielded a reliability coefficient of .85 as compared to longer samples.

A related point is whether one observation is sufficient for reliable indexing. De Moor, Oud and Ploeger (1991) carried out a study with amongst others these questions in mind. Four children with cerebral palsy with a mean age of 2;7 were investigated with the TARSP-procedure (in its first version) in four consecutive weeks. De Moor et al. came to the conclusion that one measurement is sufficient to assign a subject reliably to a Syntactic Stage.

Intrarater and interrater reliability

Important aspects of any measuring procedure are how well the results of an assessment stand up to a second assessment by the same or by a different investigator: the intra- and interrater reliability. De Moor et al. (see above) found that their interrater reliability varied from .81 - .94, intrarater reliability from .91 - .94; both are satisfactory.

Sensitivity to change: two intervention studies

Two intervention studies were carried out in which the CEI was used as an instrument to assess the level of syntactic development. The design of these studies was pretest-intervention-posttest. In pretest and posttest the CEI was determined and a full syntactic assessment was made, using a TARSP analysis of the children's spontaneous language (Schlichting 1993). In both studies the same intervention programme was used: *Functionele Imitatie van Taalstructuren* 'Functional Imitation of Language Structures' (Schlichting and De Koning 1990). The programme provides concrete contexts in the form of simple play situations for the systematic treatment of all syntactic structures which are normally acquired by Dutch children under four, as described in TARSP.

Hornsveld and Lakeman (1990) carried out the first intervention study, in which six children aged 3;7 - 5;7, with a specific language impairment

participated. After the pretest, they received individual therapy in 42 sessions of 20 minutes during a period of three months. The mean level of the group's syntactic development at the pretest was Stage 3.0, the mean measured progress after therapy was Stage 4.25, 1.25 TARSP Stage higher. This progress, which is comparable to the development of approximately eight months in normal-speaking children in a similar period was well above the expected advance in a non-therapeutic condition.

Smeets and Schlichting studied the effectiveness of language therapy in a group of seven children from 6;9 to 12;4 years old with mild to severe mental handicaps, and with IQ's ranging from 20 - 70 (Smeets and Schlichting 1992; Schlichting and Smeets 1992). Five children in the group had an additional specific language impairment in excess of the retarded language level which was expected on the basis of their IQ's. The mean syntactic level in their spontaneous speech before intervention was Stage 3.3. Therapeutic sessions were carried out for three months in groups of two or three subjects with some adaptations of the intervention programme to the specific needs of the subjects. After intervention the mean Stage was 4.5. This progress, which is comparable to the development of approximately nine months in normal-speaking, non-handicapped children, was again well above the expected advance in a non-therapeutic condition.

These studies show that the CEI is well suited to register change in the syntactic level of children with a variety of language handicaps.

The conclusion of this section is that the CEI is a valid and reliable index of the syntactic development of Dutch children up to the age of four.

6.2 THEORETICAL CONCLUSIONS

6.2.1 The relation between child and adult language

In 1985 Willem Kaper, a Dutch linguist, published a book on child language entitled *Child language: A language which does not exist?* Kaper added the question mark not because he doubted this statement, but 'out of modesty' (Kaper 1985: 102). Kaper studied the 'deviant' utterances of his two sons for six years and he concluded that

> the child, in spite of his abundant deviations, essentially speaks the same language as the adults in his environment: many deviations can be explained as an attempt to imitate the systematic phenomena of his mother tongue.
> (Kaper 1985: 101)

I hope to provide some evidence that Kaper was too modest.

To find out whether Kaper was right, the student of child language should not confine herself to the study of child language, but should study adult and child language simultaneously. Child language should be viewed from the psychological perspective of the child, because the child is qualitatively different from the adult (Locke 1995). But it should be studied from the

linguistic perspective of adult language. Language is what we are dealing with, and in the study of the acquisition of a particular language or of a particular structure in that language, the characteristics of adult spoken language must be the first object of study because it provides the child's input. Adult speakers of a particular language differ in their linguistic output, intra- and interindividually. These differences are context and culture bound. The variety in adult speech should ideally be taken into account when children and adults are compared. When adults and children within one culture are observed in their manipulation of the same objects or their carrying out the same tasks, the true similarities and differences between children and adults are more likely to be discovered. Current research points in the direction of greater similarities between children and adults. For example, Ninio (1992, as cited by Snow 1995) argued that children have an adultlike system for analysing communicative intent, though they rely on the words they get in their input when expressing those intents. Gleitman and Gillette (1995), in their report on experiments with adult verb learning, assume that adults and young children are much the same in their data-handling procedures. Bloom (1990b) is from another research tradition. He attempted to explain a syntactic constraint in English children, viz. that adjectives precede nouns and not pronouns, but did not consider the fact that children do not hear pronouns preceded by adjectives in their input.

6.2.2 Syntactization

We have seen that Dutch children progress in their syntactic development from the one-word stage through stages of combining two, three, four and five clause elements towards the stage of six clause-elements and first multi-clause utterances. In the area of the verb phrase we saw a development from mainly verbless utterances towards a stage where most utterances contain a verb phrase, mostly with an inflected verb form. How can this process best be characterized? Let us look at Givón's two ends of a continuum of language modes. Givón (1985: 1018) sees syntactic structure as arising from a pragmatic mode of communication, which is gradually syntactized to a syntactic mode. He contrasts these modes as follows:

	Pragmatic mode	Syntactic mode
(a)	topic-comment structure	subject-predicate structure
(b)	loose coordination	tight coordination
(c)	slow rate of delivery	fast rate of delivery
(d)	small chunks under one intonational contour	large chunks under one intonational contour
(e)	small noun/verb ratio	high noun/verb ratio
(f)	no use of grammatical morphemes	extensive use of grammatical morphology

Adults are capable of using a range of modes from the pragmatic mode upward with individual variations in the level of syntactization they ultimately attain. The pragmatic mode can generally be seen as characteristic of early child language, gradually extending towards the syntactic mode. Early language is tied to the nonverbal context and gradually moves from the concrete to the abstract, from the 'here and now' to the 'there and then' and syntactizes on the

way. As a certain decentering takes place, the child can contrast actions, states, events and objects, and express contrast syntactically. The pragmatic and the syntactic mode are to some extent parallel to the egocentric and communicative speech in child language development, as distinguished by Vygotsky.

> The primary function of speech, in both children and adults, is communication, social contact. At first it is global and multifunctional; later its functions become differentiated. At a certain age the social speech is quite sharply divided into egocentric and communicative speech.
> (Vygotsky 1962: 19)

Like the syntactic mode, the communicative function moves toward more complex functional domains. The egocentric speech in Vygotsky's reasoning develops into inner speech and has almost disappeared when the child is of school age. In communicative speech, the child learns to adopt the point of view of her interlocutor, wants to exchange thoughts with him and influence his actions. The child learns to judge her own actions and those of others more as entities outside herself. The development of Givón's syntactic mode and the development of Vygotsky's communicative function show great similarities. In the present study I found the following features characterizing the pragmatic and syntactic mode:

	Pragmatic mode	Syntactic mode
	one-word-sentence level	
(i)	more expressive words	more referential words
	clause level	
(ii)	simple sentences	complex sentences
(iii)	deletion of first clause elements in the sentence	expression of first clause elements in the sentence
	verb phrase level	
(iv)	small proportion of utterances containing a verb	large proportion of utterances containing a verb
(v)	frequent use of proform verbs	infrequent use of proform verbs
(vi)	no use of the tense, aspect, modality system	use of the tense, aspect, modality system
(vii)	no use of grammatical morphemes	use of grammatical morphemes
(viii)	use of nonfinite forms in concrete contexts	use of finite forms in abstract contexts

(i) Expressive versus referential vocabulary development will be discussed below under 6.2.4.

(ii) From simple sentences to complex sentences
In chapter 2 (1) it was argued that early word combinations can be characterized in syntactic terms. These constitute the simple or neutral sentence. Intonation and word order are the main syntactic devices in the pragmatic mode. As children progress from the pragmatic mode towards the syntactic mode, complex sentence types come to be used with word order and morphology as main devices. Intonation however remains decisive. For example, a sentence like *(nou) ga jij even de thee halen* '(now) go you just the tea fetch' can be an

imperative, a yes-no question or a declarative sentence with a null adverbial, depending on the intonation.

Intonation is the only syntactic device in the one-word-stage. It is basic in human communication, because it carries affect, on which personal relationships, and consequently communication, are built.

In Stage II word order is fully operational. If the sentence is viewed from the perspective of the adult sentence with the Principle of Inflation in mind, the way in which clause elements are ordered are nearly always in agreement with adult order, as in *mama (heeft een) koek* 'mummy (has a) biscuit' or *(ik ga een) beertje pakken* '(I go a) bear get'. Nonfinite verbs are nearly always in sentence-final position from the very earliest clause-element combinations with verbs.

In Stage III, the three clause-element structures emerge. The first position in the sentence is filled by the subject or for reasons of cohesion by the adverbial or sometimes the object; so two orders of the subject and finite verb are used in the declarative sentence, SV(X), as in *papa is (in het) ziekenhuis* 'daddy is (in the) hospital' and (X)VS, as in *daar is pop* 'there is doll'. Both are varieties of the simple or neutral sentence. The first complex sentence is the negative sentence, a sudden emergence in Stage III, often first acquired in a few stereotypes, as in *kan niet* 'cannot'. In the negative sentence the speaker judges the truthfulness of a statement. For this a certain 'distance' from the statement is required. Negation is the first indication in the child of a movement away from the concrete context. I suggest that the emergence of negation is linked to a psychological phase in the child's development, the period of contrariness or stubbornness, in which the child finds out that she can refuse to obey parental orders. This implies again a certain judgement of the situation. In Stage III the imperative also emerges with the verb in sentence-initial position. Here we see that the functions of speech are beginning to differentiate. Children show that they are decentering, because imperatives belong to, in Vygotsky's term, communicative speech: they are used to influence the interlocutor, as in *ga maar kijken!* 'go just look'!

In Stage IV the yes-no question emerges, which is expressed by intonational contour and VS order, as in *zie je het* 'see you it', and the wh-question, which is expressed by intonational contour, VS order and the wh-word, as in *waar moet die?* 'where must that?' Asking questions is an important move towards the syntactic mode and towards communicative speech, requiring a certain distance from the interlocutor and the speech situation. Asking questions seems to imply that children have taken another step towards reading the interlocutor's mind, which is part of the Theory-of-Mind Mechanism (Baron-Cohen 1995: 51).

From Stage IV, when more clause elements are added, clause-element order increases in complexity. Objects and adverbials are beginning to appear in first position for reasons of emphasis, as in *dat poesje wil ik* 'that pussycat want I'. The variation in the placement of the abundant adverbials increases. They are found in first position, in the middle field, and in sentence-final position, after the nonfinite verb. Objects and adverbials in the middle field are equally found in OA and AO order, as in *jij moet deze in* 'you must this in' and *eerst dat doen* 'first that do'.

In Stage VI the multi-clause sentences emerge: the coordinated clauses, as in

jij hebt zoveel en ik heb er eentje 'you have so many and I have there one', as well as the main clause with a subordinated clause. As in German, the sentence-final placement of the finite verb in the subordinate clause is always correct, as in *even kijken of ie daar past* 'just look if it there fits'. In the multi-clause sentence, the child shows that she can look at two events, states or actions at the same time, and express the relation between them, sometimes even a contrast, as in the example of the coordinated clause. This again demonstrates a further move from the concrete towards the abstract: a decentering.

Throughout the development of the simple sentence there are occasional sentence-final placements of the finite verb form, which is characteristic of the subordinate clause. These are discussed in section 6.2.5.

(iii) From the deletion towards the expression of first clause elements.
Apart from the yes/no-question and the imperative, where the verb is in sentence-initial position, the first position in a Dutch sentence can be occupied by the subject, the object, the adverbial or the wh-word. The deletions of these clause elements are not uncommon in the adult pragmatic mode, provided that these elements are 'placed' there for reasons of cohesion, not of emphasis. This type of deletion is very frequent in child language, as in *(nou) kan de auto's d'rop* (now) can the car thereon'. The deleted element can be inferred from the linguistic or extra-linguistic context. This dependence on the context is typical of the pragmatic mode. The performance factor was shown to play an important role in these deletions in children's utterances: more adverbials in first position were deleted if the sentences were longer in terms of the number of words or clause elements following the subject.

As children progress in their syntactic development we expect them to be able to produce longer sentences and thus produce fewer null elements in first position. At the same time their language will be less tied to a concrete context because of their growth towards language away from the concrete, towards the abstract. Both types of development are evident from the fact that the deletions of the first clause elements gradually drop from 56% in Stage III towards 20% in Stage VI. The null object is still quite frequent in Stage VI, viz. in 46% of objects in first positions. I assume that in the adult pragmatic mode the object is also deleted more often than other clause elements.

(iv) From a small to a large proportion of utterances containing a verb.
Children manifest a growing proportion of utterances containing a verb as they develop syntactically. First vocabularies in English are reported to be verbless. Wells (1985) for British English also reported an early verbless two-word stage. Contrary to English the Dutch first-50-word vocabularies contain 9.5% of verbs; even among the first 20 words some verbs are learned. Some verb categories in Dutch, especially the verbs relevant to children, are placed in sentence-final position, which makes them more salient. The early acquisition of verbs supports Slobin (1985: 1165), who argued that the attention to salient stretches of speech forms is one of the operating principles in language development. Behrens (1993) also came to the conclusion that salience is an important determinant of the moment of acquisition of structures.

The proportion of Analytic units (all utterances minus the formulae; see

chapter 3) in the present study containing a verb increases from 15% in Stage II, to 35% in Stage III, 53% in Stage IV, 59% in Stage V, and 69% in Stage VI. This gradual increase may be seen as a major component of the move from the pragmatic towards the syntactic mode because actions, events or states are expressed, and need not be inferred from the context.

(v) From the frequent to the infrequent use of proform verbs
Though more verb phrases are used as children develop syntactically, which points to a development of the syntactic mode, the frequent use of the proform verbs, e.g. *moeten* 'must/have to/need', still indicates the use of the pragmatic mode. Like other proforms, proform verbs can be used when in the concrete context the referent, and in the case of verbs the referent activity, event or state, is already known, as in *die moet daar* 'that must there'. It was shown that the use of proform verbs is disproportionately high in children as compared with adult verb use in formal and informal interviews.

(vi) Towards the use of the tense, aspect, modality system
In Dutch the present and past tense forms are coded by morphology. The first finite forms children use are present tense forms, related to the here and now. The past participle is acquired in Stage III. In Stage IV this participle begins to be used in combination with the auxiliary *hebben* 'have' or *zijn* 'be', forming the perfect, as in *(hij) heeft hoofd gestoten* '(he) has head hit'. In Stage VI the past tense is acquired, as in *toen was ikke naar bed* 'then was I to bed'. The future in Dutch is indicated by means of the auxiliary verb of aspect *gaan* 'go' followed by the infinitive of the lexical verb, as in *(nou) gaat ie bijna vallen* '(now) goes he almost fall', which is acquired in Stage IV, or by the modal verb *zullen* 'shall/will', as in *zal ik even jouw pitjes eraf halen* 'shall I just your pips thereof take'?, acquired in Stage VI. For the use of the temporal system in Dutch child language the reader is referred to Behrens (1993), who devoted a study in German child language to this subject. I assume that German and Dutch are very much alike in this respect. When children speak about the future and the past, with or without reference to the present, this represents thinking away from the 'now' and often from the 'here'. This indicates a move from the pragmatic mode to the syntactic mode.

Modality verbs are acquired early, in Stage III, as in *moet jij kindje maken* 'must you child make', but their meaning is still vague.

(vii) The growing use of grammatical morphemes
In the literature the absence of morphology in early child language has often been reported (e.g. Brown 1973). One of the characteristics of the syntactic mode is the extensive use of grammatical morphology. We expect children gradually to acquire the morphological system of their language. In Dutch the acquisition of verb morphology is tied to the development of the tense, aspect and modality system and to the expression of number.

The study of emerging morphology is methodologically problematic. When can a child's language system be said to show knowledge of a morphological rule? One option is to require two verb forms of a lexical entry for the attribution of morphological knowledge, for example, the use of an infinitive and a past participle. However, this is evidence that children can use different

verb forms in differing semantic contexts rather than that they have morphological knowledge of these forms. A second option is to use morphological errors of overgeneralization as indications of the knowledge of morphological rules. Evidence of this type shows that a child can generalize from the acquired forms toward the production of new forms, which is essential for the knowledge of morphological forms. A third option is to require two forms used in contrast, such as Lidewei's *ik zag een vogel; hij vloog weg; hij is weggevlogen* 'I saw a bird; it flew away; it has flown away'. These sentences indicate that Lidewei can code the contrasting meanings in morphological forms. They were observed when she was already in Stage VII/VIII. The notion of contrast develops very slowly in children, while it is a basic component of the syntactic mode. Evidence of the first and the second option were found in the corpus of the cross-sectional study; evidence of the third was not.

The first type of evidence, two verb forms of a lexical entry, can be observed most widely, though not in the earliest period. In Stages II and III children use one group of verbs in the infinitive form, while they use some other verbs, mainly the copula and proform verbs, in a present tense singular form. In Stage III, only a few advanced children use both the infinitive and a present tense singular form of some verbs, so here is also no evidence of morphological knowledge. In Stage III the past participle comes to be used. Four out of the five most frequent verbs in past participle form are used by the same children in another form, either the infinitive or the present tense singular. In Stage IV the plural of the present tense emerges. The frequent verbs in this form are almost all of them used by the same children in the singular as well. In Stage VI the past tense emerges. In the entire corpus only 11 types occur. These verbs are also used in the present tense form by the same children with the exception of *wou* 'would' and *zou* 'should', which express an irrealis rather than an event in the past.

Are these uses of verbs in two forms indications of morphological knowledge? This type of evidence is very weak. It might be argued that the different morphological forms are acquired as single lexical items. This is especially more feasible, because, as we shall see below, the different forms are tied to different semantic contexts. It is likely that the various codings are acquired individually, linked to their contexts. This argument seems to apply to the distinctions nonfinite/finite and infinitive/past participle. A case can be made for the singular-plural distinction, as this concerns two finite forms which are mostly in the present tense. The singular and the plural form of a particular verb are almost always used in the same language sample. Still, the distinction between these forms might be tied to the plural subjects or subject complements of the predicates, so that here the intra-sentence context triggers the singular or the plural verb forms, which may still be acquired as single lexical items. There is some evidence for this. For example, very few utterances occur with a single subject and a plural verb form. Also, in Dutch the first plural personal pronoun *ze* 'they' emerges at the same moment in the sequence of acquisition of syntactic structures as the present tense plural (Schlichting 1993). We may say that the first type of evidence, viz. the occurrence of two forms of one verb, does not necessarily imply morphological knowledge of these verbs.

The second type of evidence, concerning the use of errors of

overgeneralization as an indication of generalization of morphological knowledge, is restricted to the past participle. In the description of American English the morphological errors in past participles and especially in past tense formation constitute a well documented area. Plunkett (1995) cited from the Marchman and Bates study (1993) that in American English overregularization of past tense forms does not occur when children have small regular verb vocabularies. The same appears to be true for Dutch. Dutch children under four only use irregular verbs in the past tense, and (consequently) show no overgeneralizations of the rules for the formation of regular verbs.

Past participle overgeneralizations do occur in Dutch, as in *gegeefd* 'gived'. The past participle emerges earlier than the past tense forms, in Stage III, and the rule-based variations are slow in developing and infrequent: 16 in the whole corpus. In Stage VI, 7 items, 10%, of all past participles shows a rule-based variation. The reason for the low numbers of rule-based variations must again be looked for in the relative absence of regular verbs in the past participle formations. In Stages V and VI most past participles are of irregular verbs: 15 out of the 17 types which make up 75% of the tokens. It would seem that in this area Dutch children have had little chance to acquire the rules of morphological formation.

Even if children know what the rules of participle formation are, we cannot be sure that they link the different forms of one verb, e.g. the infinitive and the past participle or the present tense and the infinitive, to one lexical entry. The number of types of verbs representing inflected forms beside nonfinite forms is remarkably small. The reason could be that many of the inflected verbs are general all-purpose verbs like *doen* 'do', *maken* 'make' and *gaan* 'go', used in a variety of semantic contexts (see Clark 1986 on American English general all-purpose verbs). I suggest therefore that verb forms of Dutch children under four (or, in developmental terms, of children who are not yet, or are only just beginning, to acquire multi-clause sentences), are acquired as lexical items. The acquisition of these different verb forms cannot be a great burden on the child's mental lexicon, because the numbers are relatively small. I further assume that the syntactic notion of contrast between verb forms must be acquired before several verb forms are linked to one lexical entry. For the singular and the plural of nouns the notion of contrast seems to be acquired in Stage IV, as was argued in chapter 5 (6.1). For the base and the comparative form of the adjective this notion seems to be acquired in Stage VII (see Schlichting 1993). An experimental study with children at various syntactic levels might shed more light on the issue of syntactic contrast of verbs.

(viii) From the use of nonfinite forms in concrete contexts towards the use of finite forms in abstract contexts.

Some verb categories in Dutch are mainly used in nonfinite form. The largest verb category concerned is the category of the prototypical transitive verbs, in which typically the object of the action undergoes a change, e.g. *maken* 'make'. Dutch children acquire these verbs first in a nonfinite form. Other verb categories are mainly used in finite forms. For example, the less prototypical transitive verbs with a dative-experiencer subject, e.g. *weten* 'know'. Dutch children acquire these verbs first in finite form.

As Dutch children develop, the proportion of verb phrases with a finite verb

form grows. One of the factors contributing to this increase is the growing use of finite forms of verbs that were previously only used in nonfinite forms. I shall illustrate this phenomenon with two examples: one from the category of verbs which can take a local object and one from the prototypical transitive verbs.

An example of a verb that can take a local object is *zitten* 'sit'. In the pragmatic mode it is used in its literal sense. It means 'to be seated' and the nonfinite form is used, as in *ik ga even zitten* 'I am just sitting down'. In the syntactic mode it is used in less literal senses, which are many, and the verb is mostly used in a finite form, as in *'t zit er niet in* 'it sits (=is) not in there'. The 'be seated' meaning is lost in this example, but the verb may still express a meaning which is connected to the world of objects. This use is also found in children under four and in the correct form thus contributing to the number of finite forms. The same sentence can have the more figurative meaning 'it is not likely to happen', which is not used by young children but will ultimately be part of their language, and again contribute to their proportion of finite verbs.

A second example is the prototypical transitive verb *eten* 'eat'. In the pragmatic mode this is almost always found in a nonfinite form in sentence-final position. An event takes place in which the object of the action undergoes a change, as in *ik ben een broodje aan 't eten* 'I am eating a bun'. In the syntactic mode these verbs are found mainly in finite forms. The reference is then to an action further away from the here and now, e.g. to a habit, as in *ik eet nooit broodjes* 'I never eat buns', and no change takes place in the concrete context of the conversational scene. The expression of habit may also be viewed as the expression of a contrast.

Children gradually acquire the meanings which are less tied up with the literal context and are more abstract, and consequently gradually use more finite forms. The development of the finite forms in these verbs may be described in Piagetian terms as the development of reflective action in a conceptualized system (Piaget 1970: 25). In terms of Givón the use of these finite forms expresses a change from the pragmatic mode to the syntactic mode.

What we have seen in this section is that children in their clause and verb phrase structures develop from a pragmatic mode to a more syntacticized mode of communication.

6.2.3 The language-specifics of input

In the literature there are strong divisions theoretically as to the importance of input for the acquisition of language. In the generative theory of language acquisition a fundamental hypothesis is that much of the required information for the acquisition of language is not available in the input (Meisel 1995), and that children acquire their first language with great rapidity. The a-priorism of this hypothesis is that the child starts from the beginning with endogenous structures. That humans have a propensity to acquire the language of their environment I do not contest. The fact that some children show an isolated impairment in language acquisition provides sufficient evidence for this. On the other hand, there is the obvious fact that children in different language communities learn to speak the languages of those communities, pressing the case for the input factor.

Snow argued that the input children receive, commonly referred to as Child Directed Speech, is different from other adult speech. Adults use a different register with children, which is prosodically, semantically and syntactically finely attuned to the particular level of the child they are addressing (Snow 1995). This specific input makes it possible for children to acquire their language, despite the poverty of the input Meisel (and Chomsky) assume. However, as Ochs and Schieffelin (1995) put forward, the ways in which adults communicate with infants and children varies widely across cultures. Not in all societies are children addressed in the ways described for western cultures. I suggest that the westernized way of presenting children with carefully attuned input might be typical of cultures where extreme individualization is a developmental and educational target. To understand the input factor we need descriptions of adult language use, either of Child Directed Speech, or of adults using language in the pragmatic mode. It is from language in the pragmatic mode that children are most likely to learn in any society, because of the relation between action and early language (Piaget 1970: 20).

Givón (1985) compared the crosslinguistic study of language universals to a controlled multi-variable scientific experiment, in which the odds are what features in each language are specific and what features universal. Some parts of this puzzle can be solved with relatively few methodological problems by comparing child data with adult data in the (regional) variations of one language. Fletcher (1981) carried out such a study. He compared the difference in acquisitional moment of the (present) perfect versus the past tense in American and British English. The past and the perfect are used in different semantic conditions in these two varieties of English. In adult American English the past tense is more frequently used than the perfect; in child American English the past tense was found to be acquired before the perfect. In adult British English the perfect is more frequently used and, consequently, is acquired before the past tense. Children discover the use of these tenses in the input-specific semantic conditions and the moment of this discovery is related to the frequencies in the target language.

The following evidence concerning a regional-variety-specific feature came up in the present study. In Dutch the inverted order of subject and finite verb is acquired early, viz. in Syntactic Stage III, as in *zo kan ie* 'so can he'. In the Stage-VI corpus, 40% of the sentences containing a subject and a finite verb showed this inverted order. In a Flemish study of children aged 3;10-3;11, slightly older than the Stage-VI group, only 3.7% of the same type of sentences showed this order (Vleesschauer 1986). Flemish and Dutch are commonly regarded as regional variations of the same language. However, in adult Dutch and Flemish there is also a substantial difference in the percentages of subject-verb combinations with inverted order: 31.80% of first verbal reactions to a stimulus in Dutch had inverted order, while 5% of first verbal reactions showed this order in Flemish. The adult data clearly support the claim that in the matter of variable word order the child models herself on the adult, and that in this area the relative frequency of the structure prevails. An interesting piece of evidence in this respect comes from Clahsen and Muysken (1986), who studied German child data. They found no productive evidence of the subject-verb inverted order in their Phase I, which is comparable to the Syntactic Stages II - IV as indexed by the CEI. I surmise that in the input of the

children studied by Clahsen the percentage of inversed orders was fairly low.

Another problem in the acquisition of word order could be solved by comparing data from Dutch and Flemish or German. Contrary to what has been reported for English, and even for German, the wh-questions in Dutch are always in the correct order. It might be suggested that Dutch children have no problem with VS order in questions because they have acquired VS order previously in Stage III, in the declarative sentence. However, in question formation, word order is so closely related to a different meaning, also expressed by the intonational contour, that it is uncertain that the previous use of the VS order in declaratives facilitates the VS order in questions. This problem may be solved in further research by looking at question formation in Flemish, where the VS order in declaratives has a low frequency, and possibly in areas in Germany, where the same applies.

6.2.4 Individual and cultural similarities and differences

Differences in language acquisition are commonly sought in the rate or in the route of language acquisition. With reference to the rate of acquisition it was found in the cross-sectional study that girls develop faster than boys and that children of the higher of the two socio-economic groups develop faster than those of the lower socio-economic group (see 6.1.3 above). With reference to the routes of development there are two items to be discussed, both of which concern the acquisition of the first-50-word study.

In the study of child language many investigators have looked for universals in children's development across languages. In the first-50-word study on which I reported in chapter 2, there were some striking similarities in the American English and Dutch first-50-word vocabularies. The distribution across the categories of Nominals, Action words, Modifiers and Personal-social words showed almost complete agreement. In even more detailed analyses, e.g. in frequencies of specific animal names, the similarities are still striking. This indicates similarities between the two cultures and not necessarily an innate propensity for the acquisition of animal names.

Some investigators have concentrated on individual differences (see Wells 1986, Snow 1995, Dates, Dale and Thal 1995). A difference between individual styles in early vocabulary acquisition was first reported by Nelson (1973). She distinguished expressive children who have fewer than 50% of general nouns in their first-50-word vocabulary, and referential children, who have 50% or more. In the Dutch first-50-word vocabularies the number of general nouns ranges from 3 - 39. Wells (1986) and Barrett (1995) suggested that most children are neither clearly expressive or referential. In the Dutch group of 37 children, 70% fell in the middle of the continuum: between 19 and 26 nouns. An expressive group of 6 (16%) could be distinguished, who had fewer than 19 general nouns, and a referential group of 5 (14%) who had more than 26 general nouns. A surprising outcome was that in the expressive group five out of six children were from the lowest socio-economic group (the reader will recall that in the first-50-word study the children were allocated to three socio-economic groups), and the referential children were all five from the highest socio-economic group. It seems as if the social aspects of language are more valued in the lower socio-economic group and the naming of objects is

more valued in the higher socio-economic group. I am not aware of a study of adult differential conversational styles on the characteristics referential/expressive. However, observation of fellow passengers in public transport has convinced me that the conversational style of civil servants discussing their projects could be described as referential, while youngsters discussing their day in school may often be described as expressive in style.

Bernstein distinguished elaborated and restricted speech variants, a variant being defined as the contextual restraints upon grammatical-lexical choices. Bernstein characterized these variants or codes as follows.

> Elaborated codes are less tied to a given or local structure and thus contain the potentiality of change in principles... Restricted codes are more tied to a local social structure and have a reduced potential for change in principles.
> (Bernstein 1974)

If we speak of different speech variants or codes in different classes, these are bound to be passed on in the early stages. I suggest that there may be a relation between the restricted and elaborated codes and the expressive and referential styles found in the one-word stage, as well as between the pragmatic and syntactic mode. But we shall first need more data of adult spoken language from all groups in society such as Heath (1983) collected on the variations of American English in one town, before we can be sure of the relation between Bernstein's and Nelson's distinctions. Some evidence for differential social styles can be found in a study of Dutch family life. Parents from lower socio-economic educational levels were reported to be warmer and showing more affection towards their children than parents from higher socio-economic backgrounds (Rispens, Hermanns and Meeus 1996). This gives a first indication of differences in family culture with a probable resulting difference in children's language style.

6.2.5 The study of errors

The study of errors has been an important tool in the study of child language, though perhaps too much emphasis has been put on occasional errors. A constant requirement in the study of errors should be the calculation of the proportional frequencies of the various error categories, as compared with 'correct' instances of a structure.

In this study I have described newly emerging structures rather than emphasized errors. The main 'error' children make is the limitation of structures in their linguistic systems. For example, the absence of a reference to past events in the early stages, or the nonexpression of indirect objects. In the description of 'errors' it is vital to distinguish between errors which also occur in adult language, in informal and/or regional registers, and errors made only by children. In chapter 1 (2.2), I distinguished a number of error categories, viz. Errors of Deletion, Errors of Context and Deviancies. I will briefly go into these various types of errors.

In Errors of Deletion which can also occur in adult language, the child uses a language register which is allowed in what Givón terms the pragmatic mode or

in regional varieties. Examples are found in sentences with null subjects, objects or adverbials in topic position, such as the null object in Dutch *øO weet ik niet* '(that) know I not', or the null subject in English *don't know*. Errors of Deletion that are found only in child language occur either because the child has not acquired the relevant structure, such as the absent indefinite article in Maarten's *is (een) koe* 'is (a) cow', or because of performance limitations, such as the deletion of the indefinite article in Daantje's *ga (een) ander spelletje doen* 'am going to play (a) different game' while elsewhere in the same language sample he uses the article several times in shorter sentences.

Errors of Context indicate that a morphological structure or word order is used in the wrong syntactic context. Some of these also occur in adult language. An example of a regional variation is *ik loopt_* 'I walks'. These 'errors' should not be seen as errors, but as possible constructions in the language. Errors of Context in child language may also lead to utterances that are unacceptable in adult speech. An example is the overgeneralization of morphological affixes. The acquisition of the past participle in chapter 5 (4.3), provides illustrations of Errors of Deletion, e.g. the deletion of the unstressed prefix *ge-* , as in *(ge)daan* 'done', and Errors of Context, as in the regular past participle formation *gegeefd* 'gived' of the irregular verb *geven* give'. We saw that as children develop syntactically their Errors of Deletion in the past participle decrease while the Errors of Context, the rule-based variations, increase. This latter type of error is an indication that the child is discovering the rules of past participle formation for the regular verbs.

An Error of Context which has been studied a great deal in the Dutch and German research literature is the simple sentence with a finite verb in sentence-final position, such as *goed is* 'good is'. This utterance was spoken by my granddaughter Lisa in imitation of the last two words of my sentence *even kijken of de pap goed is* 'just look if the porridge good is'. These 'erroneous' structures, of which 41 instances were found in the corpus, probably occur especially in children who get many subordinate clauses in their input, while they are in an imitative phase and can only produce simple sentences. According to Elbers (1989: 78) children use their own utterances to operate on. These sentences could then be used by the children as input for their generalizations and thus result in occasional isolated occurrences of the sentence-final placement of the verb, isolated in the sense that they do not immediately follow a subordinate clause in their input.

Deviancies form the third type of errors. This category is a mixed group of errors, with blends of two structures and word order errors as two main types. Deviant word orders like *vallen paard* 'fall horse', an infinitive followed by its subject were rare. There were only two instances in the cross-sectional corpus. Another type of Deviancy is caused by segmentation errors such as Daantje's *ik doe koffie drinken op* 'I put coffee drink on' (=I put the ground coffee in the filter). Daantje probably mistook the combination *koffie drinken* 'coffee drink' for coffee. Some errors are erroneous overgeneralizations of complete routine formulas, such as Lisa's *inne tas* 'in bag', which she used whenever she put an object into any container.

I have found relatively few Deviancies, possibly fewer than are commonly found in the observations of other investigators. I suggest that this may have to do with the group of subjects I studied. This group consisted of children from a

variety of socio-economic and linguistic backgrounds and I assume that there is a relation between the low frequency of errors and the relatively low or medium rate of acquisition of the children I studied. Daantje, whom I observed in my longitudinal study for 30 months (see chapter 3 (3.3), is a boy of average language ability; he is from a low to medium socio-economic backgound. He made few errors. The children studied in the research literature are often children of linguists or other academics. I assume that children who develop at a fast rate, are very creative in their acquisition of language and who are strongly motivated to acquire their language, make more erroneous hypotheses than children who develop at a slower rate. In Daantje I noticed that his performance errors as well as his dysfluencies occurred mainly when he was most motivated to express himself.

6.3 Recommendations for future research

For a parsimonious explanation of the utterances found in child language I should like to suggest that research in the syntactic development of children make use of the following explanatory principles:

1. The default option is that children's syntactic structures are reproductions of adults' productions. Child language should be compared with adult spoken language.

2. To judge child utterances on word order, they should be compared with adult word orders and the Principle of Inflation should be applied if this is required.

3. If differences between children and adults are found, an explanation may be sought in the differing contexts in the collections of data. The collecting of data in the same pragmatic and semantic contexts, e.g. activities with toys or tools, may yield a greater similarity between children and adults.

4. In the case of some structures, a comparison between children and adults of the same regional language variety is required.

5. To explain some phenomena, the study of Child Directed Speech as related to child speech generally, or the input in the environment of a particular child as related to the child's speech might have to be considered.

6. To explain a sequence of acquisition, e.g. the subsequent emergence of various prepositions or articles, the sequence may be compared with the relative frequencies in adult data.

7. An important group of differences between children and adults can be explained by their cognitive differences, including differences in social cognition.

8. Phonological performance factors, e.g. the deletion of initial unstressed syllables, and constraints on sentence length, as in the subjectless sentences, should be considered as explanatory principles.

9. Lexical categories are acquired before functional categories, but the prosodic structure of the target language may advance the acquisition of some structures.

10. Finally, the developmental knowledge of the sequence of acquisition should be taken into account. For example, children should not be expected to produce passive sentences, when they have not acquired most syntactic structures they usually acquire before the passive.

Children discover the language of their elders. They have an innate propensity to make this possible. Before children are accredited with their own syntactic structures, the linguistic similarities of children and adults as well as their psychological differences should be considered. When we do that, we see that Kaper was right, that child language does not exist.

APPENDIX 1 The TARSP scale (English version)

Name Age Date

Unanalysed

Interaction

Interaction

SA							
I	Formulae	Social Expression		Stereotyped sentence			
						PRONOUN	
	Analytic unit	Noun	Adjective/Adverb	Verb		Dem pro (subst)	
	DECLARATIVE	INTERR	IMPER	COMPLEX PHRASE			MORPHOLOGY
II	SA						
	SC						
							Diminutive
	CV						
	SV						Plural noun
		Intonation		Indef article			
	AX Cop						
III	SVC						Modal verb as
	X (V) Part					'J'	indep verb
	SVA						Compound V
	X Neg VS			Pr N	CONN		
	AAX		V(X)	Modal verb	'and'	'you'	Past participle
	SAC	TAG				(slng)	
	VAC			Adj N		'he'	
IV	SVAC			Aux			
	SVAA			Def article a		Prep	
				Prep Det N		prof	
				Adv Adj/Adv			
				Dem pro N a		'it'	Present tense
		VS(X)		V part			singular
				Poss N			
				N N			Compound N
		Wh (XY)		Perfect		'they'	Agreement SV
				In Det N			
			VXY				
V	CVSAA					'we'	
	SVCC (X)			Det Adj N		'me'	
	AVSAA			Prep prof dc			
		VS4		Def article b			
	Immature sub clause	Wh4	VXY2	Dem pro N b			
VI	Coordination						
					'but'		Past tense
	b clause elements			X and X			
	Complement clause			'no' X	'if/	'there'	
				Prep Adv	when		
				V Prep		'him'	
	Adverbial clause	VS5+		Postmodif	'for'	'you'	Indef article + Adj
		Wh5+	VXY25	Two infin		(non-s)	+ neuter N
VII							

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a. masculine / feminine
b. neuter

APPENDIX 2 Dysfluencies

Dysfluency types in the six Syntactic Stages: repetition (R) of one or more words, one or more times, False starts and Self-corrections (Self-corr) in the language samples of the 100 subjects. The numbers of items in one cell indicate Subject Frequencies. The digits themselves stand for the Token Frequency in one language sample.

Stage	R one time one word	R more tms one word	R one time more words	R more tms more words	False starts	Self-corr
II n=12	1+3	2	-	-	-	2
III n=20	1+1+1	-	-	2	2+1	1+1
IV n=25	5+3+3+2 2+1+3+1 5+2	3+1+1+1	1+2+2+3 2+2	-	2+3+2+3 1+4+4+4 1+3	1+1+2+1 1+1
V n=19	1+3+6+8 12+1+2+3 1+2+5	1+2+1+1 1	3+1+1+3 3+1+4+1	- -	3+4+2+1 3+2+2+7	2+1+4+1 1
VI n=17	2+2+3+3 2+1+10+2 6+1	2+1+4+2	1+3+3+4 1+4+1+1 6+1	1+2	1+1+6+2 5+3+1+4 13+1+1+6	1+1+2+1 1+2+3+3
Total	36	14	26	3	32	22

APPENDIX 3 Subjects in the cross-sectional study

Number (No.); Male (M); Female (F); Socio-economic groups A and B; Name; Age in years, months and days; Syntactic Stage (S.St.); Mean Length of Utterance (MLU); Mean Length of Utterance special (excluding reaction signals ja yes' and nee 'no'. (MLUsp).

Age group 2 (1;6 - 2;0)

No.	Name	Age	S.St.	MLU	MLUsp
2MA1	Nicky	1;6;27	II	1.10	1.08
2MA2	Jeroen	1;7;22	I	1.01	1.03
2MA3	Johnny	1;10;23	III	1.58	1.71
2MA4	Ton	1;11;0	II	1.26	1.34
2MA5	Richard	1;11;29	I	1.34	1.37
2FA1	Ilonka	1;7;10	I	1.08	1.10
2FA2	Manuela	1;9;27	I	1.06	1.07
2FA3	Estelle	1;10;4	I	1.04	1.06
2FA4	Chantal	1;10;9	II	1.16	1.23
2FA5	Kimm	1;10;20	III	1.21	1.28
2MB1	Hugo	1;6;2	II	1.10	1.14
2MB2	Jasper	1;8;20	I	1.03	1.03
2MB3	Maarten	1;9;6	II	1.45	1.51
2MB4	Marijn	1;9;26	II	1.19	1.25
2MB5	Pieter	1;11;3	II	1.18	1.23
2FB1	Claudia	1;8;1	III	1.98	2.06
2FB2	Joke	1;8;21	I	1.16	1.18
2FB3	Anouck	1;8;26	III	1.40	1.46
2FB4	Lude	1;10;7	III	1.41	1.59
2FB5	Vanetta	1;11;7	III	1.47	1.56
			Mean.	1.26	1.31
			MeanSD	0.24	0.29

Age group 3 (2;0 - 2;6)

No.	Name	Age	S.St.	MLU	MLUsp
3MA1	JeffreyL	2;2;18	III	1.34	1.42
3MA2	BobH	2;2;23	II	1.19	1.22
3MA3	Daniel	2;4;21	IV	1.85	2.19
3MA4	JeffreyV	2;5;7	III	1.51	1.66
3MA5	Sjors	2;5;21	III	1.43	1.58
3FA1	Julia	2;1;28	II	1.16	1.22
3FA2	MirjamM	2;3;2	IV	2.13	2.27
3FA3	Joyce	2;3;10	IV	2.13	2.53
3FA4	Chantal	2;5;8	IV	2.07	2.21
3FA5	Sofie	2;5;16	V	2.85	3.25

3MB1	JaapJan	2;0;19	III	1.21	1.3
3MB2	Sveder	2;1;3	II	1.29	1.37
3MB3	Lars	2;1;25	II	1.33	1.30
3MB4	Maarten	2;1;28	II	1.28	1.38
3MB5	Wouter	2;3;10	III	1.26	1.34
3FB1	Irene	2;1;26	III	1.54	1.67
3FB2	Eliette	2;2;2	III	1.91	2.08
3FB3	Marije	2;3;13	III	1.88	2.13
3FB4	Gemma	2;4;20	IV	2.05	2.40
3FB5	Merel	2;5;18	IV	2.40	2.79
			Mean	1.69	1.87
			MeanSD	0.47	0.59

Age group 4 (2;6 - 3;0)

No.	Name	Age	S.St.	MLU	MLUsp
4MA1	JeroenR	2;9;10	IV	2.47	2.71
4MA2	NickyV	2;9;10	III	1.51	1.72
4MA3	Danny	2;9;16	III	1.50	1.51
4MA4	JanWil	2;10;14	IV	2.35	2.68
4MA5	Desmond	2;11;6	III	1.76	1.90
4FA1	Melanie	2;7;14	IV	2.08	2.40
4FA2	Bianca	2;8;6	III	1.82	2.14
4FA3	Gerja	2;9;3	IV	2.32	2.73
4FA4	Krista	2;10;4	VI	2.94	4.79
4FA5	Kim	2;11;27	V	2.31	3.45
4MB1	Jan	2;7;2	IV	2.73	2.84
4MB2	Ernst	2;9;4	V	2.77	3.71
4MB3	Mark	2;9;28	V	3.04	3.07
4MB4	Wilger	2;10;29	IV	2.45	2.58
4MB5	Kees	2;11;2	V	2.57	3.10
4FB1	Sacha	2;6;10	IV	1.59	1.93
4FB2	Floortje	2;6;16	IV	1.99	2.31
4FB3	Amerens	2;7;29	V	2.28	2.72
4FB4	Famke	2;8;11	IV	2.42	2.80
4FB5	Fenneke	2;10;26	VI	3.04	3.67
			Mean	2.30	2.74
			MeanSD	0.49	0.77

Age group 5 (3;0 - 3;6)

No.	Name	Age	S.St.	MLU	MLUsp
5MA1	Nico	3;0;0	IV	2.07	2.02
5MA2	Cyriel	3;0;20	IV	2.04	2.06
5MA3	Jasper	3;2;4	III	2.01	2.01
5MA4	Kevin	3;2;26	IV	1.90	2.11
5MA5	Pascal	3;4;13	IV	2.41	2.58

5FA1	Carola	3;2;0	V	2.45	3.38
5FA2	Tessa	3;2;16	V	2.62	3.29
5FA3	Kim	3;3;12	VI	2.81	3.25
5FA4	Priscilla	3;4;4	V	2.76	3.10
5FA5	Annabel	3;4;10	VI	3.29	3.90
5MB1	Joram	3;0;1	IV	2.19	2.94
5MB2	Arthur	3;1;7	VI	3.32	3.99
5MB3	Wouter	3;2;13	VI	3.49	3.83
5MB4	Jurre	3;3;1	V	2.60	2.99
5MB5	Emile	3;3;21	III	2.34	2.66
5FB1	Lisa	3;0;24	IV	2.14	2.53
5FB2	Charlotte	3;1;23	VI	3.24	3.46
5FB3	Rozemarijn	3;3;7	VI	3.09	3.56
5FB4	Renske	3;3;24	VI	3.19	3.89
5FB5	Pleuni	3;5;18	IV	2.50	2.77
			Mean	2.62	3.02
			MeanSD	0.50	0.66

Age group 6 (3;6 - 4;0)

No.	Name	Age	S.St.	MLU	MLUsp
6MA1	Berry	3;7;7	V	2.50	3.18
6MA2	Raimond	3;9;2	IV	2.29	2.81
6MA3	Andries	3;9;12	V	2.70	2.91
6MA4	Davey	3;10;22	VI	3.57	3.99
6MA5	Sebastian	3;11;25	IV	2.66	3.12
6FA1	Debby	3;6;25	V	2.83	3.19
6FA2	Marscha	3;6;27	V	2.53	2.81
6FA3	Ramona	3;6;29	V	2.59	3.04
6FA4	Renata	3;7;3	V	2.95	3.38
6FA5	Miranda	3;9;10	V	2.86	3.05
6MB1	Serge	3;7;6	IV	2.57	3.03
6MB2	Hendrik	3;8;14	VI	3.90	4.55
6MB3	Michiel	3;9;7	VI	3.74	4.29
6MB4	Timo	3;10;5	VI	2.97	3.50
6MB5	Sander	3;10;30	VI	3.26	3.80
6FB1	Inger	3;6;20	VII	3.31	3.90
6FB2	Yvette	3;8;3	V	2.59	2.91
6FB3	Dominique	3;8;10	VI	3.35	4.03
6FB4	Merel	3;9;5	VI	2.62	3.27
6FB5	Wendy	3;9;5	V	2.58	3.08
			Mean	2.92	3.39
			MeanSD	0.45	0.52

APPENDIX 4 Plural verb forms in Daantje's language samples

Age	n	Types (tokens)	Syntactic category and context	Error: plural verb required (tokens)
2;6	2	*gaan* 'go' (2)	auxiliary of aspect deletion of lexical verb	-
2;7	2	*zijn* 'be' (1)	auxiliary of duration (stereotype?)	*doen* 'do' (1)
		zijn 'be' (1)	copula	
2;8	9	*zijn* 'be' (5)	copula	*komen* 'come' (1)
		hebben 'have' (2)	lexical verb	
		hebben 'have' (1)	auxiliary of tense	
		doen 'do' (1)	periphrastic auxiliary	
2;9	-		-	
2,10	9	*zijn* 'be' (1)	copula	*mogen* 'be allowed' (1)
		zijn 'be' (1)	copula in yes/no question	
		gaan 'go' (1)	lexical verb	
		gaan 'go' (1)	auxiliary of aspect	
		moeten 'must' (1)	lexical verb	
		doen 'do' (2)	lexical verb	
		hebben 'have' (2)	auxiliary of tense	
2,11	12	*zijn* 'be' (8)	copula	
		zijn 'be' (1)	copula plural complement	
		zijn 'be' (1)	copula singular subject	
		kunnen 'can' (1)	lexical verb	
		gaan 'go' (1)	auxiliary of aspect	
3;0	9	*zijn* 'be' (3)	copula *hebben* 'have (2)	
		gaan 'go' (1)	lexical verb	
		gaan 'go' (1)	auxiliary of aspect	
		moeten 'must' (1)	lexical verb	
		mogen 'be allowed' (1)	lexical verb	
		kunnen 'can' (1)	modal verb	
		zullen 'shall' (1)	modal verb	
3,1	4	*zullen* 'shall' (2)	modal verb	*hebben* 'have (1)
		hebben 'have' (1)	auxiliary of tense	
		passen 'fit' (1)	lexical verb	
3,2	1	*zijn* 'be' (1)	+ past participle (passive?)	
3,3	6	*moeten* 'must' (5)	lexical verb	
		zitten 'be' (1)	lexical verb with *er* 'there'	
3,4	7	*zijn* 'be' (1)	copula	
		moeten 'must' (5)	modal verb	
		doen 'do' (1)	periphrastic auxiliary	
3;5	3	*gaan* 'go' (1)	auxiliary of aspect	
		hebben 'have' (1)	lexical verb	
		hebben 'have' (1)	past tense; unfinished utt	
3;6	6	*zijn* 'be' (1)	copula *komen* 'come'	
		zitten 'be' (3)	lexical verb (in subordinate clause)	
		komen 'come' (1)	lexical verb	
		zullen 'shall' (1)	modal verb	
3;7	5	*zijn* 'be' (1)	copula	
		hebben 'have' (2)	lexical verb	
		hebben 'have' (1)	auxiliary of tense in wh-question	
		kunnen 'can' (1)	modal verb	

3;8	15	*zijn* 'be' (2)	copula *zitten* 'be' (1)
		kunnen 'can' (3)	modal verb
		gaan 'go' (1)	auxiliary of aspect
		gingen 'went' (2)	auxiliary of aspect
		komen 'come' (1)	lexical verb
		hebben 'have' (2)	lexical verb
		hebben 'have' (1)	auxiliary of tense
		hadden 'had' (1)	auxiliary of tense
		slaan 'hit' (1)	lexical verb
		zitten 'be' (1)	lexical verb; present tense in past tense context
3;9	5	*zijn* 'be' (1)	auxiliary of the passive
		zijn 'be' (2)	lexical verb with *er* 'there'
		zullen 'shall' (1)	modal verb
		komen 'come' (1)	lexical verb
3;10	11	*gaan* 'go' (1)	auxiliary of aspect
		hebben 'have' (4)	lexical verb
		hebben 'have' (1)	auxiliary of tense
		hadden 'had' (1)	auxiliary of tense
		eten 'eat' (1)	lexical verb
		wonen 'live' (1)	lexical verb present tense in past tense context
		zijn 'be' (1)	lexical verb with *er* 'there'
		zitten 'be' (1)	lexical verb
3;11	17	*gingen* 'went' (1)	auxiliary of aspect in coordinated clause
		hebben 'have' (1)	lexical verb
		kwamen 'came' (1)	lexical verb in coordinated clause
		kunnen 'can' (2)	lexical verb
		kunnen 'can' (1)	modal verb
		moeten 'must' (1)	lexical verb
		reden 'drove' (1)	lexical verb
		sturen 'drive' (1)	lexical verb
		zijn 'be' (3)	copula
		zijn 'be' (1)	copula, in subordinate clause
		zijn 'be' (1)	lexical verb
		zijn 'be' (1)	auxiliary of tense
		waren 'were' (1)	auxiliary of tense
		zullen 'shall' (1)	modal verb

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There is general agreement in the literature that in the acquisition of any language there is a fairly stable sequence of the development of syntactic structures. This thesis addresses some aspects of that sequence for Dutch children up to four years of age. Three aspects of syntactic development are examined: the one-word sentence, in a longitudinal study, and the structure of the clause and of the verb phrase in a mainly cross-sectional study. There is little agreement on the methodology for describing a sequence of development required for the latter study. In this thesis method takes an important place.

The theoretical issues in child language development focus on the extent to which syntax is innate and modular. This thesis contributes to the discussion around these issues by examining the similarities and dissimilarities between child language and adult language. The basic assumption is that child language should be viewed from the psychological perspective of the child, and from the linguistic perspective of adult language.

The syntactic framework in this investigation is presented in chapter 1. From the one-word stage onwards, syntactic terms are used to describe early utterances. The framework is based on Crystal, Fletcher and Garman's developmental syntax scale *LARSP* (Language Assessment Remediation and Screening Procedure). It is a structuralist framework, in which the first level distinguishes the clause elements subject, verb, object, complement and adverbial. This analysis serves best the description of clause development in children because the increase in the number of clause elements marks the development of clause structure in Dutch as well as in German and English. For the description of the one-word sentence and the verb phrase, other distinctions complement the structuralist approach.

The First Fifty Words

The study of the first 50 words is a traditional subject in the study of language acquisition. The first 50 words of 37 Dutch children were collected in a separate study, reported on in chapter 2. In monthly lists mothers wrote down the new items in their children's vocabularies until the 50th word was produced. At the mean age of 21.3 months, the Dutch child reaches the 50-word milestone. Boys from a lower socio-economic background have a significantly lower rate of acquisition of the first 50 words than other subgroups.

Of the first-50-word vocabularies of the Dutch children 58% consists of nouns, 10% of verbs and 8% of adverbs. A comparison between functional classes in American English and Dutch reveals close similarities in early vocabularies.

In the literature two styles are distinguished in the acquisition of early vocabularies: the expressive style, where less than 50% of the first 50 words consists of nouns, versus the referential style, where the proportion of nouns used is 50% or more. In the present study 70% of the children were considered to be neither expressive nor referential. The six children who were labelled 'expressive' used five times as many Social Expressions like 'hello', and 'goodbye' as the five 'referential' children. Five of the six expressive children were from the lowest socio-economic group, while all five referential children

were from the highest group, four of them boys. It is suggested that the value placed on the type of language use in these socio-economic groups differs. This is discussed in chapter 6.

On the basis of four case studies, I assume that the number of words which is generally acquired before the early word combinations emerge is a little under one hundred.

The Clause Element Index

The measurement of syntactic development requires a yardstick to determine the syntactic level of a child's language sample. The age of the child and the Mean Length of Utterance are rejected as yardsticks and the Clause Element Index (CEI) is proposed. This is reported in chapter 3. The CEI measures by clause level only, and assumes that the acquisition of structures on lower levels can be predicted from the clause level. The CEI consists of a set of criteria which works as follows: if a language sample contains a minimum percentage of 5% of clause structures with a certain number of clause elements in the declarative sentence, this number of elements indicates the Syntactic Stage of the language sample. The Syntactic Stages run from Stage II with a minimum of 5% of two-element declarative structures, to Stage VI with a minimum of 5% of six-element declarative structures or multi-clause utterances. Imperative and interrogative sentences are calculated as containing an extra clause element. In this way one hundred spontaneous language samples of Dutch boys and girls aged 1;6 - 3;11 were indexed. Within the Syntactic Stages the occurrence of particular structures was investigated. This resulted in a Dutch version of LARSP: TARSP *Taal Analyse Remediëring en Screening Procedure* (Schlichting 1993). Apart from clause structures (single and multi-clause) TARSP lists all the verb phrase, noun phrase, adjective phrase and prepositional phrase structures which occur with some regularity in the 200-utterance language samples of the children studied. Regularity is defined as the occurrence of one token in 50% of the language samples indexed to a particular Stage. Besides other topics, the validity of the CEI is investigated. One of the ways in which this is done is by demonstrating that as children advance in their syntactic ability as measured by the CEI, they use more types and more tokens of mature clause and verb phrase structures. For this purpose the developing clause and verb phrase structures are described across the six Syntactic Stages and their frequencies are calculated.

Clause structure

Chapter 4 describes the development of clause structure. In the earliest clause structures, in Syntactic Stage II, children combine two clause elements (subject, verb, object, some types of complement, and adverbial). In Stage III three clause elements are combined in the declarative sentence. Negation, which emerges in Stage III, is the first indication that children take a propositional attitude towards their own utterances. In Stage III the imperative sentence and in Stage IV the two types of questions emerge. This indicates that children are beginning to see their interlocutors in a different perspective; in the terms of Vygotsky, they become communicative talkers rather than ego-centric ones. In

Stage V some precursors of the main clause with a subordinated clause occur. Stage VI shows the emergence of the multi-clause sentences, both coordinated and subordinated. The early coordinated clauses are syntactically and semantically immature. The placement of the verb in subordinate clauses, which is in sentence-final position as opposed to the second position in independent clauses, is always correct.

The first clause-element in the sentence: subject, object, adverbial or wh-word, is often deleted, especially in the early Stages. In Stage VI most of these first clause elements are expressed, but the object in first position is still deleted in nearly 50% of fronted objects. The phenomenon of null first elements is attributed to performance factors.

Dutch early sentences show great variation in word orders. In many types of clause structure all the orders that are possible in adult spoken Dutch occur. Though children are generally purported to start out with one neutral sentence type, Dutch children already produce two orders of subject and verb in the earliest sentences containing a subject and a finite verb.

Verb phrase structure

As children advance in syntactic ability according to their CEI, their utterances contain more verb phrases, greater variation in verb categories, more morphological variety and a larger proportion of verb phrases with a finite form. These developments are described in chapter 5.

The increase in verb phrases with a finite form is attributed to the following factors: the increasing use of the copula, which is mainly finite; the increasing use of modal verbs and auxiliaries, which complement previously nonfinite forms; the changes in the frequencies of the various lexical verb classes; the increasing use of finite forms of lexical verbs, which were previously mostly used in nonfinite form.

A comparison of the percentages of finite forms as used by children and adults in 26 frequent lexical verbs showed that both groups use some verb classes most frequently in finite form, for example the proform verbs and the cognition-utterance verbs, and other verb classes mainly in nonfinite form, notably the highly transitive verbs. The correlation of finiteness in the 26 verbs between children and adults is .70. The different uses of finite and nonfinite forms of the same verbs are related to codings of differing semantic contexts. As children develop, the verb classes which were previously found only in nonfinite form, become more frequent in finite form and vice versa, but for these developments cognitive growth towards more abstract and more communicative thinking is required.

Conclusions

The results of this investigation are discussed in chapter 6. The validation of the CEI is firstly dealt with. The CEI is shown to be a valid and reliable instrument to index language samples to a Syntactic Stage, and it is seen to correlate highly with the Mean Length of Utterance and less highly with age. Children from a higher socio-economic background develop faster than those from a lower socio-economic background; girls develop faster than boys.

The theoretical conclusions centre round the differences between child and adult language. It is proposed that syntactic development is best characterized by a development from, in Givón's terms, a pragmatic mode of communication to a syntactic mode. A widening use of syntactic structures requires a social change towards a more communicative speech style. It is shown that the higher a frequency of a particular word order in adult language, the earlier the moment of acquisition of that order. The chapter ends with a study of errors and with recommendations for future research, stressing the need for the comparison of child and adult data in the investigation of syntactic structures in child language.

Er is overeenstemming in de literatuur dat in de eerste taalontwikkeling de verwerving van de syntactische structuren volgens een tamelijk vaste volgorde verloopt. In dit proefschrift worden een aantal aspecten van die ontwikkelingsvolgorde bij Nederlandse kinderen behandeld. Drie aspecten van de syntactische ontwikkeling worden onderzocht: de eenwoordzin, in een longitudinale studie, en de zins- en werkwoordstructuur in een cross-sectionele studie. Er is weinig overeenstemming over de methodologie van het beschrijven van een ontwikkelingsvolgorde die voor een dergelijk onderzoek vereist is. In dit proefschrift neemt die methodologie een belangrijke plaats in.

De theoretische vragen in kindertaalontwikkeling concentreren zich op de mate waarin syntax aangeboren en modulair is. Dit proefschrift levert een bijdrage aan de discussie rond de eerste vraag door verschillen en overeenkomsten te onderzoeken tussen de taal van het kind en van de volwassene. De basisveronderstelling is dat kindertaal bestudeerd behoort te worden vanuit het psychologische perspectief van het kind, en vanuit het linguistische perspectief van de taal van de volwassene.

Het syntactische raamwerk in dit onderzoek wordt uiteengezet in hoofdstuk 1. De uitingen van het jonge kind worden vanaf het begin, - de eenwoordzin - in syntactische termen beschreven. Het raamwerk is gebaseerd op het werk van Crystal, Fletcher en Garman (1976): LARSP (Language Assessment Remediation and Screening Procedure). Dit is een structuralistisch raamwerk waarin op het eerste niveau de zinsdelen onderwerp, werkwoord, lijdend en meewerkend voorwerp, complement en bijwoordelijke bepaling onderscheiden worden. Deze analyse is het meest geschikt voor de beschrijving van de ontwikkeling van de zinsbouw, omdat de uitbreiding van het aantal zinsdelen de ontwikkeling van de zin in het Nederlands alsmede in het Duits en Engels kenmerkt. Voor de beschrijving van de eenwoordzin en de werkwoordstructuur worden ook andere dan structuralistische kenmerken onderscheiden.

De Eerste Vijftig Woorden

Het onderzoek naar de eerste 50 woorden die een kind verwerft is een traditioneel onderzoek op het onderzoeksterrein van de eerste taalverwerving. De eerste 50 woorden van 37 Nederlandse kinderen werden verzameld in een aparte studie, waarover in hoofdstuk 2 gerapporteerd wordt. Maandelijks schreven de moeders van deze kinderen de nieuwe woorden op woordenlijsten tot het 50ste woord spontaan gezegd werd. Op de leeftijd van 21.3 maanden bereikt het Nederlandse kind gemiddeld deze mijlpaal. Jongens van ouders met een laag opleidingsniveau hebben een significant langzamer ontwikkelingstempo dan de overige subgroepen.

In het Nederlandse onderzoek bestaat 58% van de eerste 50 woorden uit zelfstandige naamwoorden, 10% uit werkwoorden en 8% uit bijwoorden. Een vergelijking van Amerikaans Engels en Nederlands laat zien dat de overeenkomst in de eerste 50 woorden groot is.

In de literatuur worden twee verwervingsstijlen onderscheiden in de vroege woordenschat: de expressieve stijl, waarbij minder dan 50% van de woorden uit zelfstandige naamwoorden bestaat, en de referentiële stijl, waarbij dit 50%

of meer is. In het onderhavige onderzoek wordt 70% van de kinderen als behorend tot geen van beide stijlen beschouwd. De zes 'expressieve' kinderen hadden vijf keer zo veel Sociale Uitdrukkingen zoals 'hallo' en 'dag' in hun woordenschat als de vijf 'referentiële' kinderen. Vijf van de zes expressieve kinderen behoorden tot de laagste van de drie sociaal-economische groepen, terwijl alle vijf de referentiële kinderen tot de hoogste groep behoorden. Vier daarvan waren jongens. In hoofdstuk 6 wordt beargumenteerd dat de waarde die gehecht wordt aan de verschillende typen taalgebruik in deze socio-economische groepen verschilt.

De Zinsdelen Index

Het beschrijven van syntactische ontwikkeling vraagt een meetinstrument om het syntactische niveau van een sample van de spontane taal van een kind vast te stellen. De leeftijd van het kind en de Gemiddelde ZinsLengte (GZL) worden verworpen als meetinstrument en de Zinsdelen Index (ZI) wordt geïntroduceerd. Dit wordt behandeld in hoofdstuk 3. De ZI meet alleen op zinsniveau, en veronderstelt dat de verwerving op de lagere niveaus voorspeld kan worden vanuit het zinsniveau. De ZI omvat een aantal criteria en werkt als volgt: als een sample van de spontane taal een minimumpercentage van 5% zinsstructuren met een bepaald aantal zinsdelen in de mededelende zin bevat, geeft dit aantal zinsdelen aan tot welke Syntactische Fase het sample behoort. De Syntactische Fasen lopen van Fase II, met een minimum van 5% aan zinsstructuren met twee zinsdelen, tot Fase VI, met een minimum van 5% zinsstructuren met zes zinsdelen of samengestelde zinnen. Imperatieve zinnen en vraagzinnen worden berekend als hebben zij een extra zinsdeel. Volgens deze criteria is de Syntactische Fase van honderd Nederlandse meisjes en jongens in de leeftijd van 1;6 - 3;11 jaar vastgesteld op basis van taalsamples van 200 uitingen. Binnen de Syntactische Fasen werden alle syntactische structuren genoteerd. Dit resulteerde in een Nederlandse versie van LARSP: TARSP Taal Analyse Remediëring en Screening Procedure (Schlichting 1993). Behalve de zinsstructuren bevat TARSP alle werkwoord-, naamwoord-, adjectief- en voorzetselstructuren die met enige regelmaat in de taalsamples voorkwamen. Regelmaat is gedefiniëerd als het voorkomen van één token in 50% van de taalsamples binnen een bepaalde Syntactische Fase. Naast andere onderwerpen wordt de validiteit van de ZI onderzocht. Een van de manieren waarop dit onderzocht wordt is door te laten zien dat kinderen naarmate zij geïndiceerd zijn naar een hogere Fase, meer typen en meer tokens zins- en werkwoordstructuren gebruiken die ook door volwassenen gebruikt worden. Om dit te kunnen aantonen zijn de zins- en werkwoordstructuren van Fase II - VI beschreven en hun frequenties berekend.

Zinsstructuren

Hoofdstuk 4 beschrijft de ontwikkeling van de zinsstructuren. In de vroegste zinsstructuren - in Syntactische Fase II - combineren kinderen twee zinsdelen (onderwerp, werkwoord, lijdend of meewerkend voorwerp, enige typen complementen en bijwoordelijke bepalingen). In Fase III worden in de mededelende zin drie zinsdelen gecombineerd. De negatie, die verschijnt in

Fase III, is de eerste aanwijzing dat kinderen een propositionele houding ten aanzien van hun eigen zinnen beginnen te ontwikkelen. In Fase III verschijnt ook de imperatieve zin en in Fase IV de twee typen vraagzinnen. Dit wijst erop dat kinderen hun gesprekspartner in een ander perspectief gaan zien. Zij worden, in de termen van Vygotsky, communicatieve sprekers terwijl hun taal daarvoor meer egocentrisch was. In Fase V komen een aantal voorlopers van de ondergeschikte zin voor. In Fase VI verschijnt de samengestelde zin, zowel nevenschikkend als onderschikkend. De nevenschikkende zinnen zijn semantisch en syntactisch nog heel zwak. De persoonsvorm van het werkwoord in de ondergeschikte zin, die achteraan in de zin staat in tegenstelling tot de andere typen zinnen, wordt altijd correct geplaatst.

Het eerste zinsdeel in de zin: onderwerp, lijdend voorwerp, bijwoordelijke bepaling of vragend voornaamwoord, wordt vaak weggelaten, vooral in de vroege Syntactische Fasen. In Fase VI worden de meeste eerste zinsdelen gerealiseerd, behalve het lijdend voorwerp dat nog in bijna 50% van de vooropgeplaatste lijdende voorwerpen wordt weggelaten. Het verschijnsel van weggelaten eerste zinsdelen wordt toegeschreven aan uitvoeringsfactoren.

In de Nederlandse kindertaal vertonen de vroege zinsstructuren veel variatie in de volgorde van zinsdelen. In de meeste zinstypen komen alle volgorden voor die bij volwassenen gevonden worden. Hoewel men algemeen veronderstelt dat kinderen beginnen met één basisvolgorde, blijken Nederlandse kinderen al in het vroegste stadium van het gebruik van persoonsvormen zinnen met zowel de volgorde onderwerp-persoonsvorm als persoonsvorm-onderwerp te produceren.

Werkwoordstructuren

Naarmate kinderen zich syntactisch ontwikkelen volgens de ZI, bevatten hun uitingen vaker een werkwoord en laten zij een grotere variatie in werkwoordscategoriën en morfologische vormen zien. Daarbij heeft een hoger percentage een persoonsvorm. Deze ontwikkelingen worden beschreven in hoofdstuk 5.

De groei van het aantal persoonsvormen wordt toegeschreven aan de volgende factoren: het toenemend gebruik van het koppelwerkwoord, dat meestal in de persoonsvorm staat; het toenemend gebruik van de modale werkwoorden en de hulpwerkwoorden, die ook meestal in de persoonsvorm staan en met de vroeger geïsoleerde infinitieven of voltooid deelwoorden gecombineerd worden; de veranderingen in het gebruik van de verschillende lexicale werkwoordsklassen; de groei van het aantal persoonsvormen van werkwoorden die eerder alleen als infinitief of voltooid deelwoord gebruikt werden.

Een vergelijking tussen kinderen en volwassenen in het gebruik van de persoonsvormen van 26 frequente lexicale werkwoorden liet zien dat beide groepen bepaalde werkwoordsklassen meestal als persoonsvorm gebruiken, zoals de voor-werkwoorden (proform verbs) en cognitie-uitingswerkwoorden, en dat andere werkwoordsklassen meestal in andere vormen gebruikt worden, zoals de hoogtransitieve werkwoorden. De correlatie tussen de percentages in de persoonsvorm bij kinderen en volwassenen is .70. Volwassenen variëren meer dan kinderen in het al of niet gebruiken van persoonsvormen van deze werkwoorden. Het differentiële gebruik van persoonsvormen en andere

vormen wordt gerelateerd aan verschillende semantische contexten. Naarmate kinderen zich verder ontwikkelen zullen werkwoorden die voorheen bijna alleen in de persoonsvorm gebruikt werden, frequenter worden in andere vormen, en vice versa, maar voor deze ontwikkeling is een cognitieve groei nodig die leidt tot dit abstracter en communicatiever taalgebruik.

Conclusies

De resultaten van dit proefschrift worden besproken in hoofdstuk 6. Eerst wordt de validering van de ZI behandeld. Aangetoond wordt dat de ZI een valide en betrouwbaar instrument is om taalsamples aan een Syntactische Fase toe te wijzen. De ZI correleert hoog met de GZL en minder hoog met leeftijd. Kinderen van hoger opgeleide ouders ontwikkelen zich sneller dan van lager opgeleide ouders; meisjes ontwikkelen zich sneller dan jongens.

De theoretische conclusies zijn gericht op de verschillen tussen kindertaal en de taal van volwassenen. De syntactische ontwikkeling kan het beste beschreven worden als een ontwikkeling van, in Givón's termen, de pragmatische modus naar de syntactische modus van taalgebruik. Dit komt tot uiting in een groter scala van syntactische structuren waarvoor een sociale verandering naar een meer communicatieve spreekstijl vereist is. De frequentie van een bepaalde volgorde in de taal van de volwassenen houdt verband met het verwervingsmoment van die volgorde in de kindertaal. Tot slot worden de fouten in de kindertaal besproken. Geëindigd wordt met aanbevelingen voor toekomstig syntactisch onderzoek. Daarin ligt de nadruk op de noodzaak van het vergelijken van data van kinderen met die van volwassenen bij het onderzoek van de syntactische ontwikkeling van kinderen.

Curriculum Vitae

Johanna Elisabeth Paulina Theresia Schlichting werd in 1938 te Amsterdam geboren als zesde van een gezin van 12 kinderen. Zij behaalde in 1956 het eindexamen Middelbare Meisjesschool aan het Rooms-katholiek Lyceum voor Meisjes 'Fons Vitae'. In 1961 behaalde zij de akte M.O.a in de Engelse taal. Daarna gaf zij acht jaar les in het middelbaar onderwijs. In 1974 begon zij haar studie Sociale Wetenschappen aan de Rijksuniversiteit Utrecht, waar zij in 1981 *cum laude* afstudeerde in de orthopedagogiek op een scriptie getiteld 'Functionele systematische taaltherapie op grammaticale basis'. Het onderwerp van die scriptie heeft zij verder uitgewerkt in een onderzoeksproject dat in 1987 resulteerde in de uitgave van TARSP, Taal Analyse Remediëring en Screening Procedure, en in 1988, in samenwerking met G. de Koning, in de uitgave van FIT, Functionele Imitatie van Taalstructuren. Daarna begon zij met de voorbereiding van haar proefschrift dat een theoretische voortzetting vormt van TARSP. Dit onderzoek werd onderbroken door het onderzoeksproject Meten van Taalbegrip en Taalproduktie waaraan zij tot 1995 werkte. Naast haar wetenschappelijk onderzoek is Liesbeth Schlichting vanaf 1981 praktisch werkzaam geweest als orthopedagoog in het Speciaal Onderwijs aan slechthorende kinderen en kinderen met spraak- en taalmoeilijkheden. Zij werkt nu nog in dat onderwijs en leidt daarnaast een project betreffende de ontwikkeling van een leescurriculum voor dove kinderen. Liesbeth Schlichting heeft drie kinderen.

STELLINGEN

behorende bij het proefschrift van Liesbeth Schlichting: Discovering Syntax: An empirical study in Dutch language acquisition

1. Snelle eerste taalverwervers maken relatief meer syntactische fouten.

2. In een cross-sectionele studie wordt de ontwikkeling van syntactische structuren beter weergegeven door 'Proefpersoon Frequentie' dan door 'Token Frequentie' (Proefpersoon Frequentie verwijst naar het aantal proefpersonen binnen een cross-sectioneel corpus dat een bepaalde structuur gebruikt en Token Frequentie naar het aantal van die structuren dat door deze proefpersonen gebruikt wordt). Dit wordt mogelijk veroorzaakt door het proces van activatie van syntactische structuren.

3. De idiomatische uitdrukking: 'dat is in de soep gelopen' heeft meer kans opgeroepen te worden tijdens de warme maaltijd, terwijl de uitdrukking 'zij laat zich de kaas niet van het brood eten' eerder tijdens de broodmaaltijd geuit zal worden.

4. Het algemene idee dat het niet bevorderlijk zou zijn voor de taalverwerving om in het taalaanbod veel verkleinwoorden te gebruiken is onjuist, omdat dit het ritmegevoel van de taal en het leren van 't onzijdig lidwoord bevordert.

5. In het onderwijs van het Nederlands als tweede taal wordt er ten onrechte van uitgegaan dat de persoonsvorm van een transitief werkwoord, zoals in *zij bouwen*, makkelijker geleerd wordt dan structuren met een hulpwerkwoord gevolgd door de onbepaalde wijs, zoals in *zij moeten bouwen*.

6. De spellingswijziging van 1934/1947 beteekende wat betreft de schrijfwijze van klinkers in open lettergrepen een catastrofe voor het spellingsonderwijs.

7. Een geslachtelijk niet nader bepaald persoon behoort door vrouwen als *zij* aangeduid te worden.

The main aspect of this study is to discover some aspects of syntactic development in Dutch children.
Three aspects of syntactic development are dealt with: the one-word-stage, clause structure and the acquisition of the verb phrase.
The method for describing the one-word-sentence is a traditional design; the method for describing the sequences of development of the multi-word sentence and the verb phrase is a newly designed yardstick for syntactic development, using the clause element as its basic unit.
The theoretical background to this investigation is that child language should be seen from the linguistic perspective of adult language, and from the social and cognitive perspective of the child.

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